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NYCU CCS MAGAZINE



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在變動中領航，共同定義 AI 時代的新藍圖

時值盛夏，回顧過去一年，資訊學院在教研、人才培育與產學鏈結上持續創造佳績。身為全國第一個資訊工程學系，我們一路陪伴臺灣資訊產業成長，從早期真空管電腦到今日人工智慧時代，始終站在科技發展的最前線。面對 AI 快速崛起，我始終相信，AI 並非資工人的競爭者，而是資訊工程持續創新的成果。唯有具備思考力、創造力與解決問題能力的人才，才能引領 AI 發展，在變動中掌握未來。

深耕卓越：教師研究成果躍上國際

資訊學院持續朝向「有影響力的學院 (Impactful College)」邁進。今年，多位教師榮獲重要學術殊榮。陳志成教授榮獲國科會 114 年度傑出特約研究員，彰顯長年深耕研究的卓越成就；彭文志教授榮獲 114 年度國科會傑出研究獎，其「多維度時空序列資料分析」及「AI 驅動精準運動科學」研究成果，成功將 AI 應用於運動科技；陳昱芝助理教授、王邦任助理教授、丁羅邦芸助理教授、魏佑霖助理教授則獲教育部 115 年玉山青年學者，持續為學院注入國際研發能量，也彰顯本院在人工智慧、電腦架構、資訊安全及跨域應用上的競爭力。

人才培育：從研究獎項走向世界舞台

學生的研究成果同樣令人驕傲。彭文孝教授指導的陳詒欽同學榮獲 IEEE Taipei Section 114 年博士論文獎，林哲維、劉俊鍵同學榮獲中國電機工程學會 114 年青年論文獎，展現本院扎實的人才培育成果。此外，多篇學生論文更獲 NeurIPS、CVPR、ICRA、ACL 等世界頂尖國際會

議錄取，研究涵蓋機器學習、電腦視覺、機器人、自動駕駛、自然語言處理及智慧醫療等領域，讓世界看見陽明交大資訊人才的創新能力與國際影響力。

跨域創新：打造智慧醫療新布局

因應智慧醫療發展趨勢，資訊學院與醫學院正共同推動設立「人工智慧與醫學計算研究所」，整合 AI 與醫學專業，培育兼具臨床理解與演算法開發能力的跨域人才，實踐「從實驗室到病床 (Lab to Bedside)」的理念，推動 AI 技術落實於醫療應用。

產學攜手：建構 AI 實踐與創新教學

教學方面，我們完成「人工智慧與互動特色教室 (ED305)」建置，打造 AI 與人機互動實驗空間，並推動 AI 與 HCI 總整實作課程及 AI 導入軟體專案，鼓勵學生善用 AI 工具，同時培養批判思考、問題分析與驗證能力，建立面向未來的核心素養。

面對快速變遷的科技時代，我們不畏改變，更期待在 AI 浪潮中定義未來。讓我們持續保有熱情、勇於創新，攜手開創資訊學院下一個嶄新的里程碑。

資訊學院院長

謝續平

2026.07

Navigating Change and Co-defining the New Blueprint of the AI Era

As midsummer arrives, looking back over the past year, the College of Computer Science has continued to deliver outstanding achievements in teaching, research, talent cultivation, and industry-academic collaboration. As the nation's very first Department of Computer Science, we have accompanied the growth of Taiwan's IT industry every step of the way—standing at the forefront of technological advancement from the early days of vacuum tube computers to today's artificial intelligence era. Facing the rapid rise of AI, I firmly believe that AI is not a competitor to computer scientists, but rather the fruits of continuous innovation within computer science. Only talents equipped with critical thinking, creativity, and problem-solving capabilities can guide the development of AI and master the future amid transformation.

Deepening Excellence: Faculty Research Achievements Hit the International Stage

The College of Computer Science continues to forge ahead toward becoming an "Impactful College." This year, several of our faculty members received prestigious academic honors. Professor Jyh-Cheng Chen was awarded the NSTC 2025 Merit Research Fellow Award, highlighting his extraordinary achievements over years of dedicated research. Professor Wen-Chih Peng received the NSTC 2025 Outstanding Research Award; his research on "Multidimensional Spatiotemporal Time-Series Data Analysis" and "AI-Driven Precision Sports Science" has successfully applied AI to sports technology. Additionally, Assistant Professor Yu-Chih Chen, Assistant Professor Dennis Wang, Assistant Professor Lo Pang-Yun Ting, and Assistant Professor Yu-Lin Wei were awarded the Ministry of Education's 2026 Yushan Young Scholar grants, continuously injecting international R&D momentum into the college and demonstrating our competitiveness across artificial intelligence, computer architecture, cybersecurity, and interdisciplinary applications.

Talent Cultivation: Moving from Research Awards to the World Stage

Our students' research achievements are equally a source of immense pride. Yi-Hsin Chen, advised by Professor Wen-Hsiao Peng, won the IEEE Taipei Section 2025 Doctoral Dissertation Award, while Lin Che-Wei and Liu Chun-Chien received the Chinese Institute of Electrical Engineering (CIEE)

2025 Young Author Paper Award, showcasing the solid results of our talent cultivation. Furthermore, numerous student papers were accepted by top-tier international conferences worldwide, including NeurIPS, CVPR, ICRA, and ACL. Covering fields such as machine learning, computer vision, robotics, autonomous driving, natural language processing, and smart healthcare, these works allow the world to witness the innovative power and international impact of NYCU computer science talent.

Interdisciplinary Innovation: Crafting a New Layout for Smart Healthcare

In response to the growing trend of smart healthcare, the College of Computer Science and the School of Medicine are jointly promoting the establishment of the Institute of Artificial Intelligence and Medical Computing. By integrating AI with medical expertise, we aim to cultivate interdisciplinary talents who possess both clinical understanding and algorithm development capabilities—practicing the vision of "from lab to bedside" and promoting the real-world application of AI technology in healthcare.

Industry-Academic Collaboration: Building AI Practice and Innovative Teaching

In terms of education, we have completed the construction of the AI & Interaction Specialty Classroom, creating an experimental space for AI and human-computer interaction (HCI). We are also pushing forward capstone practical courses in AI and HCI, as well as AI-integrated software projects. These initiatives encourage students to make effective use of AI tools while nurturing their critical thinking, problem analysis, and verification abilities—building core competencies for the future.

In the face of a rapidly changing technological era, we do not fear change; rather, we look forward to defining the future within this AI wave. Let us maintain our passion, dare to innovate, and join hands to pioneer the next brand-new milestone for the College of Computer Science.

Shih-Ping Shih

Dean of the College of Computer Science

2026.07

陽明交大資訊學院 116 學年度增設 「人工智慧與醫學計算研究所」

文／劉禹辰

面對人工智慧技術快速發展與醫療健康領域日漸轉型，國立陽明交通大學（下統稱陽明交大）資訊學院宣布，將於 116 學年度與醫學院跨院合作成立「人工智慧與醫學計算研究所」

(Institute of Artificial Intelligence and Medical Computing)，致力培育兼具 AI 演算法能力與臨床醫學理解的跨域人才。此舉不僅回應全球智慧醫療浪潮，也展現陽明交大持續深化人工智慧布局的關鍵一步。

戰略布局：對接國家政策與產業痛點

近年來，人工智慧已逐步從技術研發走向實際應用，特別是在醫療領域中，從影像判讀、疾病預測到臨床決策輔助系統，AI 的角色日益關鍵。臺灣政府亦持續推動「健康臺灣」與「智慧國家方案 (DIGI+ 2.0)」，將智慧醫療列為國家發展重點，顯示 AI 與醫療整合已成為不可逆的趨勢。

在此背景下，陽明交大規劃成立人工智慧與醫學計算研究所 (AIMC)，正是對接國家政策與產業需求的重要布局。校方指出，未來智慧醫療系統的建構，亟需同時具備醫學場域理解與 AI 技術掌握的人才，而這類跨域整合型專才仍相對稀缺。透過研究所的設立，將有助於補足此一人才缺口，並強化臺灣在智慧醫療領域的整體競爭力。

以技術為經、醫學為緯：構建多維度的跨域課程體系

陽明交大長期深耕人工智慧與醫學領域，已建立完整的教學與研究基礎。資訊學院已有強大堅實的 AI 教學與研發能量，分別在資科工所、數據工程所、多媒體所、網工所有不同的發展與應用，醫學院的臨床資源與醫療研究能量極具特色，兩院皆具備國際頂尖水準。新設研究所將進一步整合這些既有優勢，成為連結兩院的重要樞紐。AIMC 將是首個跨光復、陽明兩校區合作成立的研究所，將發揮戰略關鍵作用，深度整合 AI 與高階醫學計算，建立跨領域 AI 應用的前瞻領導地位。AIMC 的課程規劃將結合理論與實務，除尖端 AI 技術外，將涵蓋醫學影像分析、生醫資料處理及臨床應用等內容，搭配專題研究訓練學生實作能力。

此外，研究所也將串聯校內多個人工智慧研

究中心及產學合作平台，促進研究成果導入實際醫療場域。校方強調，未來將以「從實驗室到病床 (Lab to Bedside)」為核心理念，提升研究轉譯與應用成效。

強大師資領航：資訊與醫學兩院聯手打造卓越

本研究所由資訊學院謝續平院長與醫學院王署君院長攜手推動，整合頂尖師資。除了核心專任之跨領域專家，另有超過 30 位來自兩院的支援師資，研究專長包含人工智慧、腦機介面、遺傳流行病學、免疫學研究、生技製藥產業以及醫學影像分析等等。透過「研究群」模式，進一步凝聚研究能量，提升整體教學與研究品質。

研究所預計每年招收 15 名碩士生，學生來源包含資訊、電機、醫學、中醫、生物資訊、護理、工程、統計及相關領域學生報考，同時歡迎在職人士進修，期望打造多元且跨界的學習環境。

精準學用對接：培育智慧醫療產業的領軍人才

根據產業分析，全球智慧醫療市場規模正以顯著速度擴大，國內 AI 醫療職缺亦呈現高度成長趨勢。具備醫學與 AI 雙專長的人才，已成為各大醫院、生技公司與新創企業競相爭取的對象。

人工智慧與醫學計算研究所畢業生將成為市場稀缺的複合型專才，除了傳統的 AI 演算法工程師外，更能精準對接醫療院所的智慧診療中心、生物醫藥資訊公司或醫療設備研發企業。更重要的是，此研究所亦高度重視科技倫理，將數據隱私與法規治理納入教學，確保學生在追求技術突破的同時，能守護生命倫理與醫療價值。

願景與學術展望：開啟智慧醫療新篇章

綜觀整體發展，人工智慧與醫學計算研究所的設立，不僅是單一系所的擴展，更象徵陽明交大在跨域整合上的重要里程碑。透過資訊與醫學的緊密結合，AI 技術將進一步拓展至具高度社會影響力的醫療應用場域。

展望 116 學年度，「人工智慧與醫學計算研究所」的正式運行，將為校內教研體系注入全新的活力。透過資訊科技與醫學科學的共榮，陽明交大亦將持續推動智慧醫療發展，讓 AI 真正成為守護大眾健康最強大的盟友。

NYCU College of Computer Science to Establish "Institute of Artificial Intelligence and Medical Computing" in Academic Year 2027

In response to the rapid development of artificial intelligence technology and the ongoing transformation of the healthcare sector, the College of Computer Science at National Yang Ming Chiao Tung University (hereinafter referred to as NYCU) has announced that it will collaborate across colleges with the College of Medicine to establish the "Institute of Artificial Intelligence and Medical Computing" (IAIMC) in the 116th academic year.

The institute is dedicated to cultivating interdisciplinary talents who possess both AI algorithm capabilities and clinical medical understanding. This initiative not only responds to the global wave of smart healthcare but also marks a critical step for NYCU in continuously deepening its layout in artificial intelligence.

Strategic Layout: Aligning with National Policy and Industry Needs

In recent years, AI has transitioned from laboratory research to practical applications. In the medical field, AI plays an increasingly critical role in image interpretation, disease prediction, and clinical decision support systems. The Taiwanese government continues to promote the "Healthy Taiwan" initiative and the "Smart Nation Program (DIGI+ 2.0)," prioritizing smart healthcare as a national development pillar.

Against this backdrop, the founding of the IAIMC is a strategic move to align with national policies and industry demands. University officials noted that the construction of future smart medical systems urgently requires professionals who understand both clinical settings and AI technology—a talent pool that remains relatively scarce. This institute will bridge this gap and bolster Taiwan's overall competitiveness in the global smart healthcare arena.

Bridging Technology and Medicine: A Multi-Dimensional Curriculum

NYCU has long cultivated the fields of artificial intelligence and medicine, establishing a solid foundation in teaching and research. The College of Computer Science possesses strong and robust AI teaching and R&D capabilities, with distinct developments and applications across the Institute of Computer Science and Engineering, the Institute of Data Science and Engineering, the Institute of Multimedia Engineering, and the Institute of Network Engineering. Meanwhile, the College of Medicine offers highly distinctive clinical resources and medical research capabilities. Both colleges possess world-class standards, and the newly established institute will further integrate these existing advantages, serving as an important hub connecting them.

IAIMC will be the first institute established through collaboration across both the Guangfu and Yangming campuses. It will play a key strategic role, deeply integrating AI and high-end medical computing to establish a forward-looking leadership position in interdisciplinary AI applications.

The curriculum of IAIMC will combine theory and practice. In addition to cutting-edge AI technologies, it will cover medical image analysis, biomedical data processing, and clinical applications, complemented by research projects to train students' hands-on capabilities. Furthermore, the institute will connect multiple AI research centers and industry-academia collaboration platforms within the

university, facilitating the translation of research results into actual clinical settings. The university emphasized that the future core philosophy will be "Lab to Bedside" to enhance translational research and application effectiveness.

Elite Faculty: A Joint Venture Between Two Colleges

The institute is jointly promoted by Dr. Shih-Pyng Shieh, Dean of the College of Computer Science, and Dr. Shuu-Jiun Wang, Dean of the College of Medicine, integrating top-tier faculty. In addition to core full-time interdisciplinary experts, there are more than 30 supporting faculty members from both colleges. Their research expertise spans artificial intelligence, brain-computer interfaces, genetic epidemiology, immunology research, biotechnology and pharmaceutical industries, and medical image analysis. Through a "research group" model, the institute will further consolidate research energy and elevate overall teaching and research quality.

The institute expects to recruit 15 master's students annually. Applicants from computer science, electrical engineering, medicine, traditional Chinese medicine, bioinformatics, nursing, engineering, statistics, and other related fields are welcome to apply. In-service professionals are also welcome to enroll, creating a diverse and cross-disciplinary learning environment.

Career Prospects: Leading the Smart Healthcare Industry

According to industry analysis, the global smart healthcare market size is expanding at a significant rate, and domestic AI healthcare job openings are showing a high growth trend. Talents with dual expertise in medicine and AI have become highly sought-after candidates for major hospitals, biotech companies, and startups.

Graduates of the Institute of Artificial Intelligence and Medical Computing will become highly sought-after, multi-disciplinary specialists in the market. In addition to traditional AI algorithm engineers, they can precisely align with smart diagnosis and treatment centers in medical institutions, biomedical information companies, or medical device R&D enterprises. More importantly, the institute attaches great importance to technological ethics, incorporating data privacy and regulatory governance into its teaching to ensure that while students pursue technological breakthroughs, they can also safeguard bioethics and medical values.

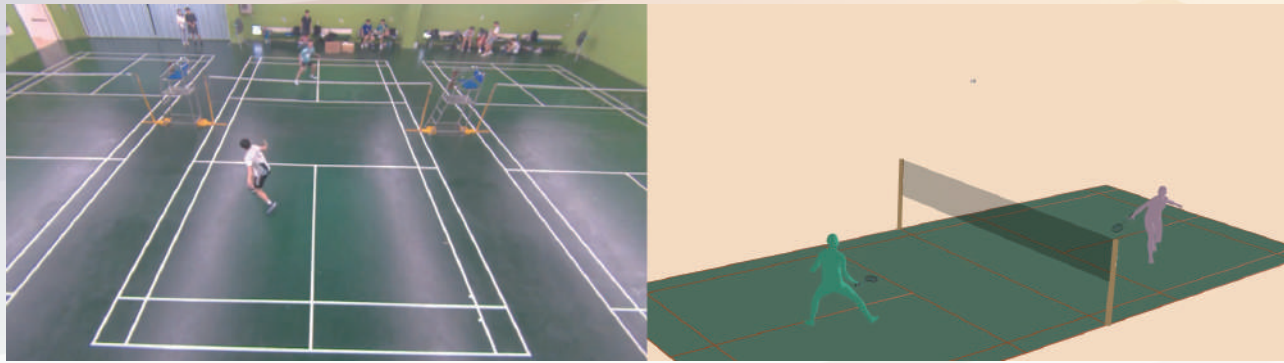
Vision and Academic Outlook

Overall, the establishment of the Institute of Artificial Intelligence and Medical Computing is not merely the expansion of a single academic department, but symbolizes a major milestone for NYCU in interdisciplinary integration. Through the close combination of computer science and medicine, AI technology will further expand into medical application fields with high social impact.

Looking forward to the 116th academic year, the official launch of the "Institute of Artificial Intelligence and Medical Computing" will inject brand-new vitality into the university's teaching and research system. Through the mutual prosperity of information technology and medical science, NYCU will continue to drive the development of smart healthcare, making AI a powerful ally in safeguarding public health.

從球場到數位雙生 3D 重建技術打開羽球運動新視界

文／王昱舜教授、梁曉鄺 多媒體工程研究所碩士生、盧孟璇 多媒體工程研究所碩士生、謝文棋 多媒體工程研究所碩士生



羽球，是一項在高速與立體空間中進行的運動。然而長久以來，不論是賽事轉播、訓練分析，或學術研究，多半仍仰賴平面的 2D 影像來理解這項運動。鏡頭雖能捕捉勝負，卻難以完整呈現球在空中的真實軌跡、球員在場上的空間移動，以及擊球瞬間細微卻關鍵的動作差異。

來自國立陽明交通大學資訊工程學系的研究團隊，正嘗試翻轉這樣的觀看與分析方式。由資工系王昱舜、彭文志教授領軍的研究團隊，所研發的「從多視角影片中精準重建三維羽球比賽」技術，於 2025 年榮獲「未來科技獎」，肯定其在人工智慧、電腦視覺與運動科技跨域整合上的創新突破。

這項獲獎技術的核心理念，是為一場完整的羽球比賽打造高度忠實的「數位雙生（Digital Twin）」。研究團隊透過架設於球場四周的多台同步攝影機，從不同視角同時捕捉比賽畫面，再結合深度學習與幾何推估方法，精準追蹤高速移動的羽球、重建球員的三維姿態，甚至推算球拍在擊球瞬間的角度與方向，最終將整場比賽完整還原於真實球場座標之中。

羽球的重建難度，遠高於多數球類運動。羽球體積小、速度快，擊球後的飛行軌跡瞬息萬變；球員的動作則涉及全身協調與複雜的步法轉換。研究團隊必須讓 AI 在極短時間內，同時理解多個動態目標之間的關係，並保持高精度與穩定性。這正是該技術能脫穎而出、獲得未來科技獎評審青睞的關鍵之一。

不同於僅止於視覺呈現的影像技術，這項研究真正的價值，在於它為運動分析建立了一個全新的基礎。當球員被「定錨」在真實球場空間中，跑位、戰術布局與動作結構便不再只是模糊的影像印象，而是可被量化、比較與視覺化的研究資料。這對於職業運動中的生物力學分析、訓練優化與傷害預防，提供了更精準且客觀的工具。

值得一提的是，研究團隊並未將這項技術侷

限於職業賽事或實驗室環境，而是積極思考其在日常運動場景中的應用潛力。透過相對平價的多攝影機架設與後端軟體系統，一般球館未來也有機會升級為「智慧球館」。業餘球友在比賽結束後，便能透過系統自動生成的 3D 回放，從不同視角檢視自己的表現，甚至獲得 AI 所提供的動作分析建議。

對學習者而言，這樣的 3D 重建系統，猶如一位不知疲倦且極度客觀的數位教練。系統可將個人的揮拍動作與專業選手模型並列比較，指出動作結構上的差異，並提醒可能潛藏的運動傷害風險。跑位熱區、步法效率與場地覆蓋率，也能被清楚呈現，為訓練與教學提供具體依據。

在觀賽體驗層面，這項技術同樣展現出前瞻性。當一場比賽被完整地三維重建後，觀眾不再受限於導播選擇的單一視角，而能自由切換觀看方式：俯瞰全場理解戰術布局，或切換至球員第一人稱視角，感受高速來球迎面而來的壓迫感。若進一步結合虛擬實境（VR）設備，更能營造近乎親臨現場的沉浸式觀賽體驗，降低新觀眾理解比賽的門檻。

王昱舜、彭文志教授團隊的這項獲獎成果，充分展現人工智慧與電腦視覺在運動科技領域中的深度整合潛力。透過將多視角影像、三維空間建模與運動分析結合，研究不再停留於演算法層次，而是發展出可實際部署於真實球場、回應訓練、觀賽與推廣需求的完整系統，為運動科技的落地應用奠定關鍵基礎。

科技的價值，從來不只是追求更高的精準度，而在於它如何重新塑造我們理解運動的方式。當 3D 重建技術得以完整捕捉羽球這項高速、立體且瞬息萬變的運動，每一次揮拍、跑動與關鍵得分，都能轉化為可分析、可重現、也可分享的數位體驗。這項榮獲 2025 未來科技獎的研究成果，不僅拓展了運動科技的應用想像，也示範了前沿科技如何走出實驗室，成為連結競技、休閒與大眾體驗的重要橋樑。

From the Court to the Digital Twin: 3D Reconstruction Reshaping the Future of Badminton

Badminton is a fast-paced sport played in a dynamic, three-dimensional space. Yet for decades, match broadcasts, training analysis, and academic research have relied largely on two-dimensional images to interpret the game. While conventional video can capture the outcome of rallies, it often fails to accurately represent the shuttlecock's flight path, players' movement across the court, and the subtle but critical technical differences that occur at the moment of impact.

A research team from the Department of Computer Science at National Yang Ming Chiao Tung University is transforming the way badminton is analyzed and understood. Led by Professors Yu-Shuen Wang and Wen-Chih Peng, the team has developed a technology called "High-Fidelity 3D Reconstruction of Badminton Matches from Multi-View Video." By seamlessly integrating artificial intelligence, computer vision, and sports technology, the innovation earned the 2025 Future Tech Award for its groundbreaking impact.

At the core of this technology is the creation of a highly precise digital twin of an entire match. Multiple synchronized cameras positioned around the court capture the action simultaneously from different angles. By combining deep learning with geometric estimation techniques, the system accurately tracks the high-speed shuttlecock, reconstructs players' three-dimensional poses, and even identifies the racket's angle and direction at the moment of contact. The result is a faithful reconstruction of the entire match within a real-world coordinate system.

Reconstructing badminton, however, is far more challenging than most ball sports. The shuttlecock is small, extremely fast, and highly unpredictable, with its trajectory changing instantly after each hit. Players' movements demand full-body coordination and complex footwork transitions. To address this, the AI must interpret multiple fast-moving targets simultaneously within fractions of a second while maintaining both precision and stability. This technical sophistication is one of the key reasons the system stands out and impressed the Future Tech Award judges.

Beyond visual presentation alone, the true value of the research lies in establishing a new foundation for sports analysis. By anchoring players within the real court space, positioning, tactics, and movement mechanics become quantifiable, comparable, and visualizable data rather than vague impressions. This enables more accurate and objective tools for biomechanical analysis, training optimization, and injury prevention in professional sports.

Importantly, the team has not confined the technology to elite competitions or laboratory settings. They are actively exploring applications in everyday sports environments. With relatively affordable multi-camera setups and backend software, ordinary gyms and courts could one day be upgraded into "smart arenas." After a match, amateur players could review automatically generated 3D replays, examine their performance from multiple angles, and receive AI-powered feedback and movement analysis.

A 3D reconstruction system acts as a constant and highly objective digital coach for learners. It allows players to compare their swing mechanics with those of professional players, highlighting variations in their movement patterns and identifying potential sports injury risks. Additionally, the system offers visual movement Heatmaps, assesses footwork efficiency, and evaluates court coverage, providing concrete evidence to enhance training and instruction.

The technology also transforms the spectator experience. Once a match is reconstructed in three dimensions, viewers are no longer limited to the single angle chosen by a broadcast director. Instead, they can freely switch perspectives—overlooking the entire court to analyze tactics or adopting a first-person view to feel the intensity of high-speed shots coming straight at them. When combined with virtual reality (VR), the system creates an immersive, near courtside experience that lowers the barrier for new audiences to understand and enjoy the game.

This award-winning achievement by the research team led by Professors Yu-Shuen Wang and Wen-Chih Peng highlights the strong synergy between artificial intelligence and computer vision in sports technology. By integrating multi-view imaging, 3D spatial modeling, and sports analytics, the team has built a comprehensive system that can be deployed in real-world venues and applied across training, viewing, and sports promotion. It represents a critical step toward making advanced sports technology practical and accessible.

Ultimately, the value of technology lies not merely in greater precision, but in reshaping how we understand sports. By fully capturing the speed, depth, and complexity of badminton, 3D reconstruction turns every swing, step, and decisive point into a digital experience that can be analyzed, reproduced, and shared. Recognized with the 2025 Future Tech Award, this research expands the possibilities of sports technology and demonstrates how cutting-edge innovation can move beyond the lab to connect competition, recreation, and the broader public.

建構智慧醫療新維度：以深度異質性多模態學習技術提升心衰竭風險預測準確率

文／劉禹辰

在精準醫療（Precision Medicine）的發展進程中，如何整合分散且異質的醫療數據以提升預測準確率，一直是數據科學領域的熱門課題。

國立陽明交通大學資訊工程系曾新穆教授與其團隊，近期研發出一項應用於心衰竭病人再入院與死亡風險預測之「深度異質性多模態學習技術」，不僅在技術層面實現了多源數據的深度融合，更在實際臨床驗證中展現出優於傳統醫學方法的表現，連續榮獲 2025 未來科技獎及第 32 屆東元獎（電機／資訊／通訊科技類）之肯定，為台灣智慧醫療研究樹立新標竿。

技術核心：攻克醫療數據的「異質性」難題

這項研究的根基源於曾新穆教授在數據探勘與巨量資料分析領域超過二十年的深耕，身為 IEEE Fellow，曾教授早年在高效用探勘與高效率演算法上的貢獻，為處理龐雜醫療數據奠定了深厚的底層邏輯。

在此次針對心衰竭的研究中，團隊並非單純應用現有的醫療 AI 模型，而是針對臨床數據模態不一、資訊碎片化的特點，提出了一套全新的深度學習架構。這套架構的核心在於將病患的結構化病歷、時序性心電圖（EKG，源自德文 Elektrokardiogramm）以及非結構化的胸腔 X 光影像進行深度整合，克服了過去單一數據源在預測複雜併發症時準確度不足的學術瓶頸。

研究貢獻：從理論演算法到臨床驗證 心衰竭風險預測的重大突破

心衰竭是高齡化社會中導致長者住院的主要原因之一，且具備極高的再入院率與死亡風險。曾教授與台北榮民總醫院鄭浩民醫師團隊合作研發的最新技術，便是為了突破傳統醫學預測的侷限。

在技術層面，該研究成功克服了異質數據間

表徵不一致的難題。團隊開發出的異質表徵融合技術，能精準萃取不同臨床模態的深層特徵，並透過動態權重調整策略，在模型訓練過程中自動優化各類資訊的貢獻度。這種機制確保了模型在面對資訊缺失或數據不平衡的真實臨床情境時，仍能保有極高的穩定性。研究結果顯示，該集成式異質分類器堆疊技術在預測病患短期及長期之再入院與死亡風險上，受試者工作特徵 AUC（Area Under the Curve，即曲線下面積）達到 0.8 以上，其效能顯著優於目前國際通用的傳統風險預測模型（如 ADHERE 或 GWTG）。

該研究亦強調研發成果落實於產業應用的科學價值。此項技術目前正於多家醫學中心進行驗證，能有效輔助醫師進行預後決策，並精確篩選高風險族群，進而提升慢性病照護品質並降低醫療資源成本。這不僅是技術的展示，更是曾教授長期推動「醫工結合」與「數位醫學」轉型的具體實踐。

展望未來：以科技守護每一個心跳

未來，曾新穆教授與團隊將持續整合生成式 AI 與 LLM（Large Language Model，即大語言模型），開發更具可解釋性的智慧型早期預警技術，目標是讓 AI 像地震警報一樣，在危機發生前發出警訊，為病患爭取最關鍵的黃金時間。

此外，這類前瞻技術不僅將應用於心血管疾病、失智症等智慧醫療領域，未來更將延伸至環境監測與智慧製造等多元場域。透過整合政府資源與產學聯盟，曾教授旨在連結國際頂尖學術機構，建立大規模的國際合作專案與創新平台。這不僅是技術的研發，更是要建構一個具高產值與創造力的生態系統，從而強化台灣在智慧科技領域的全球影響力，讓科技研發真正轉化為推動社會發展與守護生命健康的核心動能。

Constructing a New Dimension in Smart Healthcare: Advancing Heart Failure Risk Prediction Accuracy through Deep Heterogeneous Multimodal Learning Technology

In the evolutionary journey of precision medicine, integrating scattered and heterogeneous medical data to enhance prediction accuracy has consistently remained a prominent research focus in data science.

Recently, Professor Vincent S. Tseng, a Chair Professor in the Department of Computer Science at National Yang Ming Chiao Tung University (NYCU), and his research team developed a pioneering "Deep Heterogeneous Multimodal Learning Technology" for predicting readmission and mortality risks in patients with heart failure. This technology achieves deep fusion of multi-source data at the technical level and outperforms traditional medical approaches in clinical validation. It was consecutively honored with the 2025 Future Tech Award and the 32nd TECO Award (Electrical Engineering/Computer Science/Communications Technology Category), setting a new benchmark for smart healthcare research in Taiwan.

Technical Core: Overcoming the "Heterogeneity" Challenge in Medical Data

The foundation of this research stems from Professor Tseng's more than two decades of deep cultivation in data mining and Big Data analytics. As an IEEE Fellow, Professor Tseng's early contributions to high-utility mining and high-efficiency algorithms provided a solid underlying logic for processing complex, massive medical data.

In this heart failure study, the team did not simply apply existing medical AI models. Instead, addressing the fragmented nature and mismatched modalities of clinical data, they proposed an entirely new deep learning architecture. The core of this architecture lies in the deep integration of structured electronic health records, longitudinal electrocardiograms (EKG), and unstructured chest X-ray images. This approach overcomes the previous academic bottleneck where single-source data lacked sufficient accuracy when predicting complex complications.

Research Contribution: From Theoretical Algorithms to Clinical Validation—A Major Breakthrough in Heart Failure Risk Prediction

Heart failure is one of the leading causes of hospitalization among the elderly in aging societies, carrying an exceptionally high rate of readmission and risk of mortality. Developed in collaboration with Dr. Hao-Min Cheng's team at Taipei Veterans General Hospital, Professor Tseng's latest technology aims to break through the limitations of traditional medical forecasting.

At the technical level, the study successfully resolved the challenge of inconsistent representations among heterogeneous data. The team developed a heterogeneous representation fusion technique that

precisely extracts deep features from different clinical modalities, while utilizing a dynamic weight adjustment strategy to automatically optimize the contribution of each information source during the model training process. This mechanism ensures that the model maintains exceptionally high stability when confronting real-world clinical scenarios characterized by missing information or imbalanced data. Research results demonstrate that this ensemble-based heterogeneous classifier stacking technology achieves an Area Under the Curve (AUC) of over 0.8 in predicting both short-term and long-term readmission and mortality risks, significantly outperforming internationally recognized traditional risk prediction models such as ADHERE or GWTG.

The study also underscores the scientific value of translating these research and development achievements into practical industrial applications. Currently undergoing validation across multiple medical centers, this technology effectively assists physicians in making prognostic decisions and accurately screening high-risk patient populations, thereby enhancing the quality of chronic disease care and reducing healthcare costs. This represents not only a demonstration of technological capability, but also a concrete realization of Professor Tseng's long-term commitment to driving the integration of medicine and engineering, alongside the transformation of digital medicine.

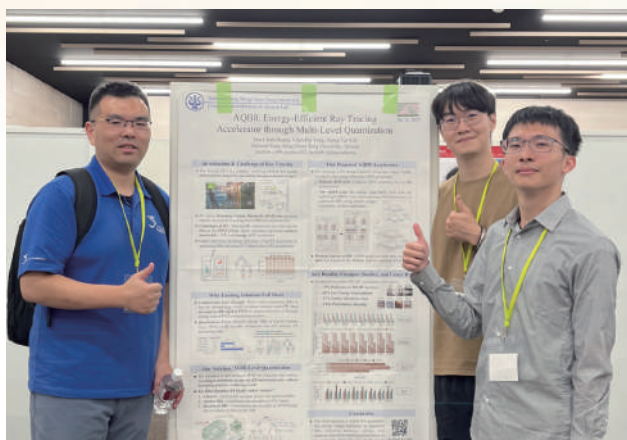
Future Outlook: Safeguarding Every Heartbeat with Technology

Looking ahead, Professor Tseng and his team will continue to integrate Generative AI and Large Language Models (LLMs) to develop highly explainable, intelligent early-warning technologies. The ultimate goal is to make AI act like an earthquake early warning system—issuing alerts before a crisis occurs to buy critical golden time for patients.

Furthermore, these forward-looking technologies will not only be applied to smart healthcare fields such as cardiovascular diseases and dementia but will also extend to diverse arenas like environmental monitoring and smart manufacturing in the future. By combining government resources and industry-academia alliances, Professor Tseng aims to connect with top international academic and research institutions to establish large-scale international collaborative projects and innovation platforms. This initiative is not merely about R&D; it aims to construct a highly productive and creative ecosystem, thereby strengthening Taiwan's global influence in smart technology and truly transforming technological R&D into a core driving force that propels societal development and safeguards human health.

陽明交大葉宗泰團隊連奪 ISCA 榮譽攻克 AI 耗電與記憶體瓶頸

文／林珮雯



在計算機科學界，有一座被譽為「電腦架構奧林匹克」的聖殿——ISCA（國際電腦架構交談會）。這項會議的入選門檻極高，代表了全球硬體設計與晶片架構的最前瞻思維。過去十年，整個台灣在該會議的發表量寥寥可數，平均一年不到一篇。然而，這項學術天花板，在近兩年被陽明交通大學資訊工程系葉宗泰教授的研究團隊連續打破。

葉宗泰老師團隊憑藉 Omni-LUT 研究再次挺進 ISCA 2026，這不僅是該團隊連續第二年插旗這座聖殿，更是在機器人頂級會議 ICRA 同時發表了突破性成果。這項成就背後，關鍵在於這兩篇論文分別解決了當前科技界最頭痛的兩個問題：「AI 太吃記憶體」與「高畫質運算太耗電」。

產業界當前最頭痛的痛點是資料搬移量過大導致的運算瓶頸。葉教授深入淺出地指出，無論是當紅的大語言模型（LLM）還是追求極致真實的 3D 影像渲染技術，核心難題都在於必須頻繁地在晶片與記憶體之間搬動龐大資料。這就像交通堵塞一樣，耗費了絕大部分的電力與時間，導致運算又慢又發燙。因此，如何「搬動更少的資料」卻能達到同樣精準的結果，成為未來半導體與 AI 產業最關鍵的技術轉型方向，這也是當前全球科技巨頭都在競爭的技術制高點。

在針對大語言模型的 Omni-LUT 研究中，團隊挑戰了當前長文本處理的極限。雖然先

前 Microsoft Research 已提出利用「查表法」（Look-up Table）搭配超低精量化來取代傳統計算，藉此縮減晶片面積，但該技術尚未能解決「KV Cache」的量化難題。由於 KV Cache 是在模型執行時動態生成的，難以預先處理，導致在面對超長文件時，記憶體需求仍會急劇攀升。葉老師團隊針對這一缺口，研發出與 Google 策略不同、且能與查表加速器完美契合的新型量化機制，並改良了硬體架構。這項突破讓 AI 在處理超長文本時，能大幅降低 KV Cache 對記憶體的壓迫，讓長文本運算在常規硬體上跑得更快、更穩。

而在 3D 影像渲染領域，光線追蹤技術雖然能生成逼真影像，卻因需要模擬海量光線並頻繁搬移資料，即便是當前市面上最高階的顯示卡運算起來也相當吃力。葉老師團隊研發出的 AQB8 技術，突破了業界過去習慣的高精度計算框架，找到了一套全新的算法，能將資料大幅降至低精度卻幾乎不失真。這項技術透過大幅減少資料搬移量，讓行動裝置也能以低功耗跑出電影等級的細緻畫面，去年在國際展示時更吸引了多家晶片大廠的高度關注，驚訝於這項能顯著降低功耗且不影响影像品質的新型算法。

展望未來，葉宗泰老師正積極將這兩項核心技術——「光線追蹤加速架構」與「硬體感知量化壓縮」——推向更寬廣的應用領域。團隊目前嘗試將光線追蹤的加速邏輯轉化為量子電腦電路模擬的利器，並同步將記憶體壓縮技術投入資訊安全領域。葉老師與 Qualcomm 合作的創新計畫已榮獲 2025 Qualcomm Innovation Fellowship in East Asia，其目標是利用量化壓縮特性優化「同態加密」的運算效率，讓 AI 在處理加密資料時，既能保證隱私不外洩，又能維持極高的運算速度。連續兩年插旗 ISCA，證明了台灣團隊不僅具備世界級的晶片製造實力，更有能力在「軟硬體協同設計」上定義未來的算力規則，並將這套節能高效的架構推展至量子運算與數位安全等更多元的應用場景。

NYCU's Professor Tsung-Tai Yeh and Team Sweep ISCA Honors, Breaking AI Power and Memory Bottlenecks

In the field of computer science, there is a sanctuary known as the "Olympic Games of Computer Architecture"—ISCA (International Symposium on Computer Architecture). With an extremely high bar for acceptance, this conference represents the most forward-thinking innovations in global hardware design and chip architecture. Over the past decade, Taiwan's presence at ISCA has been scarce, averaging less than one paper per year. However, this academic ceiling has been shattered for two consecutive years by the research team led by Professor Tsung-Tai Yeh from the Department of Computer Science at National Yang Ming Chiao Tung University (NYCU).

Professor Yeh's team has once again advanced to ISCA 2026 with their Omni-LUT

research. This marks the team's second consecutive year planting their flag in this prestigious venue, alongside simultaneous breakthrough results published at ICRA, a top-tier robotics conference. The success stems from two papers that address the tech industry's most pressing headaches: "AI's excessive memory consumption" and "the high power demands of high-definition computing."

Solving the "Traffic Jam" of Data Transfer

The industry's primary bottleneck is the massive volume of data movement. Professor Yeh explains that whether it is popular Large Language Models (LLMs) or ultra-realistic 3D rendering, the core challenge lies in the frequent transfer of enormous amounts of data between the chip and the memory. Similar to a traffic jam, this process consumes the vast majority of power and time, causing systems to run slowly and overheat. Consequently, moving less data while maintaining precise results has become the most critical technological pivot for the future of the semiconductor and AI industries.

Omni-LUT: Redefining Long-Context AI

In their Omni-LUT research targeting LLMs, the team pushed the limits of long-context processing. While Microsoft Research previously proposed using "Look-up Tables" (LUTs) with ultra-low precision quantization to replace traditional calculations and reduce chip area, that technology struggled with the quantization of the "KV Cache." Since KV Cache is generated dynamically during model execution, it is difficult to pre-process, causing memory demands to skyrocket when handling ultra-

long documents. Professor Yeh's team developed a new quantization mechanism—distinct from Google's strategy—that perfectly integrates with LUT accelerators. This breakthrough significantly reduces the memory pressure of the KV Cache, allowing long-context AI operations to run faster and more stably on conventional hardware.

AQB8: Cinematic Graphics with Low Power

In the realm of 3D rendering, Ray Tracing technology produces lifelike images but requires simulating a sea of light rays and frequent data movement. Even the highest-end graphics cards currently on the market struggle with the workload.

Professor Yeh's team developed AQB8 technology, breaking away from traditional high-precision computing frameworks. They discovered a new algorithm capable of compressing data to low precision with virtually no loss in quality. By drastically reducing data movement, this technology enables mobile devices to run movie-quality graphics with low power consumption. Last year, this algorithm garnered significant attention from major global chipmakers, who were impressed by its ability to lower power usage without compromising visual fidelity.

Future Horizons: From Quantum Computing to Cybersecurity

Looking ahead, Professor Yeh is actively expanding these core technologies—"Ray Tracing Acceleration Architecture" and "Hardware-Aware Quantized Compression"—into broader fields. The team is currently adapting ray tracing logic for Quantum Circuit Simulation and applying memory compression to Information Security.

The team's innovative project with Qualcomm was awarded the 2025 Qualcomm Innovation Fellowship in East Asia. The goal is to use quantization compression to optimize the efficiency of "Homomorphic Encryption," ensuring that AI can process encrypted data at high speeds without compromising privacy.

By securing a place at ISCA for two years running, this NYCU team has proven that Taiwan not only possesses world-class chip manufacturing capabilities but also the expertise in "Hardware-Software Co-Design" to define the future of computing rules across AI, quantum computing, and digital security.

智慧城市之複雜問題的 AI 解決方案

文／胡翔祐

隨著都市化浪潮持續推進，現代城市所面臨的挑戰已不再只是人口擴張及基礎建設擴充，從交通壅塞、公共安全、能源調度，到高齡照護與數位治理等，每一項議題都牽動著城市運作效率與居民生活品質。而在這些看似互不相關的難題背後，卻有一項共通點——他們都伴隨著龐大且瞬息萬變的資料流，諸如影像資訊、感測數據、地理位置、通訊訊號與市民回饋內容等。倘若依賴傳統人工管理模式，已無法因應快速變動的城市節奏。為此，國立陽明交通大學推動「智慧城市之複雜問題的 AI 解決方案」計畫，期許能透過整合資訊工程、智慧計算與電機等跨領域專業，聚焦智慧移動、智慧行為感知，以及安全可信的智慧對話系統，致力打造兼具前瞻性與實踐力的城市級 AI 技術。

在智慧移動領域，團隊以科技重新描繪城市流動的樣貌，運用 Wi-Fi 訊號、地磁資訊與多元感測資料，建立高精度室內定位模型，若遇到資料缺漏的場域，便透過 AI 推估與補全，大幅降低人工建置成本。此技術可廣泛應用於醫院、百貨公司、地下停車場與大型轉運站，協助民眾迅速抵達目的地，也讓場域管理更具效率與彈性。此外，團隊亦開發多鏡頭追蹤技術，突破傳統監控系統在不同攝影機之間無法連續辨識同一人物或車輛的限制。透過空間理解與軌跡分析，系統得以精準掌握人流與車流脈動，為交通疏導、公共安全與大型活動管理注入更高層次的智慧能量。

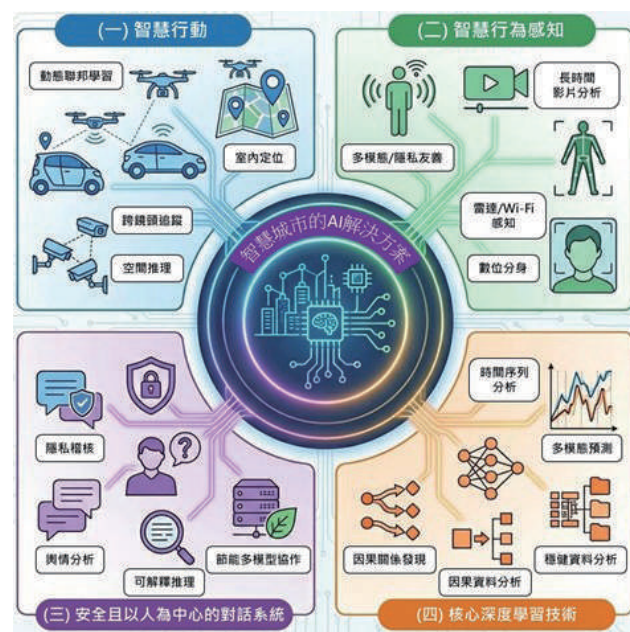
在智慧行為感知方面，研究團隊進一步賦予城市「理解人類行為」的能力。透過長時間影片分析技術，AI 不僅能看見畫面，更能洞察事件脈絡與異常徵兆，如跌倒、衝突或危險聚集，協助相關單位及早介入、迅速應變。儘管非常方便，但相信許多人對這樣的技術抱持著高度的隱私疑慮，為此，除了影片分析技術外，本計畫還積極發展兼顧隱私的感知技術，如毫米波雷達姿態分析與 Wi-Fi 訊號行為辨識，不需攝影機即可偵測人體動作與活動狀態。未來，這類技術將適合導入智慧住宅、醫療院所與長照中心，可在保障個人隱私的同時，即時守護長者安全，更提升照護品質與生活尊嚴，也展現智慧城市以人為本的核心價值。

在市民服務層面，本計畫導入大型語言模型技術，打造安全且可信任的智慧對話系統。未來民眾可透過自然語言，輕鬆查詢交通資訊、停車

空位、補助申請流程或公共設施使用方式，使數位服務更貼近生活日常。為避免 AI 產生錯誤資訊或衍生隱私風險，團隊同步研發「資料來源稽核、推理品質優化與節能型多模型協作技術。」使系統回應更準確、更透明，也更適合部署於政府與企業服務場域。當科技不再冰冷艱澀，而能以自然、可信的方式與人互動，智慧城市的願景才真正落實於市民生活之中。

本計畫的另一項亮點，在於高度重視產學合作與實務驗證。相關成果已逐步應用於智慧製造、智慧車險、水質監測、醫學影像與多元感測等場域，讓研究成果不止步於實驗室與論文，而是真正走入產業現場、回應社會需求。透過企業提供真實問題與應用場景，學界則挹注前瞻技術與研發能量，形成相輔相成的創新循環，同時培育兼具理論基礎與實務能力的新世代人才。

整體而言，智慧城市的價值，不在於鋪設多少設備、導入多少系統，而在於科技是否真正改善人們的生活。這次的國科會學術攻頂計畫，展現了台灣學研團隊將尖端技術轉化為社會影響力的實力。當 AI 能協助舒緩交通壓力、提升公共安全、守護高齡社會、促進產業效率，並讓市民更便捷地取得服務時，智慧城市便不再只是紙上談兵，是正在逐步實現的生活進化藍圖，隨著產學合作持續深化、技術應用不斷落地，相信在不久後的未來，人工智慧勢將成為城市永續發展最堅實的推手。



AI Solutions for Complex Problems in Smart Cities

As the wave of urbanization continues to advance, the challenges faced by modern cities are no longer limited to population expansion and infrastructure growth. From traffic congestion, public safety, and energy dispatching to elderly care and digital governance, every issue directly impacts urban operational efficiency and the quality of life for residents. Behind these seemingly unrelated challenges lies a common thread: they are all accompanied by vast and rapidly changing data streams, such as video information, sensor data, geographical locations, communication signals, and citizen feedback. Relying on traditional manual management modes is no longer sufficient to cope with the fast-paced rhythm of contemporary cities. To this end, National Yang Ming Chiao Tung University has launched the "AI Solutions for Complex Problems in Smart Cities" project. By integrating cross-disciplinary expertise in computer science, intelligent computing, and electrical engineering, the project focuses on smart mobility, intelligent behavioral sensing, and secure, trustworthy intelligent dialogue systems, striving to create city-level AI technologies that are both forward-looking and practical.

In the field of smart mobility, the team is redefining urban flow through technology. By leveraging Wi-Fi signals, geomagnetic information, and multi-modal sensor data, they have established high-precision indoor positioning models. In scenarios where data is missing, AI is employed for estimation and completion, significantly reducing manual setup costs. This technology can be widely applied in hospitals, department stores, underground parking lots, and major transit hubs, helping citizens reach their destinations quickly while making venue management more efficient and flexible. Furthermore, the team has developed multi-camera tracking technology, breaking the limitations of traditional surveillance systems that cannot continuously identify the same person or vehicle across different cameras. Through spatial understanding and trajectory analysis, the system accurately captures the pulse of pedestrian and vehicle flows, injecting higher-level intelligence into traffic management, public safety, and large-scale event coordination.

Regarding intelligent behavioral sensing, the research team has further empowered cities with the ability to "understand human behavior." Through long-duration video analysis technology, AI can not only see the images but also gain insight into the context of events and detect early signs of anomalies—such as falls, conflicts, or dangerous gatherings—assisting relevant authorities in early intervention and rapid response. Despite the convenience, the team recognizes the high privacy concerns surrounding such technology. Consequently, the project actively develops privacy-preserving sensing technologies, such as millimeter-wave (mmWave) radar pose analysis and Wi-Fi signal behavioral recognition, which can detect human

movements and activity states without the use of cameras. In the future, these technologies will be suitable for smart homes, medical institutions, and long-term care centers, guarding the safety of the elderly in real-time while protecting individual privacy, thereby enhancing care quality and living dignity while demonstrating the human-centric core values of smart cities.

On the level of citizen services, the project introduces Large Language Model (LLM) technology to build secure and trustworthy intelligent dialogue systems. In the future, citizens will be able to use natural language to easily query traffic information, parking availability, subsidy application processes, or the usage of public facilities, bringing digital services closer to daily life. To prevent AI from generating incorrect information or creating privacy risks, the team is simultaneously developing technologies for data source auditing, reasoning quality optimization, and energy-efficient multi-model collaboration. This ensures system responses are more accurate, transparent, and suitable for deployment in government and corporate service environments. When technology is no longer cold and inaccessible but interacts with people in a natural and trustworthy way, the vision of a smart city truly becomes a reality for its citizens.

Another highlight of this project lies in its strong emphasis on industry-academia cooperation and practical verification. Relevant results have been gradually applied in fields such as smart manufacturing, smart auto insurance, water quality monitoring, medical imaging, and multi-modal sensing, ensuring that research outcomes transcend laboratories and papers to enter industrial sites and respond to social needs. By having enterprises provide real-world problems and application scenarios while academia contributes cutting-edge technology and R&D energy, a complementary innovation cycle is formed. This process also cultivates a new generation of talent equipped with both theoretical foundations and practical abilities.

Ultimately, the value of a smart city lies not in the amount of equipment installed or the number of systems introduced, but in whether technology truly improves people's lives. This Academic Summit Program, supported by the National Science and Technology Council (NSTC), demonstrates the strength of Taiwan's research teams in transforming cutting-edge technology into social impact. When AI can help alleviate traffic pressure, enhance public safety, guard an aging society, promote industrial efficiency, and allow citizens to obtain services more conveniently, the "Smart City" is no longer just a concept on paper; it is a blueprint for life evolution that is being realized step by step. As industry-academia cooperation continues to deepen and technical applications continue to land, artificial intelligence is poised to become the most solid driver of sustainable urban development in the near future.

黃春融老師： 在人工智慧與醫學之間搭起橋梁

文／劉禹辰



在科技飛速發展的今日，人工智慧（Artificial Intelligence，下統稱縮寫 AI）已滲透進生活的方方面面。現任交大媒體工程研究所所長的黃教授，長期投入醫學影像與 AI 研究，致力於讓科技成為幫助人類的重要力量。他的研究歷程不僅展現跨領域的可能性，更體現了在研究與教學中不斷前行的學術精神。

在迷惘中確立方向：從傳統電機到資訊科學

回想起求學歷程，黃教授笑稱自己與許多高中生一樣，曾經歷過一段「不知道未來要做什麼」的迷惘期。在那個網路尚未普及、大學博覽會付諸闕如的年代，他憑著學長的一句「電機系可以學到跟高中完全不一樣的東西」，毅然決然踏入了電機領域。

在成功大學電機系的薰陶下，黃老師接觸了電子、電力系統、IC 設計等多元學科，但他逐漸發現自己對 Computer Science（電腦科學）與軟體開發有著更濃厚的興趣。這份自發性的好奇心，引導他從大學專題開始便跟隨詹寶珠教授切入 AI 在醫學影像分析的領域。他深感這項技術不僅有趣，更具備幫助他人的實質價值，這也奠定了他往後二十年研究生涯的基調。

醫學院裡的電機生：一年紮實的「臨床磨練」

黃春融教授的研究之路並非僅止於實驗室。在成大攻讀碩博士期間，他迎來了一個重要的轉折點。當時，他因為自身感染幽門桿菌前往成大醫院就醫，偶然結識了許博翔醫師。許醫師提出了一個當時極具前瞻性的挑戰：利用 AI 識別內視鏡影像中的幽門桿菌。

「你要教 AI 看，你自己要先會看。」許醫師的一句話，讓黃老師決定走出工程師的舒適圈。整整兩年的時間，他每週一準時出現在成大醫院內視鏡室，跟在醫師身邊學習診斷胃部疾病。這段實戰經歷讓他不僅精通內視鏡影像，更能以醫師的語言進行對話。

這份對另一領域的敬畏與投入，使黃教授的研究成果成功發表於醫學內視鏡頂級期刊，獲得醫學界的認可。這段經歷也讓他深刻體會到跨領域研究的重要性，他認為，若要讓 AI 真正發揮價值，研究者必須理解應用領域的知識，而不是只停留在技術層面。

走出成大：在中研院淬鍊 AI 演算法深度

雖然博士學位是在成大取得，但黃老師不希望自己的眼界侷限於單一環境。博士後期，他選擇前往台北，進入中央研究院資訊科學研究所，師從陳祝嵩教授。在台北的八年間（含國防役），他將重心從單純的影像應用轉向更深層的 AI 演算法開發，再次跨越了研究的舒適圈，將視野拓展

至電腦視覺與機器學習的底層邏輯。

這段期間的厚積薄發，反映在黃老師輝煌的學術成就上。他曾執行過 21 件科技部與教育部計畫，並獲得未來科技獎、崇越論文大賞等重要獎項。即便累積了無數榮譽，他心中始終掛念著另一件重要的使命——知識的傳遞。

以「傳道」為先，對抗 AI 時代的焦慮

離開中研院後，黃春融老師選擇進入大學任教。相較於中研院純粹的研究環境，他更渴望與學生互動。他引用韓愈《師說》的「傳道、授業、解惑」，認為最重要的是「傳道」——引導學生思考未來的人生方向。

面對學生「AI 會寫程式，資工系還有用嗎？」的焦慮，黃教授有著獨到的看法。他會親自帶著研究生一個字一個字地修改論文邏輯。他強調，AI 雖然能產出華麗的文字，但往往前後矛盾、缺乏邏輯深度，「人類的價值就在於邏輯思考與『為什麼』的解釋力」。他訓練學生不僅是學習技術，更是要學會控制 AI，讓 AI 成為有邏輯的工具，而非放任其產出無意義的「黑盒子」結果。

醫學 AI 的挑戰：解決「黑盒子」的不可靠性

在醫學領域，AI 的「不可解釋性」更是臨床應用的最大障礙。黃教授分享了一個關於 CT 影像診斷總膽管結石的研究。許多模型雖然能精準判定有無結石，但深究其邏輯，卻發現模型關注的焦點竟是人體以外的區域或是無關的器官。

「這對醫師來說是非常可怕的。」黃博士嚴肅地說。因此，他的團隊致力於開發具備可靠性與標註能力的 AI，讓 AI 能準確指出診斷的區域與理由，真正贏得醫療人員的信任。他認為，跨領域研究絕非兩組人坐下來開會而已，而是需要像他當年一樣「真正投入並理解對方的語言」，才能設計出解決特定臨床問題（Task Specific）的高效模型。

在聰明之外，多一份同理心

在黃老師的研究室與心頭，始終掛著一副十六字的座右銘：「件件工作，反映自我；凡經我手，必為佳作。」這是他當年赴任教職時，中研院廖弘源研究員贈予他的話，這不僅是他要求自己的準則，也是他對每一位學生的期許。

在陽明交大這所頂尖學府任教，黃教授對學生有著極高的評價，卻也給出了一份溫柔的提醒。他觀察到這裡的學生極其聰明、優秀，但在追求個人權利與卓越的同時，有時會少了一點「同理心」。

「因為他們非常優秀，可能會影響到很多其他的人；如果能多一些同理心，想著如何讓大家好，對國家與社會將會更有幫助。」這份對社會責任的關懷，或許正是黃春融老師在冷冽的 AI 技術研發中始終保有的溫暖。

Professor Chun-Rong Huang: Bridging the Gap Between AI and Medicine

In an era of rapid technological advancement, Artificial Intelligence (AI) has permeated every facet of our lives. Professor Chun-Rong Huang, the current Director of the Institute of Multimedia Engineering at National Yang Ming Chiao Tung University (NYCU), has long dedicated himself to medical imaging and AI research. His career is a testament to the power of interdisciplinary collaboration and a relentless academic spirit.

Finding Direction Amidst Uncertainty: From Electrical Engineering to Computer Science

Reflecting on his student days, Professor Huang admits to experiencing a period of "existential fog" common to many high schoolers. In an age before the internet and university expos, he chose Electrical Engineering based on a senior's simple pitch: "You'll learn things completely different from high school."

While studying at National Cheng Kung University (NCKU), he explored electronics and IC design but discovered a deeper passion for Computer Science and software development. This curiosity led him to join Professor Pau-Choo Chung's lab, focusing on AI in medical imaging. He realized then that this technology wasn't just intellectually stimulating—it had the tangible power to save lives.

An Engineer in the Medical School: A Year of "Clinical Hardship"

Professor Huang's research is defined by its refusal to stay confined to the lab. During his graduate studies, a bout with H. pylori led him to meet Dr. Bor-Shyang Sheu at NCKU Hospital. The doctor issued a visionary challenge: Could AI identify H. pylori in endoscopic images?

Dr. Hsu's advice was blunt: "To teach the AI to see, you must first learn to see it yourself." For two years, Professor Huang stepped out of his comfort zone as an engineer, spending every Monday in the endoscopy suite learning to diagnose gastric diseases alongside clinicians. This immersion allowed him to speak the "language of medicine," eventually leading to publications in top-tier medical journals and earning the respect of the healthcare community.

Strengthening the Core: Refining AI Algorithms at Academia Sinica

Seeking to broaden his horizons beyond NCKU, Professor Huang moved to Taipei to work under Professor Chu-Song Chen at Academia Sinica. During his eight years there, he shifted his focus from specific applications to the fundamental logic of Computer Vision and Machine Learning.

His academic prowess is reflected in his record: 21 projects for the Ministry of Science and Technology and the Ministry of Education, along with prestigious honors like the Future Tech Award. Yet, despite these accolades, he felt a calling toward a different mission: the transmission of knowledge.

Education First: Combatting Anxiety in the AI Era

Professor Huang eventually transitioned to a faculty position, driven by a desire to interact with students. Citing Han Yu's On Teaching, he believes a teacher's primary role is "transmitting the Way" (Chuandao)—guiding students toward their life's purpose.

To students anxious about AI's ability to write code, he offers a grounded perspective. He personally

mentors his students through the logic of their theses, word by word. "AI can produce flashy text, but it is often contradictory and lacks depth," he explains. "Human value lies in logical thinking and the power of explanation." He trains students not just to use AI, but to master it as a logical tool.

The Challenge of "Black Box" AI in Medicine

In clinical settings, the "unexplainability" of AI is a major hurdle. Professor Huang shares an example of a model diagnosing gallstones from CT scans. While the model was accurate, further investigation revealed it was focusing on areas outside the human body or unrelated organs to reach its conclusion.

"That is terrifying for a doctor," he notes. Consequently, his team focuses on Reliable and Explainable AI that can pinpoint exactly why a diagnosis was made. He maintains that true interdisciplinary research requires "learning the other's language" to design task-specific models that solve real-world clinical problems.

Beyond Brilliance: A Call for Empathy

In his lab, Professor Huang keeps a 16-character motto gifted by Researcher Mark Liao: "Every job is a self portrait of those who did it. Autograph your work with quality."

While he praises the brilliance of the students at NYCU, he offers a gentle reminder: Empathy is as important as excellence. "Because these students are so gifted, their actions have a significant impact on others," he says. "If they can practice more empathy and think about the collective good, they will be a far greater asset to the nation and society."

This commitment to social responsibility is perhaps what keeps Professor Huang's research warm, even in the cold, analytical world of AI development.



Every job is a self portrait of those who did it. Autograph your work with quality.

從科技人才到產業領袖： 李俊廣與王其勳的築夢人生

文／胡翔祐

國立陽明交通大學資訊工程學系透過扎實的課程，歷年來為台灣培育英才無數，而系友們也紛紛在各行各業中發光發熱。其中，萬達寵物創辦人李俊廣與聯強國際集團執行長王其勳，便是兩位極具代表性的傑出校友。他們雖然走上截然不同的道路，卻同樣憑藉陽交大資訊工程訓練所培養的邏輯思維、創新能力與國際視野，在各自領域寫下亮眼成績。

李俊廣為交大資訊工程學系 79 級校友，並於資訊科學研究所 82 級取得碩士學位。如今，他是萬達寵物創辦人暨執行長，成功打造全臺規模最大的連鎖寵物通路品牌「寵物公園」，成為許多毛小孩的家長們耳熟能詳的名字。然而，他的精彩之處不只在企業經營，更在於橫跨多元領域的驚人經歷。

有「最斜槓也最叛逆的校友」之稱的李俊廣，在 1990 年代曾是知名音樂人，不僅發行個人專輯，更擔任福茂唱片音樂總監。進入 2000 年代後，他又跨足網路科技產業，參與無名小站與 KKBOX 經營，並擔任痞客邦總經理，見證臺灣網路社群與數位內容產業的發展。之後再進軍寵物產業，創立萬達寵物，開創全新事業版圖。從音樂、科技到零售通路。李俊廣提到，交大資工帶給他的，不只是寫程式的能力，而是一種面對未知時仍能快速理解、拆解問題並找到方向的思維模式。也正因如此，即使進入完全陌生的領域，他依然敢於挑戰。他也鼓勵學弟妹，不要過度侷限自己的人生方向，「未來不一定只能做工程師」，真正重要的是保有學習熱情與適應變化的能力。

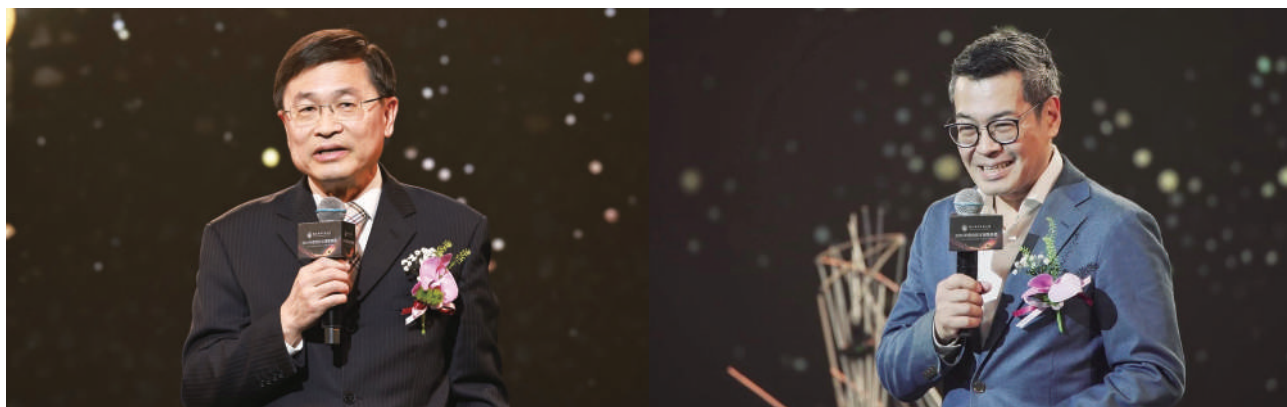
另一位令人印象深刻的校友是王其勳學長，

他是國立交通大學資訊工程系 78 級的校友，現任聯強國際集團執行長。聯強國際為亞太地區重要的資通訊與半導體通路集團，而王其勳正是聯強國際向國際拓展的重要推手。多年來，他深耕澳洲市場超過二十五年，帶領團隊積極開拓通路版圖，建立創新的商業模式，使聯強國際在澳洲與紐西蘭市場穩居領導地位，更讓企業名列全澳洲前 120 大，不僅展現其卓越的經營能力，也證明臺灣企業具備站上國際舞台的實力。2023 年升任集團執行長後，他帶領著企業持續穩健成長，鞏固聯強在亞太市場的重要地位。

在頒獎典禮致詞中，王其勳分享，自己畢業後便投入聯強國際，並長年深耕海外市場。他在澳洲工作超過二十五年，帶領團隊拓展當地市場版圖，逐步建立聯強在澳洲與紐西蘭的重要地位。他坦言，剛到海外時面臨許多文化與市場差異，但也因為資訊工程背景所培養出的理性分析能力，讓他能夠快速適應陌生環境，並從問題中找到突破的方法。

王其勳與李俊廣兩位校友，一位深耕國際企業管理，一位展現跨界創業精神，殊途於職涯發展，同歸於交大資工人才的細膩與縝密。資訊工程帶來的不只是程式能力，更是一種解決問題的思維模式，讓人能夠在快速變動的時代中持續應變、創新與領導。

透過這兩位傑出校友的故事，我們看見交大校友的多元可能性，也感受到母校人才培育的深厚底蘊，他們以自身經歷告訴學弟妹，未來不必受限於科系名稱，只要勇於挑戰、持續精進，就能在世界舞台上找到屬於自己的位置，創造不凡成就。



From Tech Talents to Industry Leaders: The Visionary Journeys of Ryan Lee and Kee Ong

Through its rigorous and foundational curriculum, the Department of Computer Science at National Yang Ming Chiao Tung University (NYCU) has cultivated countless talents for Taiwan over the years, with its alumni shining brightly across various industries. Among them, Ryan Lee, founder of Wonderpet, and Kee Ong, Chief Executive Officer of Synnex Technology International Corporation, stand out as two highly representative and distinguished alumni. Although they embarked on vastly different career paths, both leveraged the logical thinking, innovative capabilities, and international perspectives forged by their NYCU computer science training to achieve brilliant milestones in their respective fields.

Ryan Lee is an alumnus of the Class of 1990 (79th year of the Republic) from the Department of Computer Science and earned his Master's degree from the Institute of Computer Science in 1993. Today, he is the founder and CEO of Wonderpet, successfully building "Pet Park," the largest chain pet supply brand in Taiwan and a household name for many pet owners. However, what makes his journey truly fascinating is not just his corporate leadership, but his astonishing career that spans multiple diverse industries.

Known as the "most slashie and rebellious alumnus," Lee was a well-known musician in the 1990s, releasing solo albums and serving as the music director for Linfair Records. In the 2000s, he transitioned into the internet technology sector, participating in the management of Wretch and KKBOX, and serving as the general manager of PIXNET, witnessing firsthand the evolution of Taiwan's online communities and digital content industry. Later, he ventured into the pet industry by founding Wonderpet, pioneering an entirely new business territory. Reflecting on his journey from music and technology to retail distribution, Lee noted that what computer science at NYCU gave him was not just the ability to write code, but a mindset to rapidly understand, dissect, and navigate problems when facing the unknown. It is precisely because of this that he remains fearless when entering entirely unfamiliar territories. He encourages younger students not to overly confine their life choices, reminding them that their future does not necessarily have to be limited to being an engineer, and that what truly matters is maintaining a passion for learning and the capacity to adapt to change.

Another deeply impressive alumnus is Kee Ong, a member of the Class of 1989 from the Department of Computer Science, who currently serves as the Chief

Executive Officer of Synnex Technology International Corporation. Synnex is a pivotal information technology and semiconductor distribution group in the Asia-Pacific region, and Ong has been a key driver behind the company's global expansion. For over twenty-five years, he deeply cultivated the Australian market, leading his team to aggressively expand distribution networks and establish innovative business models. This dedication secured Synnex's leading position in the Australian and New Zealand markets and propelled the company into the top 120 corporations in Australia, demonstrating his exceptional leadership while proving that Taiwanese enterprises possess the caliber to stand on the global stage. Since stepping up as the group's CEO in 2023, he has continued to steer the company toward steady growth, consolidating Synnex's critical position in the Asia-Pacific market.

In his acceptance speech, Ong shared that he joined Synnex immediately after graduation and devoted many years to overseas markets. Having worked in Australia for over a quarter of a century, he led his team in expanding local market frontiers, step by step establishing Synnex's vital presence in Australia and New Zealand. He admitted that he faced numerous cultural and market differences when he first arrived abroad, but the rational and analytical abilities cultivated by his computer science background enabled him to adapt quickly to unfamiliar environments and find breakthroughs amid challenges.

While Kee Ong and Ryan Lee took distinct routes—one deeply dedicating himself to international corporate management and the other showcasing a spirit of cross-disciplinary entrepreneurship—both of their separate paths reflect the precision and meticulousness characteristic of NYCU computer science talents. A background in computer science brings far more than programming skills; it provides a problem-solving paradigm that empowers individuals to continuously adapt, innovate, and lead in a rapidly changing era.

Through the stories of these two outstanding alumni, we witness the diverse possibilities open to NYCU graduates and feel the profound depth of the university's talent cultivation. With their own life experiences, they demonstrate to younger students that the future does not need to be limited by the name of one's major. As long as one has the courage to embrace challenges and continuously self-improve, they can find their own place on the global stage and achieve extraordinary success.

人工智慧浪潮下的行業洞察與未來機遇

——周本宜學長

文／胡翔祐

周本宜學長是國立交通大學資訊工程系 79 級的系友，這次帶著高科技領域的風險投資經驗回到母校，與同學們分享人工智慧浪潮下的行業洞察，以及 AI 對於資訊工程領域的發展機遇。對多數同學而言，這不只是一次關於 AI 產業宏觀趨勢的演講，也是一堂關於「AI 帶來的產業新局之下，資工人如何重新定位掌握機遇」的實戰課。周學長目前為國富綠景創投合夥人，長期深耕中美兩地早期科技投資，橫跨半導體、AI 基礎建設、網路通信、新材料、先進製造等領域，從工程背景出發，走出一條技術研發與商業化、初創企業 (startup) 投資與風險管理的“創業基金管理人”之路。

周本宜於交通大學資工系畢業後，赴美取得波士頓大學管理資訊系統碩士。自 2001 年進入創投產業，至今已有二十五年的資歷。周學長作為私募創投基金的管理人，為許多國內外的主權基金、金融機構投資法人、世界 500 強企業、高淨值家族辦公室等投資法人，管理早期科技項目的風險投資資金。投資地域涵蓋美國矽谷、台灣、中國大陸，負責創投基金的投資策略、研判產業趨勢、執行投資專案，並於投資後參與董事會進行公司治理，期間成功協助了三十多家公司在國內外上市或併購退出，為投資人實現卓越的投資回報。

在產業觀察上，周學長以大量數據與案例說明，自 2017 年 Google 團隊發表了《Attention Is All You Need》的論文以來，推動生成式 AI (Generative AI) 「宇宙大爆炸」等級的發展，為各行各業帶來如工業革命一般的顛覆式影響。善用 AI 技術工具的個人或企業，生產力將極大的提升，並碾壓傳統的工作模式。AI 並非短期泡沫，從 NVIDIA、OpenAI、Anthropic、Google、微軟，到中國的 Deepseek、智譜、阿里巴巴、騰訊、字節跳動，動輒以數百億、數千億美元的資本支出投入，而這些幾乎可以說是世界上最聰明的人材、技術最領先的科技企業，”All in AI”，產品與技術以週 (weeks) 為單位地快速更迭：各種開源或閉源的大模型、高智力 vs 低成本、長文本、多模態，Token 服務與調用，模型蒸餾、後訓練、調優，本地化分布式推理部署，令人瞠目結舌。

在 AI 智算中心 (AI datacenter) 方面，NVIDIA 帶領著產業界，重新定義了 AI 基礎設施 (Infrastructure)，從資工系的角度來看，是以 GPU 運算為核心，再把“計算機架構”重新做了一遍：記憶體效能不足？那就用 HBM 堆疊，

Chiplet 技術把它和 GPU 合封再一起；GPU 電晶體受限於摩爾定律？那就用超高速的 NVLink 協議以及交換機，把機櫃中所有的 GPU 連起來，進行全互聯的 GPU 同步運算；主機板的材料跑不動？那就接用主動式銅纜來對接；GPU 叢集不夠大，不足以支援最新大模型的訓練、或海量的 token 推理服務？那就用 RDMA (remote direct memory access) 協議的超級網卡，跨叢集將所有的 GPU 連起來！推理速度太慢、系統記憶體不夠、價格太高、異質 GPU/ 運算環境？那就發展多層 cache 系統、中間層系統軟體、優化推理框架！一夕之間，運算 / 網路 / 存儲 (再加上 Power 功率密度) (Compute/Network/Storage/Power) 一切推倒重來，讓我們有幸可以參與這個新一輪的 AI “拓荒時代” (AI Wild West)，迎向十倍速、百倍速算力增長的時代。

展望未來，周學長認為隨著底層的 AI 基礎設施逐漸完善，未來 AI token 服務將如同電力一般，唾手可得、隨意調用，接下來，最上層的應用，將會迎來爆炸性的成長。如同蘋果的 iPhone、亞馬遜的 AWS、騰訊的微信，Google 的 Android，最終收割了上一波 2000 年互聯網泡沫中所完成的 mobile 3/4/5G，光纖寬頻網路建設的果實，未來 AI 世界中也將出現下一個 Apple/Amazon/Google 萬億或十萬億美元市值的超級企業。從如何把模型 token 服務真正落地到企業流程 (今年 AI 智能體 Open Claw (代理式 Agentic AI) 橫空出世、AI coding 工具如 Cursor 及 Claude Code 的驚人發展)、AI 智能體高頻微交易 / 金流付費 / 資產上鏈，到如何讓 AI 進入物理世界 (3D 空間識別)、生物世界 (AI for Science)，帶出自動駕駛、具身機器人、新材料、新藥設計研發，這些都將是萬億等級的市場新天地。

最後，對於“AI 是不是泡沫？”一說，周學長分享了個人的見解：“在資本市場的激情之下，AI 的資產價格可能出現泡沫”。但是“AI 技術所帶來的變革與衝擊，將會是工業革命般的深遠”。周學長以一句「三年出一個狀元，十年出一個小生」作結，鼓勵資工系同學們，在這個 AI “拓荒時代”，規則將被重塑，擁抱創新、擁抱改變，善用 AI 工具與技術，則一個人所能完成的，將很可能超越過去需要 10 個、100 個人的工作。走出去，與最好最新的技術接觸，AI 沒有國界 (開源軟體社區 for example)，好好把握這個新的產業、新的起點，你是極客你就會被全世界看見！

Alumni Insights: Perspectives and Opportunities in the AI Revolution



Senior alumnus Ben Yi Chou is a 1990 (Class of '79) graduate of the Department of Computer Science and Information Engineering (CSIE) at National Chiao Tung University. Bringing his extensive venture capital experience in the high-tech sector back to his alma mater, he shared his industry insights on the artificial intelligence, especially this wave of AI brings to the computer science field. For most students, this was not just a lecture on mega trends in the AI industry, but a practical masterclass on "how computer scientists can reposition themselves to seize opportunities under the new industrial AI revolution."

Alumnus Chou is currently a partner at GRC SinoGreen Fund, where he has long been deeply involved in early-stage high-tech investments across both the US and China. His expertise spans semiconductors, AI infrastructure, network communications, new materials, and advanced manufacturing. Leveraging his engineering background, he has carved out a path as a "hands-on venture capital fund manager," bridging the gap between technological R&D, commercialization, startup investment, and risk management.

A Career Bridging Technology and Venture Capital

After graduating from the CSIE Department at Chiao Tung University, Ben Yi Chou went to the United States to obtain a Master's degree in Management Information Systems from Boston University. Since entering the venture capital industry in 2001, he has accumulated 25 years of professional experience.

As a private equity venture capital fund manager, he manages early-stage venture capital for numerous domestic and international institutional investors, including sovereign wealth funds, global institutional investors, global fortune 500 companies, and family offices.

His investment footprint covers Silicon Valley, Taiwan, and Mainland China. He is responsible for defining VC fund investment strategies, analyzing industry trends, and executing investment projects. He actively participates in boards of directors to guide corporate governance for post investment management. Throughout his career, he has successfully completed more than 30 investment exits via domestic or international IPOs or M&As, delivering exceptional investment returns for his investors.

The "Big Bang" of Generative AI

Alumnus Chou shared his perspective of AI revolution by a wealth of data and case studies to illustrate how the generative AI revolution has unfolded. Since the Google team published the landmark paper "Attention Is All You Need" in 2017, it has triggered a "Big Bang"-level evolution in Generative AI, bringing disruptive changes to various industries akin to a new Industrial Revolution. Individuals or enterprises that effectively leverage AI tools will experience massive productivity gains, completely outclassing traditional working models.

"AI is by no means a short-term bubble". Global tech giants and leading AI firms—from NVIDIA, OpenAI, Anthropic, Google, and Microsoft in

the US, to DeepSeek, Zhipu, Alibaba, Tencent, and ByteDance in China—are committing tens or hundreds of billions of dollars in capital expenditures. These are the world's smartest minds and leading tech enterprises by far, and “they are going “All in AI.”” Products and technologies are iterating rapidly at a weekly pace, bringing jaw-dropping advancements such as open-source and closed-source large language models (LLMs) varied by the most intelligent or the lowest-cost for AI inference, Long-context windows and multi-modality, model distillation, post-training, and fine-tuning for all sizes of models. And enterprises are deploying their private AI inference systems locally to safeguard their business know-how and information security.

Redefining Computer Architecture for the AI Era

In the realm of AI datacenters, NVIDIA is leading the industry in completely redefining AI infrastructure. From a computer science perspective, this means centering the system around GPU computing and rewriting the rules of “computer architecture” from scratch:

- Insufficient data access performance? Stack it with HBM (High Bandwidth Memory) and use Chiplet technology to co-package it directly with the GPU.
- GPU scaling bottlenecked by Moore's Law? Deploy ultra-high-speed NVLink protocols and switches to interconnect all GPUs within a rack, enabling fully unified, synchronous GPU computing.
- Motherboard materials unable to keep up with the speed? Transition directly to active copper cables for interconnects.
- GPU clusters not large enough to support the latest LLM training or massive token inference services? Utilize high-performance superNIC (network interface card) with RDMA (Remote Direct Memory Access) protocols to link all GPUs across clusters.
- Slow token throughput? Inadequate system memory? Cost too high? Heterogeneous GPU/computing environments? Develop multi-tier cache systems, intermediate system software, and optimized inference frameworks.

Overnight, the pillars of Compute, Network, Storage, and Power are being torn down and rebuilt. We are incredibly fortunate to participate in this new “AI Wild West,” welcoming an era where computing power grows tenfold or a hundredfold.

Future Outlook: From Infrastructure to Exponential Application Growth

Looking ahead, Alumnus Chou believes that as the underlying AI infrastructure matures, AI

token services will become as ubiquitous and readily accessible as electricity. Consequently, the top-layer application layer will experience explosive growth.

Just as Apple's iPhone, Amazon's AWS, Tencent's WeChat, and Google's Android ultimately reaped the rewards of the mobile 3G/4G/5G and fiber-optic broadband network infrastructure built during the 2000 dot-com bubble, the future AI world will witness the birth of the next trillion- or ten-trillion-dollar mega-enterprises.

Massive multi-trillion-dollar market opportunities will emerge across several fronts:

- Enterprise process renovation: Truly embedding model token services into business workflows, driven by the sensational emergence of agentic AI (like Open Claw) and the astonishing development of AI coding tools (such as Cursor and Claude Code).
- The AI financial infrastructure: High-frequency micro-transactions, automated financial flows, and asset tokenization on the blockchain executed by AI agents.
- The World Model: Physical & Biological Worlds: Enabling AI to enter the physical realm (via 3D spatial recognition) and the biological realm (AI for Science), paving the way for autonomous driving, embodied robotics, novel materials, and next-generation drug discovery and development.

Conclusion: Embracing the “AI Wild West”

Finally, addressing the question of “Is AI a bubble?”, Alumnus Chou shared his personal perspective:

“Driven by capital market euphoria, the asset prices of AI may indeed experience a bubble. However, the transformation and impact brought by AI technology itself will be as profound as the Industrial Revolution.”

He concluded with an old Chinese saying, “A top scholar emerges every three years, but a master performer takes ten,” to encourage the students of the CSIE Department. In this “AI Wild West,” the rules are being rewritten. By embracing innovation, welcoming change, and masterfully utilizing AI tools and techniques, a single individual can potentially achieve what previously required the work of 10 or even 100 people.

His final advice to the students: Step out, embrace change, connect with the latest and best technologies. Take the open-source software community, for example, that AI knows no boundary. Seize this new industry and this brand-new starting line—if you are a true geek, the entire world will see you!

2026 資工系友回娘家 攜手領航 AI 時代新藍圖

文／劉禹辰



在春暖花開的四月天，國立陽明交通大學資訊工程學系配合「交大日」系列活動，舉辦一年一度的「資工系友回娘家」，邀請歷屆系友重返校園，共同參與傑出系友頒獎典禮與交流活動。今年除了表揚在產學各界戮力深耕、表現卓越的標竿楷模，更透過他們的經驗分享，展現交大資工多年來在科技領域累積的人才實力與影響力。

「如果大家今天從工三館走進來，會看到那隻拉著真空管電腦的牛，那是全國第一台電腦；而地下室的電腦博物館，更記錄著第一個中文鍵盤、第一台 Convex 電腦等珍貴軌跡。」資訊學院謝續平院長驕傲地指出，交大資工是全國第一個資工系，承載著台灣資訊產業發展的榮耀與歷史。院長也特別期盼，校友與在校生之間能藉此建立更緊密的連結，攜手延續資工人的精神與傳承，一同在 AI 浪潮中蓄勢前行、引領發展。

金句勉勵・經驗傳承

在謝院長精彩的開場致詞後，本年度獲頒傑出校友殊榮的兩位優秀學長接續登台，分享他們的奮鬥歷程與國際視野。

首先登場的是資訊工程學系 78 級傑出校友王其勳學長。旅居海外三十餘年的他，職涯歷程橫跨研發、行銷、業務及高階管理等領域，足跡遍及英國與澳大利亞。王學長謙遜地將這份榮耀歸功於當年一同努力的同窗好友，並進一步分享他在國際舞台上的深刻觀察。他指出，台商在海外發展時，往往因政治背景而面臨諸多挑戰，因此「國民外交」顯得格外重要；而做好國民外交

的關鍵，正是語言能力與同理心，唯有真正理解當地文化與教育背景，才能建立有效的溝通橋樑。

此外，身處科技推廣第一線的王學長，也對近年 AI 技術的飛速發展深有感觸。他引用黃仁勳提出的「五成蛋糕」理論，提醒在校學弟妹，AI 將在未來五到十年間徹底改變工作型態與學習方式；若無法掌握最前沿的應用趨勢，未來便可能面臨被時代淘汰的風險。因此，他勉勵大家務必積極投入這波科技浪潮，持續學習與精進，在快速變遷的時代中站穩腳步。

緊接著致詞的是資訊工程學系 79 級、資訊科學研究所碩士 82 級傑出校友李俊廣學長。他以自身經歷，展現出極具傳奇色彩的斜槓創業人生。李學長回憶，大學時期在男七舍與同窗建立的深厚情誼，以及全班於暑假共同承接百萬專案的經驗，都成為他日後投入創業的重要啟發。畢業後，他毅然追隨內心熱情踏入音樂產業，曾為范曉萱、王傑等知名歌手創作歌曲，並一路升任音樂總監。當實體唱片產業受到數位化浪潮衝擊時，李學長也敏銳地順應市場變化，投入無名小站與痞客邦等網路平台的發展，之後更前往中國大陸學習投資。返台後，他成立基金，協助台灣中小企業導入數位化管理，成功協助本土寵物連鎖企業轉虧為盈，並推動其完成 IPO (Initial Public Offering, 首次公開募股) 上櫃，最終更獲得統一集團投資。

李學長坦言，自己在校期間並非最頂尖的學生，但他始終相信，研究所訓練出的思考方法與

專業能力，將成為受用一生的重要基石。他也勉勵學弟妹，在變動劇烈的 AI 時代，更應勇於探索自己的可能性，保持熱情、培養敏銳的市場觀察力，並把握每一次時代帶來的機會。同時，他也期盼未來能持續回饋母校，為資訊學院的發展盡一份心力。

表揚卓越・榮耀典範

今年共有九位傑出系友獲得表彰，他們長年深耕於產業界、學術界與研究領域，憑藉卓越的專業能力與前瞻視野，在各自領域中締造亮眼成就。除了持續推動科技創新與產業發展外，也以實際行動回饋社會，充分展現交大資工人勇於開拓、貢獻所學的精神與價值。（以下依姓氏筆劃排序）

- **王景弘**（資訊科學研究所 79 級碩士、86 級博士）：現任中華電信研究院副院長，同時兼任勤崙國際科技股份有限公司董事。王學長長期深耕前瞻技術的研發，專注於開拓新興業務佈局並極力推動研發新創育成，卓越的管理與技術實力使他榮獲中華電信年度傑出經營管理主管，以及年度十大傑出從業人員之雙重殊榮。
- **胡君怡**（資訊工程系 86 級學士）：現任 TSMC 台積電企業系統整合處副處長。胡學姐在台積電製造資訊系統的整合與優化上著續多年，並熱心投入 Women@TSMC 組織發揮女性科技領導力。她更熱心回饋母校，於 2022 年積極推動台積電專家業師重返校園開設「雲原生軟體」課程，扎根培育學弟妹的實務核心技能。
- **范紀鐘**（資訊科學與工程研究所 91 級碩士）：現任 Circle 研發副總裁暨台灣區總經理。范學長為頂尖區塊鏈資安企業 CYBAVO 的創辦人，憑藉領先全球的數位資產託管技術，成功獲得全球知名的穩定幣（USDC）發行商 Circle 併購，將台灣的科技實力成功推向國際舞台。
- **翁瑞廷**（資訊科學與工程研究所 99 級碩士）：現任日本株式會社 FINOLAB Community Lead。翁學長曾是網路影音新創的先行者，共同創立 CHOCO TV 並出任 LINE TV 營運長。近年他將觸角延伸至海外，於東京深耕金融科技（FinTech）生態圈，積極鏈結台灣與日本的創新產業資源。
- **許鴻基**（資訊工程系 80 級學士、82 級碩士）：現任工業技術研究院資訊服務處處長。許學長長期專注於網路通訊核心技術的研發與深化，累計技轉國內網通廠商超過三十家，並成功建構高規格的國家級與企業級資安防禦架構，對保護企業數位資產及推動產業數位轉型不遺餘力。

- **陳俊明**（資訊工程學系 91 級學士、93 級碩士）：現任大立光電董事暨光學計算實驗室經理。陳學長曾於美國 Google 總部擔任軟體工程師，擁有深厚的國際科技實戰歷練。現今他主導大立光電的光學研發流程數位轉型，將尖端資訊技術與傳統精密光學完美融合。
- **黃國禎**（資訊工程系 74 級學士、80 級博士）：現任國立臺中教育大學副校長。黃學長在學術研究領域成就卓越，曾榮獲教育部師鐸獎及三次國科會傑出研究獎，更長年入選史丹佛大學「全球前 2% 頂尖科學家」榜單，在教育領域高居台灣第 1、全球第 7。
- **蒙以亨**（資訊科學研究所 91 級博士）：現任資訊工業策進會軟體技術研究院院長。蒙學長領導研發團隊斬獲包含 R&D 100 及愛迪生獎（Edison Awards）在內的 14 項國際大獎，戮力建構可信任的 AI 治理與第三方驗證體系，並將數位技術實質應用於偏鄉關懷與校園安全防護。
- **鄭永斌**（資訊科學系 78 級學士、80 級碩士）：現任國立中央大學資訊工程系教授，同時也是伊斯酷軟體科技共同創辦人暨 CTO。鄭學長引領產學雙軌深度融合，憑藉創新的自動化與人工智慧技術，相繼榮獲 2026 商周 AI 創新百強、2025 總統盃黑客松 AI 特別獎以及 2024 APICTA 亞太資通訊大賽金牌等多項技術指標大獎。

前瞻視野・再創高峰

典禮的尾聲，由系友會邱繼弘會長與系主任張立平教授壓軸致詞，為交大資工未來的發展繪製出宏偉的藍圖。

邱會長溫馨分享了系友會的三大核心任務：首先是搭建「凝聚與交流」的橋樑，透過多元的聚餐與聯誼活動，將海內外的交大資工人緊密連結；其次是作為系上的「堅實後盾」，當學系發展面臨資源挑戰時，系友會將向各界卓越的學長姐號召，一同提供充沛的支持；最後則是「引領成長」，在劇變的 AI 時代中，系友會將於五、六月陸續舉辦前瞻講座，協助系友們與時俱進、持續茁壯。

張主任在總結時則提到，交大資工近年積極延攬優秀的年輕學者，並在校友們的大力捐款支持下設立「青年講座」與「科技講座」，成功充實了頂尖教學與研究量能。主任特別對校友的無私奉獻表達最深摯的謝意，尤其提到緯創林憲銘學長以個人名義慷慨捐款興建「華仁館」，寫下了校史個人捐樓的嶄新紀錄。在歷屆傑出校友的典範引領、系友會的強力凝聚，以及母校源源不絕的研發創新能量下，陽明交大資工系將帶著這份承先啟後的承諾，攜手再創下一個耀眼高峰。

2026 CS Alumni Homecoming: Collaboratively Leading a New Blueprint for the AI Era

In the warm and blossoming month of April, the Department of Computer Science at National Yang Ming Chiao Tung University (NYCU) hosted its annual "CS Alumni Homecoming" in conjunction with the "Chiao Tung University Day" series of events. This gathering invited alumni from various generations to return to campus to participate in the Distinguished Alumni Awards Ceremony and exchange activities. This year, the event not only honored benchmark exemplars who have dedicated themselves to deep cultivation and outstanding performance across industry and academia, but also demonstrated the talent strength and influence accumulated by NYCU CS over the years in the tech sector through their valuable experience sharing.

"If everyone walked in today from Engineering Building III, you would see the ox pulling a vacuum tube computer, which was the very first computer in Taiwan. Furthermore, the Computer Museum in the basement records precious milestones such as the first Chinese keyboard and the first Convex computer," proudly pointed out Dr. Shih-Pyng Shieh, Dean of the College of Computer Science. He emphasized that the CS department at Chiao Tung University was the first computer science department in the nation, carrying the glory and history of the development of Taiwan's information industry. The Dean also expressed a special hope that a closer connection could be established between alumni and current students through this event, collaboratively continuing the spirit and inheritance of CS people, and stepping forward together to lead development in the AI wave.

Inspirational Wisdom and the Passing of the Torch

Following Dean Shieh's wonderful opening remarks, the two exceptional alumni honored with this year's Distinguished Alumni Award took the stage sequentially to share their career journeys and international perspectives.

The first to present was Kee Ong, a distinguished alumnus who graduated with

his BS degree in Computer Science and Engineering in 1989. Having lived abroad for more than thirty years, his career has spanned research and development, marketing, sales, and executive management, with his footprints reaching the United Kingdom and Australia. Ong humbly credited this honor to his classmates who worked hard alongside him back then, and further shared his deep observations on the international stage. He pointed out that when Taiwanese businesses expand overseas, they often face numerous challenges due to political backgrounds, making "citizen diplomacy" exceptionally crucial. The key to successful citizen diplomacy lies in language proficiency and empathy, as an effective communication bridge can only be built by truly understanding the local culture and educational background. Furthermore, standing at the forefront of technology promotion, Ong felt deeply about the rapid development of AI technology in recent years. Referencing Jensen Huang's "half-cake" theory, he reminded current students that AI will completely transform working styles and learning methods in the next five to ten years. If one cannot master the most cutting-edge application trends, they may face the risk of being eliminated by the times. Therefore, he encouraged everyone to actively engage in this tech wave, continuously learn and self-improve, and stand firm in a rapidly changing era.

Following him was Ryan Lee, a distinguished alumnus who received his BS degree in Computer Science and Engineering in 1990 and his MS degree in Computer Science in 1993. With his personal journey, he showcased a legendary and cross-disciplinary entrepreneurial life. Lee recalled that the deep camaraderie built with his peers in Dorm 7 during his college days, along with the experience of the entire class collaboratively taking on a million-dollar project during a summer vacation, became vital inspirations for his subsequent entrepreneurial ventures. After graduation, he resolutely followed his passion into the music industry, composing songs for well-known singers such

as Mavis Fan and Dave Wang, and rising to the position of music director. When the physical record industry was impacted by the wave of digitization, Lee keenly adapted to market changes, involving himself in the development of online platforms such as Wretch and PIXNET, and later went to Mainland China to learn investment. Upon returning to Taiwan, he established a fund to assist domestic small and medium enterprises in implementing digital management, successfully turning a local pet supply chain profitable and driving it through an IPO to get listed on the stock market, which eventually attracted investment from the Uni-President Group. Lee admitted that he was not the most top-tier student during his school days, but he always believed that the thinking methodologies and professional capabilities trained during his graduate studies became an important foundation that benefited him for a lifetime. He also encouraged younger students to bravely explore their own possibilities in the drastically changing AI era, maintain passion, cultivate sharp market observation, and seize every opportunity brought by the times. Concurrently, he looked forward to continuing to give back to his alma mater and contributing to the development of the College of Computer Science.

Honoring Excellence and Inspiring Role Models

This year, a total of nine distinguished alumni were recognized. They have deeply cultivated the industry, academia, and research fields for a long time, leveraging their excellent professional capabilities and forward-looking vision to achieve brilliant accomplishments in their respective arenas. In addition to continuously driving technological innovation and industrial development, they have also taken concrete actions to give back to society, fully demonstrating the spirit and value of NYCU CS people in bravely pioneering and contributing what they have learned.

Among the awardees, **Jing-Hong Wang**, who received his MS degree in Computer Science in 1990 and his PhD degree in Computer Science in 1997, currently serves as the Vice President of the Chunghwa Telecom Laboratories and concurrently holds the position of Director at Kingwaytek Technology Co., Ltd. He has long cultivated the R&D of cutting-edge technologies,

focusing on exploring emerging business layouts and vigorously driving the incubation of R&D startups, with his outstanding management and technical strength earning him the dual honors of Chunghwa Telecom's Outstanding Management Executive of the Year and Top Ten Outstanding Employees of the Year.

Jenny Hu, who earned her BS degree in Computer Science and Engineering in 1997, is the Deputy Director of the Corporate System Integration Division at TSMC. She has excelled in the integration and optimization of TSMC's manufacturing information systems for years and actively participates in the Women@TSMC organization to leverage female tech leadership, while also enthusiastically giving back to her alma mater by actively pushing for TSMC experts to return to campus in 2022 to open the "Cloud-Native Software" course to cultivate students' core practical skills.

Paul Fan, who completed his MS degree in Computer Science and Information Engineering in 2002, is the VP of Engineering and Taiwan Managing Director at Circle. As the founder of CYBAVO, a top-tier blockchain cybersecurity enterprise, he successfully led the company to be acquired by Circle, the globally renowned issuer of the stablecoin USDC, relying on world-leading digital asset custody technology and successfully propelling Taiwan's tech strength onto the international stage.

Juei-Ting Weng, who graduated with his MS degree in Computer Science and Information Engineering in 2010, currently serves as the Community Lead at FINOLAB Inc. in Japan. He was a pioneer in online video startups, co-founding CHOCO TV and serving as the COO of LINE TV, and in recent years has extended his reach overseas, deeply cultivating the FinTech ecosystem in Tokyo and actively linking innovation industry resources between Taiwan and Japan.

Hung-Chi Hsu, who obtained his BS degree in Computer Science and Engineering in 1991 and his MS degree in Computer Science in 1993, is the General Director of the Information Technology Services Division at ITRI. He has long focused on the research, development, and deepening of core network communication technologies, accumulating technology transfers to more than thirty domestic network communication manufacturers and

successfully building high-specification national and enterprise-level cybersecurity defense architectures, sparing no effort in protecting corporate digital assets and driving industrial digital transformation.

Chun-Ming Chen, who received his BS degree in Computer Science and Engineering in 2002 and his MS degree in Computer Science and Information Engineering in 2004, serves as a Director and the Manager of the Optical Computing Laboratory at Largan Precision Co., Ltd. He previously served as a software engineer at Google Headquarters in the United States, possessing profound international tech experience, and currently spearheads the digital transformation of Largan Precision's optical R&D processes, perfectly fusing cutting-edge information technology with traditional precision optics.

Gwo-Jen Hwang, who graduated with his BS degree in Computer Science and Engineering in 1985 and his PhD degree in Computer Science in 1991, is the Vice President of National Taichung University of Education. He has achieved outstanding accomplishments in the field of academic research, having received the Ministry of Education's Lantern Award and three NSCC/NSTC Outstanding Research Awards, and has been long selected for Stanford University's "World's Top 2% Scientists" list, ranking 1st in Taiwan and 7th globally in the field of education.

I Heng Meng, who earned his PhD degree in Computer Science in 2002, is the General Director of the Software Technology Institute at III. He has led his R&D team to win 14 international awards, including the R&D 100 and Edison Awards, striving to construct a trustworthy AI governance and third-party verification system, while substantively applying digital technology to remote area care and campus safety protection.

Yung-Pin Cheng, who completed his BS degree in Computer Science in 1989 and his MS degree in Computer Science in 1991, is a Professor in the Department of Computer Science and Information Engineering at National Central University and the Co-founder and CTO of IsCoolLab Co., Ltd. He has led the deep integration of the dual tracks of industry and academia, and relying on innovative automation and artificial intelligence technologies, has

successively won multiple technical indicator awards, including the 2026 Business Weekly AI Innovation Top 100, the 2025 Presidential Hackathon AI Special Award, and the 2024 APICTA Awards Gold Trophy.

Forward-Looking Vision: Scaling New Heights Together

At the conclusion of the ceremony, Mr. Charles Chiu, Chairman of the Alumni Association, and Professor Li-Ping Chang, Chairman of the Department, delivered the final addresses, drawing a grand blueprint for the future development of computer science at NYCU.

Chairman Chiu warmly shared the three core missions of the alumni association: first, to build a bridge for cohesion and exchange, closely connecting CS people from Chiao Tung University at home and abroad through diverse dinners and networking activities; second, to act as a solid backing for the department, meaning that when the development of the academic department faces resource challenges, the alumni association will call upon outstanding alumni from all sectors to collaboratively provide abundant support; finally, to lead growth, as the alumni association will successively hold forward-looking lectures in May and June amidst the rapidly changing AI era to assist alumni in keeping pace with the times and continuing to grow.

In summarizing, Chairman Chang mentioned that the department has actively recruited excellent young scholars in recent years and established the "Youth Chair Professorship" and "Technology Chair Professorship" under the strong support of alumni donations, successfully enriching top-tier teaching and research capacity. The Chairman expressed his deepest gratitude for the selfless dedication of the alumni, particularly mentioning that alumnus Simon Lin from Wistron generously donated in his personal capacity to construct the "Hua-Jen Building," writing a brand-new record in the university's history for individual building donations. Under the exemplary leadership of past distinguished alumni, the strong cohesion of the alumni association, and the endless R&D innovation energy of the alma mater, the Department of Computer Science at NYCU will carry this commitment of bridging the past and the future to collaboratively scale another brilliant peak.

駭客不滅：從交大 DSNS 實驗室到 AI 資安指揮官 ——李倫銓的資安征途

文／胡翔祐



「駭客的意思，是對某項事物非常專精的研究者。」這是學長在演講中反覆強調的一句話，也是他用整個職涯努力實踐的信念。

李倫銓是資訊工程系 89 級校友，現任職聯發科技資訊工程本部資安處經理。從最初 DEFCON 競賽場上的攻防廝殺，到企業資安的戰略部署，再到如今站在 AI 浪潮的前沿，他始終是那個走在最前方的人。

真正的轉捩點，是考上交通大學資訊工程研究所、踏入 DSNS 實驗室。面對網路安全與線上遊戲兩條截然不同的路，他毫不猶豫選擇了前者。「我認為網路安全是一門專業，對我來講，這比寫遊戲程式更有挑戰性。」在交大的這段歲月，他不只打下了紮實的資安理論基礎，更養成了一種「把事情看穿、看透」的駭客思維，那是日後無論面對競賽還是企業威脅，他都能抽絲剝繭找到突破口的根本能力。

從交大畢業後，李倫銓在電信業深耕十餘年，同時廣泛參與台灣資安社群，並於 2005 年共同創辦了台灣駭客年會 HITCON。然而真正讓他在國際舞台發光的，是帶領 HITCON CTF 戰隊征戰 DEFCON 的那段歲月。

DEFCON CTF 是公認全球最難的駭客競賽，決賽採攻防混合制，每隊擁有一台含漏洞的伺服器，必須在同一時間既修補自己的漏洞防禦，又撰寫 Exploit 攻穿對手主機搶奪 Flag，每回合僅有五分鐘，速度與精準度決定一切。2014 年，李倫銓率領 HITCON 戰隊鏖戰整整 72 小時不眠不休，終於為台灣奪下世界亞軍，消息震驚資安圈。此後他們分別在 2017 年與 2019 年再度奪得亞軍，三度站上 DEFCON 的世界頂端。

這段征戰歲月讓他深刻體認到協作分工的力量。戰隊內部分為負責核心攻擊的 Exploit 組、監控流量並側錄對手 Payload 進行 Replay 的 Traffic 組，以及開發自動化攻擊與監控工具的 Infra 組，三者缺一不可。他也分享了一個至今仍令人津津樂道的插曲：當年美國 PPP 戰隊曾故意在自己釋出的 Patch 裡偷藏後門，引誘各隊套用後一舉殲滅，足見頂尖競技中攻防心理的層層博弈。相較於韓國隊背後有政府資源與專屬設施全力支援，台灣戰隊憑藉的不過是純粹的技術與毅力。「我們再怎麼厲害，也只能打幾年而已。做好傳承，才是建立資安實力的關鍵」，是他最想傳遞給後輩的一句話。

回顧台灣資安技術的演進，李倫銓以親身

見證者的視角梳理了這段歷史。早在 2016 年，DARPA 舉辦 Cyber Grand Challenge (CGC)，讓各隊研發能夠自主推理與決策的 Cyber Reasoning System，在完全不需要人類介入的情況下找洞、修洞、反擊。彼時的技術以符號執行結合模糊測試為主，機器能以毫秒級速度偵測程式崩潰並產出 Exploit，卻在面對需要理解「開發者意圖」的邏輯型漏洞時幾近束手無策。當年的共識是：「簡單的交給機器，複雜的交給人類。」

然而進入大型語言模型時代之後，這道界線正在快速瓦解。李倫銓以 2025 年 DARPA AIXCC 總決賽的成果為例：AI 系統在 45 分鐘內於真實開源專案中挖出 18 個 0-day 漏洞，自動修補成本每次僅需 152 美元，將傳統資安專家數週的工作量壓縮至分鐘級別。這樣的效率讓市場為之震動，傳統資安龍頭股價一夕重挫，宣告「人力密集型資安」時代正走向終點。

回顧過去，像是模糊測試 (Fuzzing) 與符號執行 (Symbolic Execution) 等自動化挖洞技術，雖然能以代數求解與暴力進行地毯式搜索，但往往受限於路徑爆炸，且對需要理解語意意圖的複雜漏洞無計可施。然而，現今的大型語言模型 (LLM) 憑藉強大的全局推理與代碼理解力，成功跨越了這道門檻，大幅增進了漏洞挖掘的能力。在這樣顛覆性的 AI 技術之上，人類必須趕快學會善用 Agent 擴展自身能力。如果漏洞研究員的價值，依然重複在既有的、機器能識別的漏洞模式上，那必然會被高效且低成本的 AI 所取代。相反地，如果人類能將精力專注在探索未知、挑戰極限與發揮跨領域的創新，那麼就算再強大的模型出現，人類那份無法被模仿的直覺與創意，依然很難被取代。

面對這場典範轉移，李倫銓給學弟妹的建議清晰而直接：不要害怕被取代，而要學會轉型。他指出，未來的資安人才需要從「單兵作戰的駭客」進化為「帶領無數 AI Agent 的資安指揮官」。這意味著不只需要理解漏洞原理與攻防邏輯，更要掌握如何為 AI 設計完善的執行環境——包括沙盒隔離、權限控制、自我驗證迴圈，以及危險動作前的人類審核閘門。模型的智力是上限，工程系統的穩定性才是地基，兩者缺一不可。

他也強調，CTF 競賽的攻防直覺在這個新時代非但沒有過時，反而是設計 AI Harness 最珍貴的養分。懂得在攻防賽中快速分析流量、逆向工程漏洞成因的人，正是最能判斷 AI 輸出是否可信、何時需要人類介入的那群人。從競賽場上磨礪出的那份直覺，在 AI 時代將成為不可取代的核心競爭力。他最後也自嘲，前面提到他們再怎麼厲害，以前只能打幾年，如今有了 AI，老人還能多打幾年。

「戰士會老，但駭客精神不會。」從交大 DSNS 實驗室走出來的李倫銓，用三十年的資安征途告訴我們：改變的是工具與方法，不變的是那份對未知的好奇、對細節的偏執，以及永不服輸的態度。在 AI 的浪潮中，駭客精神不但沒有被淘汰，反而找到了更廣闊的舞台。

The Undying Hacker: From NCTU's DSNS Lab to AI Cybersecurity Commander — Alan Lee's Cybersecurity Odyssey

"A hacker, in its truest sense, is a researcher who is profoundly dedicated to and specialized in a specific field." This is a statement Alan Lee repeatedly emphasized during his speech, and it is a belief he has spent his entire career putting into practice.

Alan Lee, an alumnus of the Department of Computer Science and Engineering (Class of 2000), currently serves as the Manager of the IT Security Department in the Information Technology Division at MediaTek. From his early days of intense offensive and defensive battles on the DEFCON competition floor to strategic corporate cybersecurity deployments—and now standing at the forefront of the AI wave—he has always been the one leading the charge.

The true turning point in his journey came when he passed the entrance exam for the Graduate Institute of Computer Science and Information Engineering at National Chiao Tung University (NCTU) and entered the Distributed Systems and Network Security (DSNS) Lab. Faced with two vastly different paths—network security or online gaming—he chose the former without a second thought. "I viewed network security as a distinct profession. To me, it was far more challenging than writing game code," Lee recalls. During his years at NCTU, he not only built a solid foundation in cybersecurity theory but also developed a "hacker mindset"—a burning desire to see through and completely dissect things. This mindset became the fundamental capability that allowed him to peel back the layers of any problem and find breakthroughs, whether in competitions or dealing with corporate threats.

After graduating from NCTU, Lee spent over a decade deep-rooted in the telecommunications industry while actively participating in Taiwan's cybersecurity community. In 2005, he co-founded the Taiwan Hackers Association (HITCON). However, what truly propelled him onto the international stage was the period he spent leading the HITCON CTF team to compete in DEFCON.

DEFCON CTF is widely recognized as the world's most grueling hacker competition. The finals utilize an attack-and-defense format where each team is assigned a server loaded with vulnerabilities. Teams must simultaneously patch their own security flaws, write exploits to breach rival hosts, and steal "flags." With each round lasting a mere five minutes, speed and precision dictate everything. In 2014, Lee led the HITCON team through 72 hours of non-stop, sleepless warfare, ultimately securing the World First Runner-Up (2nd place) for Taiwan—a result that sent shockwaves through the global cybersecurity community. The team proved this was no fluke by taking 2nd place again in 2017 and 2019, standing at the pinnacle of the DEFCON world three separate times.

This era of intense competition gave him a profound appreciation for the power of collaboration and division of labor. The team was structured into three indispensable units: the Exploit Group, responsible for core offensive actions; the Traffic Group, tasked with monitoring traffic and capturing opponents' payloads for replay attacks; and the Infra Group, dedicated to developing automated attack and monitoring tools. Lee also shared a legendary anecdote that is still talked about today: during one competition, the American team PPP intentionally hid a backdoor inside a patch they released, baiting other teams into applying it so they could wipe them out in one fell swoop. This highlights the psychological warfare and layers of deception present at the highest levels of competition. Compared to the South Korean team, which enjoyed full state backing, government resources, and dedicated training facilities, the Taiwanese team relied entirely on pure technical prowess and sheer grit. "No matter how good we are, we can only compete on the front lines for a few years. Doing a good job with passing the torch is the real key to building sustainable cybersecurity strength," Lee emphasized, noting this as his most crucial message for the next generation.

Reflecting on the evolution of cybersecurity technology in Taiwan, Lee outlined this history from his perspective as a firsthand witness. As early as 2016, DARPA hosted the Cyber Grand Challenge (CGC), tasking teams

with developing Cyber Reasoning Systems capable of autonomous reasoning and decision-making—finding bugs, patching them, and launching counter-attacks without any human intervention. At the time, the technology relied primarily on symbolic execution combined with fuzzing. While machines could detect crashes and generate exploits at millisecond speeds, they were practically powerless against logic flaws that required an understanding of the "developer's intent." The consensus back then was clear: "Leave the simple things to machines, and the complex things to humans."

However, with the dawn of the Large Language Model (LLM) era, this boundary is rapidly dissolving. Lee pointed to the results of the 2025 DARPA AIXCC (AI Cyber Challenge) Finals as an example: AI systems unearthed 18 zero-day vulnerabilities in real-world open-source projects within just 45 minutes, with an automated patching cost of only \$152 USD per fix. This staggering efficiency sent shockwaves through the market, causing traditional cybersecurity giants to see their stock prices plummet overnight, signaling the end of the "labor-intensive cybersecurity" era.

Looking back, automated vulnerability discovery techniques such as fuzzing and symbolic execution could perform exhaustive searches through algebraic solving and brute force. However, they were often restricted by path explosion and remained powerless against complex vulnerabilities that required semantic comprehension. Today, Large Language Models (LLMs), with their powerful global reasoning and deep code comprehension, have successfully crossed this threshold, vastly enhancing vulnerability discovery capabilities. Faced with such disruptive AI technology, humans must quickly learn to leverage AI Agents to augment their own capabilities. If vulnerability researchers continue to bound their value to replicating existing, machine-identifiable vulnerability patterns, they will inevitably be replaced by highly efficient and low-cost AI. Conversely, if humans focus their energy on exploring the unknown, challenging limits, and driving cross-disciplinary innovation, human intuition and creativity will remain irreplaceable—no matter how powerful the models become.

Faced with this paradigm shift, Lee's advice to his juniors is clear and direct: Do not fear being replaced; instead, learn to transform. He pointed out that future cybersecurity talent needs to evolve from "solo-fighting hackers" into "cybersecurity commanders leading countless AI Agents." This means that understanding vulnerability principles and attack-defense logic is no longer enough; professionals must master how to design robust execution environments for AI—including sandbox isolation, privilege control, self-validation loops, and human-in-the-loop approval gates for high-risk actions. The model's intelligence sets the ceiling, but the stability of the engineering system is the foundation; you cannot have one without the other.

He also emphasized that the attack-and-defense intuition honed in CTF competitions has far from gone out of style in this new era; rather, it provides the most precious nourishment for designing AI Harnesses. Those who know how to rapidly analyze traffic and reverse-engineer the root causes of vulnerabilities under the pressure of a live match are precisely the ones best equipped to judge whether an AI's output is trustworthy, and when human intervention is critically required. The intuition forged on the competition floor will become an irreplaceable core competency in the AI era. He concluded with a touch of self-deprecating humor, noting that as he mentioned earlier, no matter how good they were, they could only fight for a few years in the past. But now with AI, us old-timers can keep fighting for a few more years.

"Warriors grow old, but the hacker spirit never dies." Emerging from NCTU's DSNS Lab, Alan Lee's 30-year journey in cybersecurity shows us that while tools and methodologies change, what remains constant is an insatiable curiosity for the unknown, a relentless obsession with details, and an indomitable attitude. In the roaring tide of AI, the hacker spirit has not been rendered obsolete; instead, it has found an even grander stage to conquer.

從交大資工到智慧製造現場 —— 蔡昌裕學長

文／胡翔祐

從交通大學資訊工程學系畢業二十年後，蔡昌裕再次回到校園，以「做事、做對事、做長久的事」為題，分享自己從交大資工一路走入智慧製造產業的歷程。不同於典型資訊工程背景投入軟體或網路產業，蔡昌裕選擇深耕工具機與智慧製造領域，在新代科技十八年間，歷經研發、產品、IT、業務與管理等角色，也見證台灣智慧製造產業從自動化走向 AI 整合的發展。

演講一開始，他便笑說自己在交大「活動辦得比課業還認真」。從校長盃導演冠軍、資工營總召，到梅竹賽總籌與系排隊長，幾乎參與了所有大型學生事務。他坦言，自己當年成績並不突出，「但現在回頭看，真正訓練我的，其實是那些解決問題的過程。」他認為，學生時期的大量活動經驗，讓他提早學習如何定義問題、拆解目標、整合資源，以及在壓力下做決策，這些能力後來都成為進入產業的重要養分。

畢業後，蔡昌裕進入新代科技，從最基層研發工程師做起。當時公司規模僅三、四十人，如今兩岸員工已超過一千六百人。他一路從單一工程師做到研發二部資深經理，最高曾管理超過百人團隊，也曾參與集團內創業與新公司成立。他提到，智慧製造產業最大的特色是「做控制器的人反而什麼都要懂」。因為控制器位於設備核心，工程師不只要理解軟硬體，更要理解終端產線究竟如何加工、生產與運作。

蔡昌裕以工具機產業為例說明，現代工廠中的每一台設備，都需要控制器驅動，而新代科技正是台灣重要的控制器廠商之一。從車床、銑床到機器人與自動化設備，背後都需要即時運算、感測器資料整合與運動控制技術。他指出，過去工業自動化多半停留在「設備會動」，但現在智慧製造更重視的是「設備如何自主最佳化」。因此，AI 開始真正進入製造現場。

他分享目前團隊投入的重要方向之一，是利用 AI 進行 CNC 參數調校。傳統設備調教高度依賴老師傅經驗，一台機器可能需要數天甚至數週才能完成最佳化；但透過感測器蒐集振動、速度與加工誤差等數據，再搭配 AI 模型與數位孿生技術，便能快速找到最佳參數組合。他形容：「以前需要多年經驗才能做到的事情，現在透過 AI，可以讓更多人做得到。」

「智慧製造不是只有 AI 模型而已，真正困難的是物理世界。」他特別強調。在工廠現場，溫度、濕度、材料與設備狀態都會影響加工結果，因此智慧製造並非單純的軟體問題，而是資訊、機械、控制與製程整合的跨域工程。

也因如此，他認為交大資工學生其實很適合投入智慧製造產業。資訊背景帶來的系統思維與解決問題能力，能在產業中發揮巨大價值。但他也提醒學生，不要只關注技術本身，更要理解真正的需求與問題。「很多時候真正困難的，不是方法，而是你到底要解決什麼問題。」

演講後半段，他進一步分享自己二十年職涯的體悟。他提出五句最重要的話：「問題比方法重要、系統比功能重要、落地比 demo 重要、長期比短期重要、韌性比衝刺重要。」在他看來，學術研究與產業最大的差異，就在於產業最終必須真正落地，能夠被工廠使用、能夠穩定運作，才有價值。

對於許多即將進入職場的研究生，他也提醒：「沒有什麼是最好的選擇，只有最適合自己的選擇。」他坦言，多數人其實並不真正了解自己，因此只能先做、先嘗試，再慢慢認識自己。他認為職涯是一條很長的路，「不要太害怕改變」，因為真正重要的，是能否持續成長，並找到自己願意長久投入的方向。

從交大資工學生，到智慧製造產業的重要推手，蔡昌裕的經歷不只是個人職涯故事，也映照出台灣製造業從傳統自動化邁向 AI 智慧化的轉型歷程。對在場學生而言，這場演講不只是技術分享，更是一堂關於產業視野與長期成長的課。



From NCTU Computer Science to the Front Lines of Smart Manufacturing — Alumnus Chang-Yu Tsai

Twenty years after graduating from the Department of Computer Science at National Chiao Tung University (NCTU), Chang-Yu Tsai returned to campus. Sharing his journey under the theme "Doing Things, Doing the Right Things, and Doing Things That Last," he detailed his career path from NCTU Computer Science to the smart manufacturing industry. Unlike many computer science graduates who pursue careers in software or internet industries, Tsai chose instead to build his career in the machine tool and smart manufacturing sectors. Over his 18 years at Syntec Technology, he has cycled through roles in R&D, product development, IT, sales, and management, witnessing firsthand Taiwan's smart manufacturing evolution from automation to AI integration.

At the start of his speech, Tsai jokingly admitted that during his time at NCTU, he was "far more dedicated to extracurricular activities than about his coursework." From winning first place as a director in the Chancellor's Cup competition and serving as the general coordinator for the CS Camp, to acting as the general coordinator for the Meichu Games and captain of the department volleyball team, he was involved in nearly every major student event. He openly acknowledged that his grades weren't outstanding back then, "but looking back now, what truly trained me were the processes of solving those problems." He believes his extensive student activity experience taught him early on how to define problems, break down goals, integrate resources, and make decisions under pressure—all of which became vital assets when he entered the industry.

After graduation, Tsai joined Syntec Technology, starting as an entry-level R&D engineer. At the time, the company had only 30 to 40 employees; today, its workforce across the Taiwan Strait now exceeds 1,600. He rose from a lone engineer to senior manager of the R&D Department II, managing teams of over 100 people at his peak, and even participated in internal corporate entrepreneurship and the founding of new subsidiaries. He noted that the most unique aspect of the smart manufacturing industry is that "engineers who develop controllers need to understand almost every part of the system." Because the controller sits at the heart of the equipment, engineers cannot just understand software and hardware; they must comprehend how the end-user production lines actually machine, produce, and operate.

Using the machine tool industry as an example, Tsai explained that every piece of equipment in a modern factory requires a controller to operate, and Syntec Technology is one of Taiwan's leading controller manufacturers. From lathes and milling machines to robotics and automation equipment, everything relies on real-time computing, sensor data integration, and motion control technology. He pointed out that while industrial automation in the past mostly focused on "making the machines move," modern smart manufacturing prioritizes "how machines can optimize themselves autonomously." Consequently, AI is now making its way into real manufacturing environments.

Tsai shared one of the critical directions his team is currently pursuing: utilizing AI for CNC parameter

tuning. Traditional equipment tuning relies heavily on the experience of experienced technicians, and it can take days or even weeks to optimally tune a single machine. However, by using sensors to gather data on vibration, speed, and machining errors, and combining that with AI models and digital twin technology, the optimal parameter combination can be identified rapidly. He described it as: "Things that used to require years of experience to accomplish can now be achieved by far more people thanks to AI."

"Smart manufacturing isn't just about AI models; the real challenge lies in the physical world." Tsai emphasized. On the factory floor, variables such as temperature, humidity, materials, and equipment conditions all affect the machining outcomes. Therefore, smart manufacturing is not a pure software issue, but a cross-disciplinary engineering challenge that integrates information technology, mechanical engineering, control systems, and manufacturing processes.

Because of this complexity, Tsai believes that computer science students from NCTU are actually exceptionally well-suited for the smart manufacturing industry. The systems thinking and problem-solving skills cultivated by a computer science background can deliver immense value to the sector. However, he reminded students not to focus solely on the technology itself, but to understand the actual needs and pain points. "Often, the hardest part is not the method, but figuring out exactly what problem you are trying to solve."

In the latter half of his speech, Tsai further shared insights gleaned from his 20-year career, offering five key takeaways: "Problems matter more than methods; systems matter more than features; implementation matters more than demos; the long term matters more than the short term; and resilience matters more than sprinting." In his view, the biggest difference between academic research and industry is that industry ultimately demands real-world implementation. A solution only holds value if it can actually be deployed on the factory floor and operate stably.

For the many graduate students about to enter the workforce, he also offered a piece of advice: "There is no such thing as the best choice, only the choice that suits you best." He candidly remarked that most people do not truly know themselves initially, so they should start by doing and trying different things, gradually getting to know themselves along the way. Viewing a career as a long journey, he urged, "Don't be too afraid of change," because what truly matters is the ability to keep growing and to find a direction you are willing to commit to for the long haul.

From an NCTU computer science student to a key driver in the smart manufacturing industry, Chang-Yu Tsai's journey is more than just a personal career story; it mirrors Taiwan's manufacturing sector as it transitions from traditional automation to AI-driven smart manufacturing. For the students in attendance, this lecture was not merely a technical showcase, but an inspiring lesson in industry vision and long-term personal growth.

對酒當歌，灑脫一世

致我們心中永遠的吳銘雄學長

文／陳俊秀



國立陽明交通大學傑出校友、彥陽科技創辦人暨前酪陽實業董事長吳銘雄（Mayor），於2026年5月16日安詳辭世。吳學長生前熱心母校事務，曾任交大台北校友會理事長、資工系友會會長、友聲高爾夫球隊會長。交大校友總會執行長陳俊秀與其相識近二十載，特撰此信致敬這位永遠的好兄長。

Mayor 學長：

連續兩天到追思會看你，照片中的你依然一派自在。現場的大家談著與你相處的趣事，也照樣開上你最愛的紅酒，並沒有太多悲傷氣氛，這應該很符合你灑脫的風格吧！只是，我還是忍不住掉下淚來。

戴著紳士帽的瀟灑男子

那天，聽見你離開的消息，我腦海裡便響起你的招牌歌曲：「One Night in 北京，我留下許多情……」歌詞裡那個對酒當歌、豪邁奔放的北方狼族，就像是你的寫照。你總戴著英倫風格的紳士帽，舉手投足盡是不羈，開口飆高音更是驚豔全場。

其實，從大學開始你就是個傳奇人物。你說自己不愛唸書，還因為替人賽跑代跑被抓，搞到延畢，明明是67級卻讀到68級才畢業！大五時還回頭修大一的課，同班同學硬是比別人多了好幾倍，但也或許因此注定了你五湖四海皆兄弟的廣闊人脈。

你吃喝玩樂樣樣精通，口才好、文筆也不錯，做事更是出了名的阿莎力。從宏基到成為Intel第一位臺灣籍業務經理，再到職涯轉折，

創辦彥陽科技成為業界翹楚，始終站在頂尖的位置。你也是個極好的老闆，光看秘書跟了你30多年，就是最佳證明。

而你對交大的情誼之深，讓你很早就接下台北校友會理事長（2011-2013）一職。因為你的豪爽大方，那幾年的校友聚會常常是你買單，讓大家的相聚無後顧之憂。我清晰記得，有一年陽明大學郭旭崧校長請我幫忙推銷陽明大學45週年校慶紀念酒，我便在台北校友會活動呼籲大家認購。你當場帥氣地一句：「剩下的全部算我的！」60幾箱啊！那種二話不說、一肩扛起的氣魄，讓我至今都覺得佩服不已。

你對學弟妹的照顧也是出了名的。很早就設在電工系設立獎學金，後來也在資工系成立「彥陽科技獎學金」，並陸續提高了獎額。去年身體受病痛所苦時，心中掛念的仍是學校，甚至預立遺囑，成立「吳銘雄獎學金」。後來在林嘉勳學長的建議下，大家將原本準備的奠儀與追思花籃費用，轉入該獎學金，也有幾位學長捐出股票，希望延續你對母校的心意，福澤一代代的學弟妹。

大家的精神領袖

聽曾建超教授說，他當初因資訊學院傑出校友遴選而認識你，後來也是他力薦你接任系友會會長。你原本推辭，認為應該交給年輕人，但他跟你說：「您來當最好。」真的，你來當最好。你的海派與好人緣，為資工系打開了與外界連結的康莊大道。

你覺得老師們的交際圈過於單純，早在兩校合併之前的每年餐酒會上，就貼心保留一到兩桌招待資工系老師，還邀請陽明大學的教授、榮

總與市立聯合醫院的醫護主管共聚交流，提早促成了資工系與陽明之間的連結。後來資工系順利成立跨校區合作推動辦公室，便是奠基於你那時幫忙打下的情誼；系上能與林憲銘學長結緣，也是經由你的牽線。你像是大家的精神領袖，一呼百應。疫情爆發前，當時擔任資工系系友會會長的你與資工系彭文志主任共同號召68、69級學弟妹，打造全臺第一座電腦文物博物館；趙書華學姐也熱情參與，大家出錢出力，整理系上珍貴的資訊設備與古董級文物，串連出更多資源與支持，實踐你曾說過的：「因為上天賦予我天分能夠唸到交大，也受到很多人的照顧，如果能取之於社會、用之於社會，那是很快樂的事情。」聽說您也與一些企業界好友幫助滇緬地區的小朋友，把大愛傳到更多世界角落。

對紅酒的研究是專業中的專業

我們相聚，總少不了好酒。

你說，因為自己喝的加上送人的酒就超過一個貨櫃了，便索性開了一家「酪陽國際」來代理酒。我記得跟著你一起去美國加州納帕谷（Napa Valley），那裡是世界頂級的葡萄酒產區，連傳奇的羅伯蒙岱維酒莊主人都將我們禮遇為上賓，那一晚的餐酒饗宴，精采得無以復加。

聽你聊紅酒，從產區的土壤、陽光，到每一年分的氣候溫度對葡萄成長的影響，甚至橡木桶熟成的工藝、單寧與層次的展現，你都能滔滔不絕。我是又羨慕又佩服，你對紅酒的研究，真的是專業中的專業。

每逢校友會活動或過節，我經常收到你寄來的葡萄酒，而且每一次都是高品質的好酒。坦白說，我這輩子對酒的認識，一半來自老長官宣明智，另一半，全都是來自你了。本來還請你下次



吳銘雄（1956-2026）

國立交通大學計算機工程學系68級、EMBA 22E。曾任宏基電腦業務課長，之後陸續加入英特爾與AMD臺灣分公司。1989年創辦新陽電子，歷經事業起伏後再度創業，1995年成立彥陽科技，深耕IC零件代理領域逾30年，帶領公司成為業界具代表性的通路商。2010年創立酪陽實業，將對葡萄酒的熱愛化為事業，以酒會友、推廣品酒文化。

吳銘雄長年熱心母校與公益事務，曾任交大台北校友會理事長、資工系系友會會長與友聲高爾夫球隊會長，並持續支持獎學金與人才培育，於2020年獲選為交通大學傑出校友。

帶著大家到法國南部的亞維儂，可惜，再也沒機會了。

換個舞台，繼續瀟灑！

我很慶幸，我們曾在無數次的美食美酒中，暢談經營與創投，說笑著旅遊與休閒，也聽你說起與夫人大石的愛情：「我的第一個女朋友是她，現在老婆也是她。」儘管在人生路途上兜兜轉轉，命運最終讓你們攜手同行，很是浪漫。我也見過你褪下人前光采的模樣，疲憊地坐在沙發上閉目休息，在那些喧鬧背後，性情如你，一定也有渴望安靜放鬆的時刻吧！

三週前，我到民生社區附近吃飯，原本已經到你家樓下想再去看你，但考慮到你身體狀況而作罷。後來才知道，那時候的你已經住院了。對我們這群老友來說，只要走到那附近，心裡第一個念頭就是想去看看你，我知道大家都是如此。遺憾的是，沒能再多見你幾面。

你曾豁達地說：「人出生是光溜溜的，走的時候也帶不走任何一塊。人生中多做一點善事，心理上絕對是愉快的。」而在我記憶裡那個又高又帥、風流倜儻的你，那個五湖四海皆朋友的你，那個總愛搭幾句英文談笑風生，手裡拿著紅酒杯的你，永遠是我心中最貼心的、最好的兄長。

學長，你這一生豐富精采，對母校、對社會的付出，已經圓滿了。看著追思會上的你，定格在最美好的身影，我知道你已從容啟程。希望你新的旅途上，依然有美酒與好友相伴，換個舞台，繼續瀟灑！

弟
俊秀 敬上
2026.5.27



A Life Lived with Wine, Song, and Grace In Memory of Our Dear Friends, Mayor Wu

Mayor Wu, a Distinguished Alumnus of National Yang Ming Chiao Tung University (NYCU), founder of Promaster Technology, and former Chairman of Prowine Enterprise, passed away peacefully on May 16, 2026.

During his lifetime, Mayor Wu was deeply devoted to his alma mater, serving as President of the Chiao Tung University (NCTU) Taipei Alumni Association, President of the Computer Science Alumni Association, and President of the NCTU Alumni Voice Golf Club. Chiun-Hsiou CHEN, CEO of the NYCU Alumni Association, who shared a friendship of nearly twenty years with him, penned this letter to pay tribute to this beloved senior brother.

Dear Senior Brother Mayor,

I went to your memorial service two days in a row to see you. In the photograph, you still looked as wonderfully composed and at ease as ever. Everyone at the venue chatted about the fun memories of being with you, opening your favorite red wines just as we always did. The atmosphere wasn't overly somber—which I suppose fits your carefree, uninhibited style perfectly! Still, I couldn't help but shed tears.

A Dashing Gentleman in a Fedora

The day I heard the news of your passing, your signature song immediately echoed in my head: "One Night in Beijing, I left so much love behind..." The hero in those lyrics—bold, passionate, singing over wine like the free-spirited northern hero in the song—was a true reflection of who you were. You always wore a British-style fedora, carrying an air of wild charm in every gesture, and you never failed to amaze everyone whenever you hit those soaring high notes.

In truth, you were a legend ever since your university days. You used to say you didn't like studying and even got caught running a track race for someone else, which delayed your graduation. Though you were originally the Class of '78, you didn't graduate until '79! During your fifth year, you had to retake freshman classes—giving you several times more classmates than anyone else. But perhaps that was destiny, laying the groundwork for your vast network of friends across all walks of life.

You mastered every aspect of enjoying life—from fine food to good drink. You were articulate, gifted in writing, and renowned for your generosity and willingness to help others. From your early days at Acer, to becoming Intel's first Taiwanese sales manager, and eventually founding Promaster Technology and making it an industry leader, you always stood at the very top of your field. You were also an exceptional boss; the fact that your secretary stayed by your side for over 30 years is the ultimate proof.

Your deep affection for NCTU led you to take on the

presidency of the Taipei Alumni Association early on (2011–2013). Thanks to your magnanimous nature, you often picked up the tab for our alumni gatherings back then, allowing everyone to enjoy each other's company without a single worry. I vividly remember one year when President Guo Hsu-Sung of Yang-Ming University asked me to help promote their 45th-anniversary commemorative wine, and I appealed for pledges during a Taipei Alumni Association event. Right then and there, you stepped up with cool flair and said, "I'll take whatever is left!" That was over 60 cases! That kind of spontaneous willingness to take responsibility still leaves me in awe to this day.

Your care for younger alumni was equally famous. You established a scholarship in the Department of Electrical Engineering very early on, and later created the "Promaster Technology Scholarship" in the Department of Computer Science, continually increasing the fund. Last year, even while suffering from illness, your mind remained focused on the university; you even prepared a will to establish the "Mayor Wu Scholarship." Later, at the suggestion of Senior Brother Lin Chia-Hsun, everyone redirected the funds originally intended for funeral gifts and flower baskets into this scholarship. Several senior alumni also donated shares, hoping to carry on your devotion to our alma mater and benefit generations of younger students to come.

The Heart of Our Community

According to Professor Tseng Chien-Chao, he first met you during the selection process for distinguished alumni of the College of Computer Science, and he was the one who later strongly recommended you for the President of the CS Alumni Association. You initially declined, feeling the role should be passed to younger generations, but he told you: "It's best if you do it." And indeed, it was best that you did. Your open-hearted nature and immense popularity built a vital bridge connecting the CS Department to the outside world.

Feeling that the professors' social circles were somewhat insulated, years before the two universities merged, you thoughtfully reserved one or two tables at annual wine-and-dine events to host CS professors. You also invited professors from Yang-Ming University as well as medical executives from Veterans General Hospital and Taipei City Hospital to gather and network, quietly fostering early ties between the CS Department and Yang-Ming. Later, when the CS Department successfully set up its Cross-Campus Collaboration Office, it was built upon the foundation of friendship you helped lay back then. The department's connection with Senior Brother Lin Hsien-Ming was also forged through your mediation. You were like a spiritual leader to us all, whenever you called, everyone answered.

Before the pandemic broke out, while serving as President of the CS Alumni Association, you joined CS Department Director Peng Wen-Ji in rallying alumni

from the Classes of '79 and '80 to build Taiwan's very first Computer Museum. Senior Sister Chao Shu-Hua also enthusiastically participated. Everyone contributed both money and effort to organize the department's precious information equipment and antique artifacts, linking together even more resources and support. You truly put into practice what you once said: "Because Heaven blessed me with the talent to attend NCTU, and because I've received so much care from others, if I can give back to society what I've gained from it, that is a deeply joyful thing." I also heard that you worked with friends in the business community to help children in the border regions of Yunnan and Myanmar, spreading your compassion to even more corners of the world.

A True Professional in the Art of Wine

Whenever we gathered, good wine was indispensable.

You used to joke that because the amount of wine you drank and gave away as gifts added up to more than a shipping container, you decided to simply open "Prowine" to import and distribute wine yourself. I remember traveling with you to Napa Valley in California—a world-class wine region—where even the owner of the legendary Robert Mondavi Winery treated us as honored guests. That evening's food and wine pairing banquet was brilliant beyond words.

You could talk endlessly and passionately about red wine, from the soil and sunlight of a region, to how each year's climate and temperature affected the growth of the grapes, down to the craftsmanship of oak barrel aging, tannins, and complex layers, you could talk endlessly and passionately. I was both envious and admiring; your knowledge of red wine was truly that of a master, making you a true expert among wine enthusiasts.

During alumni events or holidays, I frequently received high-quality wines sent by you. To be frank, half of everything I know about wine in my life came from my former supervisor Xuan Ming-Zhi, and the other half came entirely from you. We had originally agreed that next time you would take us all to Avignon in the south of France. Sadly, that opportunity will never come again.

A New Stage, the Same Free Spirit

I feel so fortunate that across countless meals and fine wines, we spoke freely of business management and

venture capital, laughed over travel and leisure, and listened as you shared the love story between you and your wife, Ta-Shih: "She was my first girlfriend, and now she is my wife." Though life took its twists and turns, destiny ultimately brought you two back together to walk hand-in-hand—it was truly romantic. I also saw the side of you away from the spotlight: sitting tired on the sofa, resting with your eyes closed. Behind all the noise and bustle, a genuine soul like yours must have also longed for quiet moments of relaxation.

Three weeks ago, I went to dinner near Minsheng Community. I was already at the foot of your building and thought about dropping by to see you, but decided against it out of consideration for your health. Only later did I learn that you were already hospitalized at the time. For us old friends, whenever we walk near that area, our first thought is always to visit you—I know everyone feels the same way. My only regret is that I couldn't see you a few more times.

You once said with great open-mindedness: "People come into this world with nothing and leave with nothing. Doing a bit more good in life makes you feel genuinely happy in your heart."

In my memory, you will forever remain that tall, handsome, and charismatic man—the one with friends all over the world, the one who loved to drop a few English phrases while chatting and laughing with a red wine glass in hand. You will always be the most thoughtful, best older brother in my heart.

Senior Brother, your life was rich and magnificent. Your life's contributions to our alma mater and society are complete. Looking at you at the memorial service, frozen in your finest moment, I know you have embarked on your next journey with grace and composure.

May you still be accompanied by fine wine and good friends on your new path. Move to a new stage, and keep living life with your trademark flair!

Respectfully,

Your Younger Brother,
Chiun-Hsiou
May 27, 2026

Mayor Wu (1956–2026)

Mayor Wu graduated from the Department of Computer Engineering at National Chiao Tung University (NCTU) in 1979 (Class of '79) and later earned his EMBA (Class 22E). He began his career as a sales manager at Acer, subsequently joining the Taiwan branches of Intel and AMD. In 1989, he founded Sunyoung Electronics. After navigating the ups and downs of business, he embarked on another entrepreneurial venture in 1995 by establishing Promaster Technology. With more than three decades of experience in IC component distribution, he led the company to become one of the industry's leading distributors. In 2010, driven by his passion for wine, he founded Prowine Enterprise, turning his passion into a business while bringing people together through wine and promoting the culture of wine appreciation.

Mayor Wu was long dedicated to his alma mater and philanthropic causes. He served as President of the NCTU Taipei Alumni Association, President of the Computer Science Alumni Association, and President of the NCTU Alumni Voice Golf Club. He consistently supported scholarships and talent development, and was named a Distinguished Alumnus of National Chiao Tung University in 2020.

香港中文大學 John C. S. Lui 博士演講 Quantum Internet: The Final Frontier

文／陳冠霖 資科工所碩士生



講者 John C. S. Lui 為香港中文大學計算機科學與工程學系教授，這次演講的主題是「Quantum Internet: The Final Frontier」，旨在鼓勵年輕學者和學生將研究視野拓展到當前擁擠的人工智慧（AI）／大型語言模型（LLM）領域之外，專注於更具長遠意義的量子網路（Quantum Internet）基礎研究。

呂教授指出，過去幾年研究焦點集中於 AI 和 LLM，導致該領域競爭極度白熱化，呼籲大家「think beyond AI」，轉向量子網路，因為它代表著一個具有深遠影響的領域。他強調量子計算的成功將使國家或公司能夠跨越式發展競爭對手，因為一個最佳經典電腦需耗費 120 年解決的問題，量子電腦可能只需一個月。量子網路的關鍵應用包括量子金鑰分發（QKD）以確保通訊安全，以及實現高解析度傳感。呂教授為非物理學背景的聽眾簡要介紹了量子力學的核心概念，並強調進入此領域僅需掌握線性代數，特別是涉及

複數的希爾伯特空間。量子網路的基石是量子糾纏（Entanglement），它允許完美隨機性共享作為秘密金鑰。由於量子資訊在長距離傳輸中成功的機率會指數級下降，量子中繼器（Quantum Repeaters）的技術至關重要，它通過糾纏交換來克服距離限制，提高端到端糾纏的建立成功率。

在網路協定設計上，呂教授應用了 Online Learning 理論，特別是 MAB 演算法的思想，解決實際挑戰。在量子路徑選擇問題中，網路鏈路被視為 MAB 模型中的「臂」。研究團隊設計了一種演算法，透過彈跳的基準測試操作來估計鏈路的保真度，並利用霍夫丁不等式的置信區間來消除劣質鏈路。實驗結果顯示，相較於傳統方法，他們的演算法能以顯著更少的量子資源（彈跳次數），高效且準確地找到最佳鏈路。此外，為了解決未來多個量子 ISP 之間去中心化的全球路由問題，他們探討了量子邊界閘道器協定（QBGp）。QBGp 旨在維護和選擇一條最高保真度的路徑，同樣藉助類似 MAB 的線上學習演算法來主動選擇和優化這些路徑，從而減少所需的量子資源並提升網路吞吐量。

呂教授總結時，將當前的量子網路研究比作 1960 年代和 70 年代網際網路研究的初期階段，充滿了挑戰與機遇。他認為，量子電腦的「量子電路」結構為研究人員提供了第二次機會來重新設計量子編程語言、量子編譯器等基礎計算工具。他鼓勵年輕學者選擇成為先驅者，因為這是一個競爭少、充滿 low-hanging fruits 且研究方向長久持續的領域。儘管目前來自公司的研究經費較少，但他相信專注於基礎且有意義的研究，將比在擁擠的 AI 領域追求短期熱點更有價值。

Speech by Dr. John C. S. Lui, The Chinese University of Hong Kong Quantum Internet: The Final Frontier

The speaker, John C. S. Lui, is a professor in the Department of Computer Science and Engineering at The Chinese University of Hong Kong. The theme of this lecture was 'Quantum Internet: The Final Frontier,' which aimed to encourage young scholars and students to expand their research horizons beyond the currently overcrowded field of Artificial Intelligence (AI) / Large Language Models (LLM), and to focus on foundational research in the Quantum Internet, which holds greater long-term significance.

Professor Lui pointed out that the research focus over the past few years has been concentrated on AI and LLM, leading to extremely fierce competition in this field. He urged everyone to 'think beyond AI' and turn toward the Quantum Internet, as it represents a domain with profound impact. He emphasized that success in quantum computing will allow nations or companies to leapfrog their competitors, because a problem that would take an optimal classical computer 120 years to solve might only take a quantum computer one month. Key applications of the Quantum Internet include Quantum Key Distribution (QKD) to ensure communication security, as well as achieving high-resolution sensing. Professor Lui briefly introduced the core concepts of quantum mechanics to audience members without a physics background, emphasizing that entering this field only requires mastering linear algebra, particularly Hilbert space involving complex numbers. The bedrock of the Quantum Internet is Quantum Entanglement, which allows the sharing of perfect randomness to serve as secret keys. Since the probability of successfully transmitting quantum information over long distances decays exponentially, the technology of Quantum Repeaters is crucial. It overcomes distance limitations through entanglement swapping, improving the success rate of establishing end-to-end entanglement.

In network protocol design, Professor Lui applied Online Learning theory, specifically the concepts of MAB algorithms, to solve practical challenges. In the quantum path selection problem, network links are treated as 'arms' in the MAB model. The research team designed an algorithm that estimates link fidelity through bouncing benchmark operations and utilizes confidence intervals from Hoeffding's inequality to eliminate inferior links. Experimental results show that, compared to traditional methods, their algorithm can efficiently and accurately find the optimal link with significantly fewer quantum resources (number of bounces). Furthermore, to solve the future decentralized global routing problem among multiple quantum ISPs, they explored the Quantum Border Gateway Protocol (QBGp). QBGP aims to maintain and select the path with the highest fidelity, similarly leveraging MAB-like online learning algorithms to proactively select and optimize these paths, thereby reducing required quantum resources and increasing network throughput.

In his conclusion, Professor Lui likened current Quantum Internet research to the early stages of internet research in the 1960s and 70s, which was full of challenges and opportunities. He believes that the 'quantum circuit' structure of quantum computers provides researchers with a second chance to redesign foundational computing tools such as quantum programming languages and quantum compilers. He encouraged young scholars to choose to be pioneers, because this is a field with less competition, plenty of low-hanging fruits, and long-lasting research directions. Although there is currently less research funding coming from companies, he believes that focusing on foundational and meaningful research will be far more valuable than pursuing short-term hot topics in the crowded AI field.

終結「與我無關」的學習痛點 曾意儒老師的創新教學分享

文／劉禹辰



在教學現場，每位老師都有自己的方法論。然而，真正能引導學生「學會」的教學，不僅止於內容傳授，更關鍵在於能否有效回應學生的真實需求。

來自陽明交大資工系的曾意儒教授，在教學分享會中以自身授課經驗與教學研究計畫為例，談論如何從「看見學生問題」出發，打造更有效的課堂與學習策略。

從「教得好」到「學生學得好」

曾老師在分享中強調，所有的教學方法——不論是傳統講述、互動式學習、翻轉教室、科技輔助——只要能真正幫助學生，都值得被採用。他指出，許多老師容易把焦點放在「我的教法如何」，但真正有效的教學應該是逆向思維，從學生的學習困難點著手解決：究竟是哪些學生無法跟上進度？哪些學生感到學習內容枯燥乏味？

他同時提醒：「學生評價高，不代表你真正解決了問題。」教學成效不能只依賴主觀感覺，而是要能清楚說明你的方法如何改善學生的學習狀況。

看見學生困難：統計課的改造起點

曾老師以他所教授的統計課為例，說明如何從「學生痛點」啟動課程改造。統計課常被學生視為無聊且缺乏實用性，加上課程為英文授課，不少學生表示若能由中文上課會更容易理解。這些都是他重新設計教學模式的核心依據。

他歸納出課程需要改善的三個主要問題：學習動機不足、統計概念難以與真實世界連結，以及英文授課帶來額外的理解壓力。為此，他規劃了一套完整的教學模式，並透過教育部教學實踐研究計畫進行驗證。

三大教學策略：以學生為中心的課堂設計

1. 預習影片 × 課堂應用：提升參與與節奏感

曾老師使用「預錄影片＋課堂應用」的方式，讓學生在課前先接觸核心概念，課堂上則專注於實作與討論，使時間運用更有效率。學生能依自身節奏消化影片內容，也讓課堂參與度大幅提升。他笑說，雖然錄影片很花時間，但錄一次可以用很多年，長期來看十分值得。

2. PBL (Problem-Based Learning, 問題導向學習)：讓統計回到真實世界

為打破學生「統計很抽象」的印象，曾老師把課堂練習設計成真實世界的問題。舉例來說：以演唱會搶票為例，讓學生分析不同裝置與網路

環境的成功率差異；探討不同 MBTI 屬性族群的旅遊行程安排行為差異；分析 IG 趨勢或社群議題背後的資料模式——學生不再只是計算數字，而是透過統計工具回答「現實生活的問題」。

3. 提高學生參與：解決英文授課帶來的焦慮

曾老師引用研究指出：只要學生參與度提升，英文課程帶來的焦慮便能降低。因此課堂中學生必須分組動手解題，老師與助教全程走動，隨時回答學生問題；並且，他將每堂課都安排成固定 cycle：前測→分組解題→後測，這樣的固定節奏讓學生能預期課堂流程，增加安全感與投入度。

教學改造後的成果：學習變化看得見

曾老師透過多元資料的分析，清楚描繪出課程在提升學生學習成效上的具體成果與學生體驗。

後測成績的明顯提升，直觀地證實了課程設計在知識傳授上的效益；進一步的分析也顯示，課堂活動的參與度與期末考成績呈正相關，突顯了積極互動對學習表現的重要性。在數位學習資源的運用方面，雖然學生認為看影片無法即時提問，但透過配合課堂練習，學生對內容的理解度仍舊獲得大幅提升——他們從「看不懂統計在幹嘛」具體進步到「能夠把統計用來回答生活中的問題」，顯示課程成功實現了知識應用能力的培養。

此外，從質性訪談中，學生普遍認為課程中「實作」與「可以隨時問問題」是幫助最大的兩項因素，這為課程未來的優化提供了明確的方向。同時，訪談也讓曾老師發現了可以再調整之處，例如影片資源的即時提問機制有待加強，以及題目量大對部分學生造成的壓力等。

教學的心法：不在於方法，而在於「願意改變」

在整場分享中，曾老師反覆強調一件事：「沒有最好的教學法，只有最適合學生的教學法。」教師不需要一次改造所有事情，也不需要一開始就具備華麗的教學工具或科技。他建議老師們：

1. 從「學生最需要的地方」開始調整

2. 用可評估的方式檢視效果

3. 把課堂當作「持續改進的場域」

他也提醒，老師在課堂上的改變，不僅影響學生學習，也可能讓他們在無形中重拾信心，感受到被理解與支持。

曾意儒老師的經驗分享，提醒了所有教育工作者：教學從來不是孤軍奮戰，而是一個可以與同事、教學單位、助教，甚至是學生共同合作與成長的過程。

在知識與技術快速變動的時代，教育中最核心且最不變的價值，是老師願意理解學生、陪伴學生，並與學生一起面對學習挑戰的勇氣與耐心，也正因如此，課堂才能真正成為學生「學得好」且能持續成長的有效學習場域。

Ending the "Irrelevance" Pain Point in Learning: Innovative Teaching Insights from Professor Yi-Ju Tseng

In the classroom, every instructor has their own methodology. However, teaching that truly guides students toward "mastery" goes beyond mere content delivery; the key lies in effectively responding to students' actual needs.

Professor Yi-Ju Tseng from the Department of Computer Science at National Yang Ming Chiao Tung University (NYCU) shared her experiences and teaching research projects at a recent faculty seminar. She discussed how to build more effective classroom environments and learning strategies by starting with "identifying student problems."

From "Teaching Well" to "Learning Well"

Professor Tseng emphasized that all pedagogical methods—whether traditional lectures, interactive learning, flipped classrooms, or tech-assisted instruction—are worth adopting as long as they genuinely help students. She pointed out that many instructors tend to focus on "how I teach," but truly effective teaching requires reverse thinking: starting with the students' obstacles. Which students are falling behind? Which ones find the material dull?

She also offered a reminder: "High student ratings do not necessarily mean you have solved the underlying problems." Teaching effectiveness should not rely solely on subjective feelings; one must be able to articulate how their specific methods improve the learning condition.

Identifying Obstacles: The Starting Point for Statistics Course Reform

Using her Statistics course as an example, Professor Tseng illustrated how "student pain points" can trigger curriculum redesign. Statistics is often perceived by students as boring and impractical. Furthermore, as the course is taught in English (EMI), many students expressed that learning in Mandarin would be easier. These insights became the core rationale for her redesign.

She identified three primary issues: lack of motivation, difficulty connecting statistical concepts to the real world, and the cognitive load of learning in English. To address these, she designed a comprehensive teaching model and validated it through the Ministry of Education's Teaching Practice Research Program.

Three Key Teaching Strategies: Student-Centered Design

1. Preview Videos × In-Class Application: Enhancing Engagement and Self-Pacing By using a "pre-recorded videos + in-class application" model, Professor Tseng allows students to encounter core concepts before class, freeing up class time for hands-on practice and discussion. This allows students to digest content at their own pace and significantly boosts classroom participation. She joked that while recording videos is time-consuming, they can be used for years, making it a worthwhile long-term investment.

2. PBL (Problem-Based Learning): Bringing Statistics into the Real World To break the stereotype that

statistics is "abstract," she designed exercises based on real-world scenarios. For example: analyzing the success rates of different devices and networks when booking concert tickets; exploring travel behavior differences among various MBTI types; or analyzing data patterns behind Instagram trends. Students no longer just calculate numbers; they use statistical tools to answer "real-life questions."

3. Increasing Participation: Reducing EMI Anxiety Professor Tseng cited research showing that as student engagement increases, the anxiety caused by English-medium instruction decreases. Consequently, her classes require group problem-solving where she and TAs circulate the room to provide immediate support. She also established a fixed cycle for every session: Pre-test → Group Problem Solving → Post-test. This predictable rhythm provides students with a sense of security and encourages focus.

Results After Reform: Visible Changes in Learning

Through multi-dimensional data analysis, Professor Tseng illustrated the concrete outcomes of the course. A significant increase in post-test scores provided direct evidence of the curriculum's effectiveness in knowledge transfer. Furthermore, analysis showed a positive correlation between classroom participation and final exam performance, highlighting the importance of active interaction.

Regarding digital resources, while students noted they couldn't ask questions during videos, their overall understanding improved significantly through the integration of in-class exercises. They progressed from "not knowing what statistics is for" to "being able to use statistics to answer life's questions." Qualitative interviews also revealed that "hands-on practice" and "immediate access to help" were the two most helpful factors, though some students noted pressure from the high volume of problems.

The Mindset of Teaching: It's Not the Method, It's the "Willingness to Change"

Throughout her talk, Professor Tseng repeatedly emphasized: "There is no single best teaching method, only the method that best fits the students." Instructors do not need to overhaul everything at once or possess flashy technology. She offered three suggestions:

1. Adjust starting from where the students need it most.
2. Review outcomes using evaluable metrics.
3. Treat the classroom as a space for continuous improvement.

She also reminded colleagues that changes made by a teacher can help students regain confidence and feel understood and supported.

Professor Yi-Ju Tseng's experience serves as a reminder that teaching is not a solitary struggle. It is a collaborative process involving colleagues, teaching units, TAs, and the students themselves. In an era of rapid technological change, the most enduring value in education remains the teacher's courage and patience to understand and accompany students through their challenges.

架構你的英語力： 資訊學院「英語圓桌」助研究生高效溝通

文／陳柏丞 英教所碩士生



為了強化國立陽明交通大學資訊學院研究生，在全英語學習環境下的溝通表達能力與技巧，資訊學院雙語計畫推動工作小組於 114 學年度第一學期，再度推出廣受好評的《英語圓桌 (English Roundtable)》活動。該活動旨在提供學生一個活潑互動、沉浸式的英語學習環境，透過小班制的深入指導與結構化的教學設計，確保每位參與者皆有充足的口說練習機會，從而提升學生用英語溝通交流的自信與能力。

本次英語圓桌由國際高教培訓暨認證中心 (Higher Education Accreditation for Teaching, HEAT) 的 EMI Specialist 薛詠文老師 (Wendy) 擔任主講。本活動共開設四個梯次，每梯次均安排兩堂實務課程訓練。第一堂課著重解決學生在英語表達方面常見的困難，例如單字量不足或無法有效地建構觀點，Wendy 老師介紹了兩大框架：「1-2-3 Model (1 Answer-2 Reasons-3 Words to recap)」與「PPF Model (Past-Present-Future)」，協助學生運用具體的思考架構與時序觀點來迅速組織思緒；同時導入「Frayer Model 字彙學習法」，引導學生透過定義 (Definition)、特徵 (Characteristics)、例子 (Examples) 與非例子 (Non-examples) 四個象限來分析單字，Frayer Model 能夠幫助學生跳脫傳統死記硬背的方式，使其真正了解詞彙的用法和語境後，具備將詞彙活用於日常生活中的能力。

第二堂課則著重在「口語表達」與「修辭策略」的訓練，旨在讓學生不僅能用英文流暢表達，更能夠說得精彩。Wendy 老師逐步引導學生運用「黃金五法」- Direct Answer (直接回答)、Reasons (理由)、Comparisons (比較)、Examples (舉例)、Feeling (感受)，幫助他們在最初簡短回答的基礎上，提供更多細節，進而豐富內容的層次。此外，為了讓學生在課堂上報告或分享時，能夠更具吸引力與說服力，Wendy 老師特別分享三大修辭策略 - 「故事敘述法 (Storytelling)」、「對比法 (Contrast)」與「設問法 (Using Questions)」，引導學生如何去和聽

眾互動，並讓報告內容更為鮮明。

根據問卷統計結果，本次的英語圓桌活動參與者對於本次活動的整體滿意度高達 4.58 分 (滿分 5 分)。其中，參與者對於「課程設計增加我開口說英文的機會與意願」更是給予了極高的評價 (4.79 分)，這意味著本活動成功營造了鼓勵嘗試的學習環境，讓參與者不用擔心說錯，而能自信地以全英語進行分享、交流。此外，參與者也在回饋中分享了許多寶貴的心得，例如：

- 「非常好的活動，讓我能多練習英文口說，並且習慣在台上演講，希望未來有更多想這樣的課程」。
- 「很棒的機會可以練習口說，並且有老師糾正你的語法跟口說技巧。除此之外還會有架構性的教學，以及同儕示範與對練，可以很好的加深這些口說技巧的印象」。
- 「我覺得這個活動才是真正學英文的方法，至少比學文法、做題目有趣多了」。
- 「這次的活動讓我認識到許多實用的溝通以及演講技巧，老師以及同學們也都有著積極正向的活動參與度，讓我這個不太熟悉英文口說的人也能願意大聲的把自己的想法用英文說出來，是一次非常好的練習機會」。
- 「I learned very useful strategy to answer the question in detail, and like in a talk. I learned three rhetorical strategies, which including storytelling, contrast, using question. I believe that attending this lesson can help me improve the conversation, vocabulary, and so on.」
- 「This my first time to engaged in this activity, also my first time to say so many English in front of so many people. I felt some stress, but also get a lot of progress. I feel so grateful.」

以上回饋皆反映出本次英語圓桌活動所提供的活潑互動、沉浸式學習環境，成功獲得參與者的熱烈迴響。整體而言，這次的活動不僅提供了寶貴的口說練習機會，更透過導入「1-2-3 Model」、「PPF Model」、「Frayer Model」、「黃金五法」與「三大修辭策略」，提升參與者的構思能力與英語表達力。未來，資訊學院雙語計畫推動工作小組將持續推出符合學生實務需求的英語增能活動，培育更多具備國際移動力與溝通表達能力的資訊人才。

Building Strong English Skills: The College of Computer Science "English Roundtable" Supports Effective Student Communication

With an aim to strengthen the communication skills of graduate students in the College of Computer Science under an all-English learning environment at National Yang Ming Chiao Tung University, the Bilingual Education Task Force Team of the College of Computer Science once again launched the well-received activity "English Roundtable" in the first semester of the 114th academic year. This activity aims to provide students with an interactive and immersive English learning environment, ensuring that every participant has abundant opportunities to practice speaking English through in-depth guidance and structured teaching design in small group instruction, thereby enhancing students' confidence and ability to communicate in English.

This time, "English Roundtable" was moderated by Wendy, an EMI Specialist from the Higher Education Accreditation for Teaching (HEAT) at NYCU. The activity has a total of four sessions, each with two practical course trainings. The first class focused on solving common difficulties in English expression, such as insufficient vocabulary or not being able to construct ideas effectively. In order to help participants overcome these difficulties, the lecturer introduced two frameworks: "1-2-3 Model (1 Answer-2 Reasons-3 Words to recap)" and "PPF Model (Past-Present-Future)" to help participants quickly organize their thoughts using specific thinking frameworks and chronological perspectives. At the same time, the "Frayer Model" was also introduced to guide students to analyze words through the four different quadrants: Definition, Characteristics, Examples, and Non-examples. This Frayer Model can help students break away from traditional rote memorization, and equip them with the ability to apply vocabulary in daily life after they truly understand the usage and context of words.

On the other hand, the second class focused on the training of "oral expression" and "rhetorical strategies", aiming to enable students to not only express themselves fluently in English, but also speak wonderfully. The lecturer guided students step by step using the "Golden Five Aspects" - Direct Answer, Reasons, Comparisons, Examples, and Feeling to help them provide more details on top of the initial short answers, thereby enriching the richness of content. In addition, to help students become more engaging and persuasive when presenting or sharing in class, the lecturer shared three major rhetorical strategies - "Storytelling", "Contrast" and "Using Questions" - to guide students on how to interact with the audience and make the content of the presentation more vivid.

- 「I learned very useful strategy to answer the question in detail, and like in a talk. I learned three rhetorical strategies, which including storytelling, contrast, using question. I believe that attending this lesson can help me improve the conversation, vocabulary, and so on.」
- This is my first time to engage in this activity, and is also my first time to say so much English in front of

so many people. I felt some stress, but also got a lot of progress. I feel so grateful.」

According to the results of the survey, the overall satisfaction rate of participants with this activity was as high as 4.58 points out of 5. Participants particularly gave a high rating (4.79 points) to the statement "The curriculum design increases my opportunities and willingness to speak English.", which means that this activity has successfully created a learning environment that encouraged experimentation, allowing participants to confidently share and communicate in English without worrying about making mistakes. In addition, participants also shared many valuable insights in their feedback, such as:

- 「It was a very good activity, allowing me to practice speaking English more and get used to speaking on stage, and I hope to have more courses like this in the future.」
- 「It's a great opportunity to practice speaking and have a teacher to correct your grammar and speaking skills. In addition, the structured teaching, along with peer demonstrations and pair work, helps internalize these speaking skills.」
- 「I think this activity is the real way to learn English, at least it's much more interesting than learning grammar and doing the exercises.」
- 「Through this activity, I learned many practical communication and presentation skills, and both the instructor and my peers were very active and positive so that even those who are not familiar with speaking English can be willing to express their thoughts out loud in English, which is a very good opportunity to practice.」
- 「I learned very useful strategy to answer the question in detail, and like in a talk. I learned three rhetorical strategies, which including storytelling, contrast, using question. I believe that attending this lesson can help me improve the conversation, vocabulary, and so on.」
- 「This is my first time to engage in this activity, and is also my first time to say so much English in front of so many people. I felt some stress, but also got a lot of progress. I feel so grateful.」

The above feedback reflects the lively and interactive learning environment provided by this "English Roundtable" activity, which has successfully received enthusiastic responses from participants. Overall, this activity not only provided valuable opportunities for English speaking practice but also improved participants' conceptual skills and English expression skills by introducing the "1-2-3 Model", "PPF Model", "Frayer Model", "Golden Five Aspects" and "Three Rhetorical Strategies". In the future, the Bilingual Education Task Force Team of the College of Computer Science will continue to launch English power-up activities that meet students' practical needs to cultivate more IT talents with international mobility and communication skills.

產學攜手打造 AI 實踐基地：聖洋科技捐建「人工智慧與互動特色教室」盛大揭牌

文／胡翔祐



隨著生成式人工智慧與自動化技術如雨後春筍般地快速沿革，高等教育的教學現場也正面臨著深刻變革。為此，陽明交通大學資訊工程學系將於 4 月 11 日的「系友回娘家」活動中，隆重舉辦人工智慧與互動特色教室空間整修之揭牌儀式。該空間在 cacaFly 聖洋科技的慷慨捐助下全面蛻變，從不起眼的老教室，搖身一變成令人嘖嘖稱奇的多功能場域。屆時也將由校方頒發感謝狀，表彰企業對培育尖端人工智慧與機器人人才的傑出貢獻。

傳統的教室，往往僅做為功能單一的授課場域，而此次整修的目的，就是希望能打破空間利用的窠臼，將原本受限於固定桌椅的 ED305 教室，活化為兼具實作、實驗與沉浸式體驗的多元創新場域。聖洋科技表示，為了支持資工系在 AI 與機器人領域的研究發展，特別規劃將此空間模擬為真實的居家環境。這種設計能讓研究不再侷限於數位模擬，而是讓學生在類似居家的場域中，直接進行智慧家庭或智慧照護的應用開發，縮短學術研究與生活實踐的距離。

在空間機能的配置上，整修後的人工智慧與互動特色教室展現了高度的技術前瞻性。為了對應新興的機器人（Robotics）、擬人機器人（Humanoid）及無人機（Drone）等課程，場域內部採取了全開放式的彈性配置，提供寬敞的空間供機器人行走與無人機起降，徹底解決了傳統教室難以進行動態操作的痛點。此外，空間

內佈建了高規格的電力與網路設施，足以支持多組運算設備與感測裝置同時運行，並導入動作捕捉、VR/AR 及人機互動感測系統，建構出一個完整的多模態實驗環境。

這座空間的啟用也直接帶動了課程體系的革新。陽明交通大學資訊工程學系規劃於 114 學年度率先將「實體人工智慧」課程引入此空間，並於下學期推出「人工智慧總整與實作」作為正式啟用的開端。隨後，人機互動（HCI）領域的專業教師亦將規劃相關總整課程，並與校內的創工坊合作開設微學分課程，期許能透過跨領域的專題應用，激發學生的實務創新能力。除此之外，目前人工智慧與互動特色教室的定位並不僅止於資工系內部，更秉持著開放的精神，歡迎校內電機、醫學、人文學科等各大學院、學系提出申請，期許能在此碰撞出跨領域、跨專業的創新火花。

更難能可貴的是，人工智慧與互動特色教室的教育影響力不只為陽交大帶來正面影響，更將跨出校園界線。據「台灣大專院校人工智慧學程聯盟」總主持人規劃，預計於 115 學年度將「實體人工智慧」課程納入聯盟體系，讓人工智慧與互動特色教室成為全國共享的示範性教育資源。透過聖洋科技的資源挹注與校方的學術前瞻佈局，這間教室已從傳統的講堂演變為連結產業、跨足全國的智慧能量中心，為台灣未來的 AI 人才培育奠定堅實基礎。

Industry-Academia Collaboration Establishes AI Practice Hub: cacaFly's Donated "AI & Interaction Specialty Classroom" Officially Unveiled

As generative AI and automation technologies evolve at a breakneck pace, the landscape of higher education is undergoing a profound transformation. In response, the Department of Computer Science at National Yang Ming Chiao Tung University (NYCU) will host a grand unveiling ceremony for its newly renovated "AI & Interaction Specialty Classroom" during the "Alumni Homecoming" event on April 11. Thanks to a generous donation from cacaFly, an inconspicuous old classroom has been completely transformed into a state-of-the-art, multifunctional space. During the ceremony, the university will present a certificate of appreciation to recognize the company's outstanding contribution to cultivating elite AI and robotics talent.

Breaking the Mold: From Traditional Lectures to Immersive Practice

Traditional classrooms are often limited to single-purpose lecturing. This renovation aims to break those spatial constraints, revitalizing classroom ED305—once restricted by fixed seating—into a versatile innovation hub for hands-on experimentation and immersive experiences. cacaFly stated that to support the department's R&D in AI and robotics, the space was specifically designed to simulate a real-world home environment. This allows students to move beyond digital simulations and develop smart home or smart care applications in a lifelike setting, effectively bridging the gap between academic research and daily life.

High-Tech Infrastructure for Next-Gen Robotics

The redesigned classroom showcases significant technical foresight. To accommodate emerging courses in Robotics, Humanoid, and Drones, the interior features a fully open, flexible layout. This provides ample space for robot navigation and drone maneuvers, solving a major pain point of traditional classrooms. Key technical features include:

- High-Specification Power & Networking: Supports simultaneous operation of multiple computing devices and sensors.

- Multimodal Experimental Environment: Integrated with motion capture, VR/AR, and human-computer interaction (HCI) sensing systems.

Curriculum Innovation and Interdisciplinary Synergy

The launch of this space has directly catalyzed curriculum reform. The Department of Computer Science plans to introduce the "Physical AI" course to this facility in the 2025 academic year, followed by "AI Capstone and Practice" in the second semester. Furthermore:

- HCI specialists will design capstone courses and collaborate with the university's ICT Workshop to offer micro-credit courses.

- Cross-disciplinary outreach: The space is open to applications from the Colleges of Electrical Engineering, Medicine, and Humanities, encouraging innovative "sparks" across different professional fields.

A National Resource for AI Education

The impact of this classroom extends far beyond the NYCU campus. According to the lead coordinator of the "Taiwan AI Course Oracle (TAIC)", there are plans to integrate the "Physical AI" course into the national alliance system by the 2026 academic year. This will establish the AI & Interaction Specialty Classroom as a demonstrative educational resource shared nationwide.

Through cacaFly's resource injection and the university's forward-thinking academic strategy, this classroom has evolved from a traditional lecture hall into a high-energy hub connecting industry and academia, laying a solid foundation for Taiwan's future AI talent.



彭文志教授榮膺 114 年度國科會傑出研究獎

文／林珮雯



本院資訊工程學系彭文志教授榮獲 114 年度國科會傑出研究獎，評審委員對其近年來在「多維度時空序列資料分析」及「AI 驅動精準運動科學」領域的豐碩成果給予高度肯定。彭教授的研究不僅在資料探勘領域深具前瞻性，更透過人工智慧技術的垂直整合，為國內運動競技產業與人機協作模式開創了極具影響力的應用場景。

彭文志教授長期深耕於時空序列資料分析，致力於研發能應對複雜環境的高階演算法。在他主持的兩期國科會「精準運動科學」專案中，彭教授團隊成功打造出 Closed-Loop Badminton AI 架構，這項技術的核心價值在於「讓數據說話」。透過對逾 300 場國際頂級賽事影像的深度自動化處理，彭教授將原本碎片化、主觀的人工情蒐轉化為精確的微觀數據，徹底重塑了競技分析的維度。

彭教授在此領域展現了驚人的技術洞察力，其提出的「單拍影響力分析」能細膩解構每一球的回擊權重，而研發的「羽球對戰模擬器」更打破了傳統統計的局限，讓球員能透過數位孿生技

術預演對手球路。這項傲人成果不僅在學術會議中大放異彩，更帶領臺灣團隊在 2025 年 MIT Sloan Sports Analytics Conference 的全球決賽舞台上，向世界展示了台灣運動科技的領先實力。

除了深耕運動場景，彭教授更敏銳地察覺到大型語言模型（LLM）與數值型時序資料結合的潛力。他所推動的「人機協作 Co-Pilot」模式，專為解決現實世界中數據不完整與雜訊過多的痛點。透過將專家知識、因果推論框架與跨模態遷移學習技術結合，彭教授成功賦予了語言模型理解複雜數據趨勢的能力，有效攻克了小樣本數據（Few-shot learning）難以精準預測的學術困境。這套智慧化架構更進一步建構了自然語言分析介面，降低專業數據分析的門檻，實現直覺式的人機協作環境，對於未來產業數位轉型具有深遠影響。

彭文志教授在獲獎後表示，這份榮耀應歸功於實驗室全體碩博士生的共同努力。他感謝大家多年來在研究議題發想、文獻收集到方法改進過程中的堅持與努力。同時，彭教授也感謝學術界師長的鼓勵、校院所提供的研究資源，以及業界合作夥伴的支持。他特別強調，家人支持是他能全心投入研究的最大動力。未來，他將繼續享受研究中的「酸甜苦辣」，持續推動具有國際影響力且能落地的研究成果。

彭文志教授始終秉持著「勇於挑戰、永不放棄、自我超越」的勵志銘，在學術研究的道路上不斷精進。他的研究成果不僅推動了精準運動與智能數據分析的發展，更為未來社會的人機協作模式奠定了重要基礎。本院全體師生誠摯恭喜彭教授獲此殊榮，並期待他繼續創造更多的傑出研究與成就。

Professor Wen-Chih Peng Honored with the 2025 NSTC Distinguished Research Award

Professor Wen-Chih Peng of the Department of Computer Science and Information Engineering has been honored with the 2025 National Science and Technology Council (NSTC) Distinguished Research Award. The selection committee highly commended his prolific achievements in the fields of "Multi-dimensional Spatiotemporal Sequence Data Analysis" and "AI-Driven Precision Sports Science." Professor Peng's research is not only forward-looking within the domain of data mining but also creates highly impactful application scenarios for Taiwan's competitive sports industry and human-AI collaboration models through the vertical integration of artificial intelligence technologies.

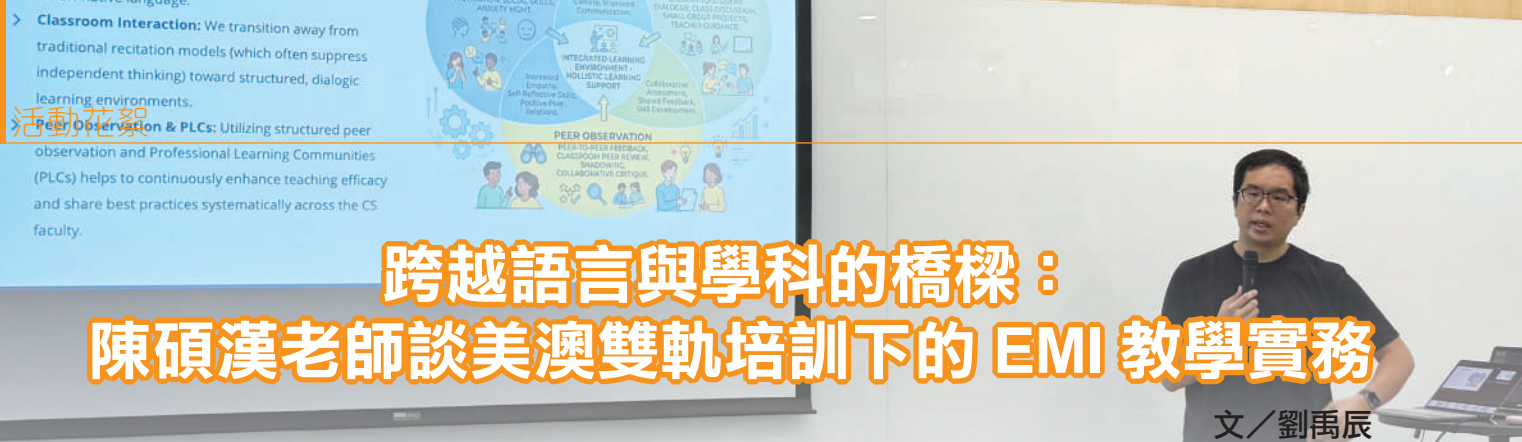
Professor Peng has long been dedicated to spatiotemporal sequence data analysis, focusing on the development of high-level algorithms capable of handling complex environments. During his leadership of two phases of the NSTC "Precision Sports Science" project, his team successfully constructed the "Closed-Loop Badminton AI" framework. The core value of this technology lies in "letting the data speak." By performing deep automated processing on footage from over 300 elite international matches, Professor Peng transformed fragmented and subjective manual scouting into precise micro-data, completely reshaping the dimensions of competitive analysis. He has demonstrated remarkable technical insight in this field; his proposed "Single-Shot Impact Analysis" provides a nuanced deconstruction of the strategic weight of every return, while the "Badminton Match Simulator" breaks through the limitations of traditional statistics, allowing players to rehearse an opponent's patterns through digital twin technology. These impressive results have not only garnered acclaim at academic conferences but also led a Taiwanese team to the global finals of the 2025 MIT Sloan Sports Analytics Conference, showcasing Taiwan's leading prowess in sports technology to the world.

In addition to his work in sports, Professor Peng keenly recognized the potential of combining Large Language Models (LLMs) with numerical time-series

data. He has championed a "Human-AI Co-Pilot" model specifically designed to address real-world pain points such as incomplete data and excessive noise. By integrating expert knowledge, causal inference frameworks, and cross-modal transfer learning, Professor Peng successfully empowered language models to understand complex data trends, effectively overcoming the academic challenge of achieving accurate predictions with few-shot learning. This intelligent architecture further establishes a natural language analysis interface, lowering the barrier to professional data analysis and realizing an intuitive human-AI collaborative environment, which has a profound impact on future industrial digital transformation.

Upon receiving the award, Professor Peng stated that this honor belongs to the collective efforts of all the Master's and Ph.D. students in his laboratory. He thanked them for their persistence and hard work over the years, from conceptualizing research topics and literature collection to methodological improvements. Professor Peng also expressed his gratitude for the encouragement of mentors in the academic community, the research resources provided by the university, college, and department, and the support of industry partners. He especially emphasized that his family's support has been the greatest motivation for his full devotion to research. In the future, he will continue to enjoy the "trials and triumphs" of research and persist in promoting research results that have international influence and practical implementation.

Professor Wen-Chih Peng has always adhered to the motto "Dare to challenge, never give up, and surpass oneself," constantly striving for excellence in his academic journey. His research achievements have not only advanced the development of precision sports and intelligent data analysis but have also laid an important foundation for human-AI collaboration in future society. The faculty and students of the College extend their heartiest congratulations to Professor Peng on this prestigious honor and look forward to his continued creation of outstanding research and achievements.



跨越語言與學科的橋樑： 陳碩漢老師談美澳雙軌培訓下的 EMI 教學實務

文／劉禹辰

在國際化浪潮下，EMI（English as a Medium of Instruction，全英語授課）已成為大學教學的重要趨勢。然而，對理工領域教師而言，EMI 並非單純將授課語言從中文轉換為英文，而是牽涉課程設計、學生學習心理、教學互動與評量方式等多面向挑戰。

資訊工程學系陳碩漢副教授分享自身參與教育部雙語計畫、前往 UCSD（University of California, San Diego，美國加州大學聖地牙哥分校）與 UNSW（University of New South Wales，澳洲新南威爾斯大學）兩所國際名校接受海外培訓課程的經驗，從國際教學觀點出發，結合自身在資訊工程教育現場的實務觀察，探討 EMI 教學的核心理念與未來可能發展方向。

Hard EMI 的核心挑戰：避免構念無關變異（Construct-Irrelevant Variance）

陳老師指出，EMI 的重點並不在於用英文上課，而是如何確保學生真正理解專業知識。培訓課程中特別釐清了「Hard EMI」與「Soft EMI」的區別。在文史哲學等 Soft EMI 學科中，語言本身往往就是學習內容的一部分；然而，資訊工程則屬於典型的 Hard EMI，英語只是知識傳遞的媒介，而非課程核心。

「我們必須在評分機制與課程設計中，將學生的技術實力與英語流利度區隔開來；我們評量的應該是程式邏輯、演算法設計與系統架構，而不是文法是否完美或口音是否標準。」陳碩漢老師強調。如果因為英語能力的限制，導致學生的專業學科能力遭到低估，這在教學上是不公平的。因此，在實務上，教師出題時應盡量採用淺顯易懂的字彙，甚至適度允許學生在必要時以中文進行名詞確認，確保學生不會因語言能力差異而影響其專業能力的展現。

美澳雙軌培訓的啟發：從學生支持到教學設計

在兩次的海外培訓中，陳老師深刻體會到美澳兩國在教學上的顯著差異。

美國側重於課堂互動與學生心理狀態。研究發現，即使具備一定語言能力，學生在面對高難度專業知識時，仍可能因非母語學習所帶來的認知負荷而產生焦慮感，進而降低參與意願。因此，美國學者非常關注 ESL（English as a Second Language，英語為非母語的學生）在全英文課堂中的社會情感因素，強調課堂中師生間的連結感，鼓勵營建一個包容、低焦慮的學習環境。

相反地，澳洲則展現出極強的「教學工程體系」色彩，更重視課程規劃與教學設計的系統性思維。從課程目標設定、教學活動安排到評量機制建構，皆強調透過結構化流程進行規劃，使學生的學習成果能夠與課程目標緊密對應，並獲得有效衡量。

在陳碩漢老師看來，美澳兩地的培訓經驗雖然各有側重，卻共同指向同一個核心問題：如何在維持專業知識深度的同時，提升學生在 EMI 課堂中的學習參與度。這些觀察也促使他重新檢視自身的教學方式，並進一步探索更符合本土學生

需求的教學策略。

打破語言優勢壟斷：讓每位學生都有參與的機會

在資工課程的小組合作情境中，英語表達能力較強的同學往往主導了整場討論，而英語較弱的同學則傾向退縮、成為搭便車的 Follower 而非 Creator。

因此，培訓課程特別強調透過結構化的互動設計提升參與品質。例如在小組活動中建立明確的角色分工機制，或透過輪替制度讓學生皆有機會承擔不同任務與責任，避免討論過度集中於少數學生身上。

此外，學生展現學習成果的方式也不應侷限於口頭表達。陳老師分享，許多資工概念其實能透過流程圖、概念圖、偽程式碼（Pseudo-code）或同儕回饋等多元形式呈現。當教師提供更具彈性的表達途徑時，學生便能將重心放在知識理解與問題解決上，而非過度擔憂自己的英語表達是否足夠流利。

AI 時代下的教學新角色：科技與評量的雙重轉型

在推動教學創新的過程中，陳碩漢老師也積極擁抱科技，將 AI 視為「教學副駕駛」（Instructional Copilot）。他指出，AI 的價值不僅體現在學生端，更能成為教師的重要助手，例如協助製作雙語教材、整理專業術語、設計程式除錯題目，甚至生成不同難度的練習內容，大幅減輕備課負擔。

面對生成式 AI 對高等教育帶來的衝擊，陳老師認為，與其全面禁止學生使用，不如建立清楚且透明的使用規範。他借鑑 UNSW 的實務經驗，提出可依照課程需求建立不同層級的 AI 使用原則（Levels of AI Assistance），從完全禁用的 Level 1 到允許全面輔助學習的 Level 5，讓科技在合乎倫理的框架下發揮最大效益。

除了科技工具的運用，在評量機制上，陳老師也提倡從如期末考一試定江山的「總結性評量」（Summative Assessment），轉向更重視學習歷程的「形成性評量」（Formative Assessment）。透過作業後的動態問卷、階段性微型考核，教師能更即時掌握學生在 EMI 環境中的反饋，並據此調整教學策略與課程節奏。相較於在學期結束後才檢視成果，這種的機制更能幫助學生在學習過程中逐步成長。

在專業與語言之間，找到本土 EMI 的出路

「博士班的訓練教了我們如何做研究，卻很少教我們如何結構化地去規劃一門課。」回顧這次美澳雙軌培訓經驗，陳碩漢老師認為，最大的收穫並非學會某一套固定的教學技巧，而是建立更有系統的課程思維。

在國際化與數位化交會的教育現場，EMI 不只是語言政策，更是一種重新檢視教學本質的契機。如何在專業知識、語言能力與學生需求之間取得平衡，或許正是當代大學教師共同面對的重要課題，而陳老師的分享，也為這條持續探索中的道路，提供了值得借鏡的實踐經驗與思考方向。

Bridging Languages and Disciplines: Prof. Shuo-Han Chen on EMI Teaching Practices Under the US-Australian Dual Training Model

Amid the wave of internationalization, EMI (English as a Medium of Instruction) has become a major trend in university education. However, for professors in STEM fields, EMI is not simply a matter of switching the language of instruction from Chinese to English. Instead, it involves multi-faceted challenges including curriculum design, student learning psychology, classroom interaction, and assessment methods.

Associate Professor Shuo-Han Chen from the Department of Computer Science and Information Engineering shared his experience participating in the Ministry of Education's Bilingual Program. He traveled abroad for training programs at two world-renowned universities: UCSD (University of California, San Diego) and UNSW (University of New South Wales, Australia). From an international pedagogical perspective, combined with his own firsthand observations in computer science education, Prof. Chen explores the core philosophy of EMI teaching and its potential future directions.

The Core Challenge of Hard EMI: Avoiding Construct-Irrelevant Variance

Prof. Chen pointed out that the focus of EMI is not merely about lecturing in English, but rather ensuring that students truly comprehend professional, specialized knowledge. The training programs specifically clarified the distinction between "Hard EMI" and "Soft EMI." In humanities and social science disciplines (Soft EMI), language itself is often part of the learning content. However, computer science is a typical "Hard EMI" field—English is merely a vehicle for knowledge transfer, not the core of the course.

"We must separate a student's technical capability from their English fluency in both our grading mechanisms and curriculum design. What we should be assessing is programming logic, algorithm design, and system architecture, not whether their grammar is perfect or their accent is standard," Prof. Shuo-Han Chen emphasized.

If a student's professional academic capability is underestimated due to language limitations, it constitutes an unfairness in teaching. Therefore, in practice, instructors should use simple and accessible vocabulary when designing exam questions, and even allow students to clarify terminology in Chinese when necessary. This ensures that differences in language proficiency do not hinder students from demonstrating their professional capabilities.

Insights from US-Australian Dual Training: From Student Support to Instructional Design

Through his dual overseas training experiences, Prof. Chen deeply experienced the distinct differences in pedagogy between the US and Australia.

The United States focuses heavily on classroom interaction and student psychological states. Research shows that even with a certain level of language proficiency, students can still experience anxiety due to the cognitive load of learning complex specialized knowledge in a non-native language, which in turn reduces their willingness to participate. Therefore, American scholars pay close attention to the socio-emotional factors of ESL (English as a Second Language) students in all-English classrooms. They emphasize building a sense of connection between instructors and students, and encourage creating an inclusive, low-anxiety learning environment.

Conversely, Australia exhibits a strong "instructional engineering" character, placing greater emphasis on the systematic thinking of curriculum planning and instructional design. From setting course objectives and arranging teaching activities to constructing assessment mechanisms, Australia emphasizes using structured workflows for planning. This ensures that students' learning outcomes closely align with course goals and can be effectively measured.

In Prof. Shuo-Han Chen's view, although the training experiences in the US and Australia have different emphases, they both point to the same core question: how to maintain the depth of professional knowledge while increasing student engagement in EMI classrooms. These observations

have prompted him to re-examine his own teaching methods and explore instructional strategies that better fit the needs of local students.

Breaking the Monopoly of Language Advantage: Giving Every Student a Chance to Participate

In group collaboration scenarios within computer science courses, students with stronger English expression skills often dominate the discussions. Meanwhile, those with weaker English skills tend to withdraw, becoming passive "followers" rather than active "creators."

To address this, the training programs placed special emphasis on improving the quality of participation through structured interaction design. For instance, establishing clear role-division mechanisms in group activities or using rotation systems ensures that all students have the opportunity to take on different tasks and responsibilities, preventing discussions from being monopolized by a few individuals.

Furthermore, students' methods for demonstrating learning outcomes should not be limited to oral expression. Prof. Chen shared that many computer science concepts can actually be presented through diverse formats such as flowcharts, concept maps, pseudo-code, or peer feedback. When instructors provide more flexible pathways for expression, students can focus their energy on knowledge comprehension and problem-solving, rather than worrying excessively about whether their spoken English is fluent enough.

New Teaching Roles in the AI Era: The Dual Transformation of Technology and Assessment

In pushing for instructional innovation, Prof. Shuo-Han Chen also actively embraces technology, viewing AI as an "Instructional Copilot." He noted that AI's value is not only felt on the student side but also serves as a crucial assistant for instructors. For example, it can assist in creating bilingual teaching materials, organizing technical terminology, designing code-debugging problems, and even generating practice content of varying difficulties, which significantly reduces the burden of lesson preparation.

Facing the impact of generative AI on higher education, Prof. Chen believes that instead of banning it entirely, it is better to establish clear and transparent guidelines for its use. Drawing from the practical experience of UNSW, he proposed establishing different "Levels of AI Assistance" based on course requirements—ranging from Level 1 (completely banned) to Level 5 (allowing full assistance for learning)—allowing technology to maximize its benefits within an ethical framework.

In addition to using technological tools, Prof. Chen advocates shifting assessment mechanisms from "Summative Assessment" (where a single final exam determines everything) toward "Formative Assessment," which places greater value on the learning journey. Through dynamic post-assignment questionnaires and periodic micro-assessments, instructors can capture student feedback in the EMI environment in real-time, adjusting their teaching strategies and course pacing accordingly. Compared to reviewing results only at the end of the semester, this mechanism is far more effective in helping students grow step-by-step throughout their learning process.

Finding a Way Forward for Local EMI: Balancing Expertise and Language

"Ph.D. training teaches us how to conduct research, but it rarely teaches us how to structure and plan a course," Prof. Shuo-Han Chen reflected on his dual training experience in the US and Australia. He believes the greatest takeaway was not learning a specific set of fixed teaching techniques, but rather developing a more systematic way of thinking about curriculum design.

At the intersection of internationalization and digitalization in modern education, EMI is not just a language policy; it is an opportunity to re-examine the very essence of teaching. Finding the right balance between professional knowledge, language proficiency, and student needs is perhaps a vital challenge faced by contemporary university faculty. Prof. Chen's insights offer valuable practical experience and directions for thought along this journey of continuous exploration.

資訊學院學生以創新研究登上國際頂尖會議

文稿整理／胡翔祐

國立陽明交通大學資訊學院的學生正持續以創新、卓越的研究成果登上國際學術殿堂。本期共有八篇來自不同實驗室的論文，獲選於 NeurIPS、CVPR、ICRA、ACL、ICCV 等國際頂尖會議發表，研究主題橫跨影像處理、電腦視覺、機器人自動化、自然語言處理與醫療人工智慧等領域，這不僅讓世界看進陽明交通大學的研究深度與廣度，更展現了本院學生紮實的研究實力與國際競爭力，相信透過與全球研究者的交流後，學生們定會獲得充足的收穫，帶著嶄新的面貌邁向更高的學術成就。

發表論文：BlurDM: A Blur Diffusion Model for Image Deblurring

作者：Jin-Ting He, Fu-Jen Tsai, Yan-Tsung Peng, Min-Hung Chen, Chia-Wen Lin, Yen-Yu Lin

指導教授：林彥宇教授

國際會議名稱：The Thirty-Ninth Annual Conference on Neural Information Processing Systems (NeurIPS)

該會議重要性：

NeurIPS 是人工智慧與機器學習領域最具影響力的頂級國際會議之一。從學術指標來看，NeurIPS 在 Google Scholar Metrics 的 h5-index 約為 337，並在 Artificial Intelligence 類別中排名第一，顯示其論文具有極高的引用影響力與學術影響力。此外，該會議每年吸引超過兩萬篇投稿，接收率約 20-25%，競爭相當激烈。因此，能夠在 NeurIPS 發表研究成果通常被視為具有高度創新性與國際學術價值。

何勁廷同學心得：

本次能夠參與這次研究並前往國外參加研討會，我深感榮幸。首先，我要特別感謝我的指導教授林彥宇老師以及所有合作學者的支持與努力，在整個研究與投稿過程中給予我許多寶貴的指導與協助。其中讓我印象最深刻的是在論文的 rebuttal 階段，每一位共同作者幾乎都是 24 小時待命。每當審稿人提出新的問題時，大家都會立刻在線上討論，快速分析審稿意見並共同構思最合適的回覆方式，這樣高度投入與緊密合作的過程非常辛苦，但論文被接受以後也特別開心。此外，本次研討會在美國舉辦，這也是我第一次前

往美國參加國際學術會議。能夠在現場與來自世界各地的研究者交流，了解最新的研究方向與成果，對我而言是非常難得且寶貴的經驗。最後，再次感謝指導教授與所有合作夥伴的支持與付出，一同參與並完成這項研究。

發表論文：From Alignment to Reason: Multi-Agent Debate for Tactical Badminton Video Retrieval

作者：Yi-Xiang Zhang, Yu-Shuen Wang

指導教授：王昱舜教授

國際會議名稱：IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) 2026

該會議重要性：

CVPR (Computer Vision and Pattern Recognition) 是電腦視覺領域最具影響力的國際會議之一，會議每年匯聚來自全球學術界與產業界的研究者，發表電腦視覺、影像與影片理解、生成式 AI、3D 視覺、自動駕駛等前沿研究成果。能於 CVPR 發表論文，代表研究成果在創新性、技術深度與國際影響力上獲得高度肯定。

張羿翔同學心得：

我十分榮幸我們的研究能在 CVPR 展示成果。非常感謝王昱舜教授的悉心指導，也感謝張智威教授與王志全教練在研究過程中給予寶貴建議。本研究針對羽球比賽影片理解與戰術檢索的挑戰，提出「感知與推理分離」的架構，透過多代理人辯證推理框架，分析攻防意圖與得失分脈絡，讓使用者能查詢特定戰術片段。另外，參與 CVPR 也讓我接觸到許多來自不同領域的前沿研究，透過與國際學者的交流，學習到不同的研究思維與實作方法。

發表論文：HetroD: A High-Fidelity Drone Dataset and Benchmark for Autonomous Driving in Heterogeneous Traffic

作者：Yu-Hsiang Chen, Wei-Jer Chang, Christian Kotulla, Thomas Keutgens, Steffen Runde, Tobias Moers, Christoph Klas, Wei Zhan, Masayoshi Tomizuka, Yi-Ting Chen

指導教授：陳奕廷教授

國際會議名稱：IEEE International Conference on Robotics and Automation 2026 (ICRA 2026)

該會議重要性：

IEEE 國際機器人與自動化會議 (ICRA) 為全球機器人、自動駕駛與人工智慧領域最具代表性及影響力的頂尖國際會議之一，由 IEEE Robotics and Automation Society 主辦。會議匯集世界重要大學、研究機構與科技企業，發表機器人感知、控制、具身智慧、自動駕駛及智慧交通等領域的前沿研究成果。除具高度學術影響力外，ICRA 亦是國際產學交流、技術展示與研究合作的重要平台，能反映相關領域的最新發展趨勢與未來方向。於 ICRA 發表研究成果，不僅代表研究品質獲得國際專業審查與肯定，也有助於提升研究成果的國際能見度、建立跨國合作網絡，並促進學術成果與產業需求的連結。

陳佑祥同學心得：

本次我前往奧地利維也納參加 ICRA 2026，並發表〈HetroD：面向異質交通自動駕駛的高擬真無人機資料集與評測基準〉。HetroD 聚焦於汽車、機車、自行車與行人混行的真實異質交通，透過無人機資料蒐集與評測基準建置，支援軌跡預測、交通模擬、場景生成與自動駕駛驗證。會議期間，許多學者與產業代表高度關注其資料收集方式、應用價值及未來延伸；目前已累積超過五十筆資料申請，證明此研究確實回應國際社群需求。我透過與 Waabi、UC Berkeley、UCLA、Waymo、Toyota Research Institute 等團隊交流，進一步掌握自動駕駛與生成式模擬的最新趨勢，也體會到論文發表只是起點，真正的影響力來自成果能否被持續使用、形成挑戰賽與評測標準，並促成跨國合作。此次會議也使我重新思考僅依賴模仿學習的交通模擬方法，未來將進一步探索道路使用者的意圖、前瞻性與互動行為。這趟經驗最大的改變，是讓我從完成單一研究，轉向思考如何結合實驗室的異質交通資料優勢，建立具長期價值與國際辨識度的研究方向。

發表論文：Safety-Aware Dialogue System for Postoperative Oral Cancer Care with Structured Clarification and a Clinically Curated Dataset

作者：Tzu-Chi Liu, Hui-Ying Yang, Shioh-Ching Shun, Yu-Chi Chen, Lu-Yen Anny Chen, Yong-Sheng Chen

指導教授：陳永昇教授

國際會議名稱：國際計算語言學協會年會 (ACL)

該會議重要性：

國際計算語言學協會年會 (ACL) 為計算語言學與自然語言處理領域最具代表性的國際頂尖會議之一，長期收錄語言模型、自然語言理解、對話系統、資訊抽取、機器翻譯及跨領域應用等前沿研究。ACL 論文需經嚴謹同儕審查，能於此會議發表，代表研究成果在方法創新、技術完整性與國際學術影響力上獲得高度肯定。

劉子齊同學心得：

很榮幸能將博士班期間的研究成果發表於 ACL。這次研究讓我深刻體會到，醫療 AI 不能只追求模型表現或回答流暢度，更需要理解臨床情境中的不確定性與安全風險。特別是在口腔癌術後照護中，病人的提問常常簡短且脈絡不足，因此系統必須能主動釐清問題，並根據可信賴的臨床知識回覆。研究過程也讓我體會到跨領域溝通的重要性，唯有結合資訊技術與臨床專業，才能讓 AI 更貼近真實照護需求。感謝指導教授陳永昇教授及合作團隊的支持。

發表論文：StealthAttack: Robust 3D Gaussian Splatting Poisoning via Density-Guided Illusions

作者：Bo-Hsu Ke, You-Zhe Xie, Yu-Lun Liu, Wei-Chen Chiu

指導教授：邱維辰教授、劉育綸教授

國際會議名稱：International Conference on Computer Vision (ICCV 2025)

該會議重要性：

ICCV (International Conference on Computer Vision) 由 IEEE Computer Society 與 Computer Vision Foundation (CVF) 共同主辦，是電腦視覺領域最具權威性的國際會議之一，與 CVPR、ECCV 並稱該領域三大頂級會議。會議為 CCF 推薦 A 類會議，於 Qualis 排名為 A1、ERA 排名為 A，每年吸引超過 5000 名研究人員參與。ICCV 2025 於美國夏威夷檀香山舉行，會期五天，涵蓋技術論文、workshop 與展示等多元形式，今年接受率僅 24.19%，為近十年來最低，競爭相當激烈。

柯柏旭同學心得：

非常感謝邱維辰老師與劉育綸老師的指導，讓我有機會參與這場國際盛會。此行除了發表論文外，也榮獲 ICCV Responsible Imaging Workshop 的 best poster award，深感榮幸。會議期間，我密集參與了多場 workshop 與 main conference 的 oral presentation 與 poster session，不僅觀摩到許多兼具創意與深度的前沿研究，也有機會親眼見到 Noah Snaveley、

William T. Freeman 等該領域重量級學者的演講，深受啟發，尤其對於「以資料集為出發點尋找研究題目」的觀點印象深刻。在我自己的 poster session 中，陸續向十幾位來自世界各地的學者講解研究內容，起初對於用英文表達感到緊張，但在師長的鼓勵下逐漸克服，過程中收穫了許多正向回饋與建議，也結識了不同國家的研究者，進行了深刻而有意義的學術交流。這次參與 ICCV 2025 的經驗，不僅讓我在學術研究上獲益良多，英文表達能力也有顯著進步，更重要的是大幅拓展了我對電腦視覺領域的視野。這些收穫將成為我未來學術道路上重要的養分與動力。

發表論文：FIPER: Factorized Features for Robust Image Super-Resolution and Compression

作者：Yang-Che Sun, Cheng Yu Yeo, Ernie Chu, Jun-Cheng Chen, Yu-Lun Liu

指導教授：劉育綸教授

國際會議名稱：NeurIPS (Neural Information Processing Systems) 2025

該會議重要性：

NeurIPS 是全球人工智慧與機器學習領域最具聲望、規模最大的年度學術會議之一。

孫揚喆同學心得：

這是我第一篇論文，也是我第一次投稿頂尖會議的經驗。從發想、實驗、評估到撰寫與投稿，這是一段漫長的旅程，過程中我學到了非常多。這篇論文歷經四次退稿才終於被接受，每次收到負面審稿意見都讓人感到挫折，但我仍堅持不懈，持續修改與精進稿件。我相信，永不放棄希望正是創新與研究中最重要的一環。

發表論文：GRITS: A Spillage-Aware Guided Diffusion Policy for Robot Food Scooping Tasks

作者：Yen-Ling Tai, Yi-Ru Yang, Kuan-Ting Yu, Yu-Wei Chao, Yi-Ting Chen

指導教授：陳奕廷教授

國際會議名稱：IEEE International Conference on Robotics and Automation (ICRA 2026)

該會議重要性：

ICRA 是機器人與自動化領域最具代表性的頂尖國際會議之一。會議涵蓋機器人感知、規劃、控制、操作、人機互動與自動化等重要研究主題，

每年匯集全球學術界、研究機構與產業界的代表性成果，具備高度國際能見度與重要學術影響力。

戴嫻玲同學心得：

這次很榮幸能在 ICRA 2026 進行口頭發表，分享我們在機器人食物舀取任務中的預防潑灑引導式擴散策略，感謝指導教授與合作者們的指導與協助。在研討會中，我們近距離觀摩了機器手臂、人形與狗型機器人等的實體展示，也透過與來自世界各地學者的交流，更深入理解研究落地到真實世界應用的挑戰。這次經驗不僅拓展國際視野，也讓我更看見自身研究在機器人學習與操作領域的定位，並期許未來持續精進學術表達與交流能力。

發表論文：LightsOut: Diffusion-based Outpainting for Enhanced Lens Flare Removal

作者：Shr-Ruei Tsai, Wei-Cheng Chang, Jie-Ying Lee, Chih-Hai Su, Yu-Lun Liu

指導教授：劉育綸教授

國際會議名稱：International Conference on Computer Vision (ICCV) 2025

該會議重要性：

ICCV 是電腦視覺領域中最具影響力的學術會議之一，展示最新的電腦視覺理論、技術和應用，其子領域包含影像分類、目標檢測、三維視覺、生成模型等。在 2025 年一共審核了 11239 篇論文，其中 2698 篇被接受，接受率約為 24%。

蔡師睿同學心得：

感謝育綸老師的指導與組員們的合作，回想起專題之初，在與老師討論後我們便決定一同朝著發表論文這個最具挑戰性的目標邁進，最終也幸運地上了當初不敢想像的 ICCV。這篇研究中，我們發現 flare removal 極大地依賴光源資訊，因此當影像中沒有光源時表現會大幅下降，為了解決這根源問題，我們設計了 diffusion 外擴圖像的方式來假想出圖像外的光源，並在後續的實驗中證明我們的方法可以有效提升在多個不同 flare removal 模型上的表現。此次會議的參與令人難忘，不只見識到了來自全球各地最前沿的 CV 研究，也更加深了我繼續在 CV 領域深耕與探索的決心。

College of Computer Science Students Present Innovative Research at Top International Conferences

Students from the College of Computer Science at National Yang Ming Chiao Tung University (NYCU) continue to bring innovative and outstanding research to the world's leading academic stage. This issue features eight papers from different labs, selected for presentation at top international conferences including NeurIPS, CVPR, ICRA, ACL, and ICCV. Spanning fields such as image processing, computer vision, robotic automation, natural language processing, and medical artificial intelligence, these achievements not only reveal to the world the depth and breadth of NYCU's research, but also demonstrate the solid research capabilities and international competitiveness of our students. Through exchanges with researchers from around the globe, these students are sure to gain valuable insights, returning with a renewed perspective as they advance toward even greater academic achievements.

Title: BlurDM: A Blur Diffusion Model for Image Deblurring

Authors: Jin-Ting He, Fu-Jen Tsai, Yan-Tsung Peng, Min-Hung Chen, Chia-Wen Lin, Yen-Yu Lin

Advisor: Professor Yen-Yu Lin

Conference: The Thirty-Ninth Annual Conference on Neural Information Processing Systems (NeurIPS)

Significance:

NeurIPS is one of the most influential top-tier international conferences in the fields of artificial intelligence and machine learning. In terms of academic metrics, NeurIPS has an h5-index of approximately 337 on Google Scholar Metrics and ranks first in the Artificial Intelligence category, reflecting the exceptionally high citation impact and academic influence of its papers. In addition, the conference attracts over 20,000 submissions each year, with an acceptance rate of approximately 20–25%, making competition extremely fierce. As a result, publishing research at NeurIPS is widely regarded as a mark of high innovation and international academic value.

The experience of Jin-Ting He:

I feel deeply honored to have taken part in this research and to have traveled abroad for the conference. First, I would like to give special thanks to my advisor, Professor Yen-Yu Lin, and all of my collaborators, for their support and effort throughout the entire research and submission process. What left the deepest impression on me was the rebuttal stage, during which nearly every co-author was on call around the clock. Whenever the reviewers raised new questions, we would immediately discuss them online, quickly analyze the review comments, and work together to craft the most appropriate

responses. This intensive, closely coordinated process was exhausting, but seeing the paper accepted made it all worthwhile. This was also my first time attending an international academic conference in the United States, where the meeting was held. Being able to exchange ideas in person with researchers from around the world and learn about the latest research directions and results was an incredibly rare and valuable experience for me. Finally, I would like to once again thank my advisor and all my collaborators for their support and dedication in completing this research together.

Title: From Alignment to Reason: Multi-Agent Debate for Tactical Badminton Video Retrieval

Authors: Yi-Xiang Zhang, Yu-Shuen Wang

Advisor: Professor Yu-Shuen Wang

Conference: IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) 2026

Significance:

CVPR (Computer Vision and Pattern Recognition) is one of the most influential international conferences in the field of computer vision. Each year, the conference brings together researchers from academia and industry worldwide to present cutting-edge work in computer vision, image and video understanding, generative AI, 3D vision, autonomous driving, and more. Having a paper accepted at CVPR reflects strong recognition of the research's innovation, technical depth, and international impact.

The experience of Yi-Xiang Zhang:

I am very honored that our research was presented at CVPR. I would like to sincerely thank Professor Yu-Shuen Wang for his careful guidance, as well as Professor Chih-Wei Chang and Coach Chih-Chuan Wang for their valuable advice throughout the research process. This work addresses the challenges of video understanding and tactical retrieval in badminton matches by proposing a "perception-reasoning decoupled" framework. Using a multi-agent debate reasoning framework, it analyzes offensive and defensive intent as well as scoring context, allowing users to query specific tactical segments. Attending CVPR also exposed me to a wide range of cutting-edge research from different fields, and through exchanges with international scholars, I learned different ways of thinking about and approaching research.

Published Paper: HetroD: A High-Fidelity Drone Dataset and Benchmark for Autonomous Driving in Heterogeneous Traffic

Authors: Yu-Hsiang Chen, Wei-Jer Chang, Christian Kotulla, Thomas Keutgens, Steffen Runde,

Tobias Moers, Christoph Klas, Wei Zhan, Masayoshi Tomizuka, Yi-Ting Chen

Advisor: Professor Yi-Ting Chen

Conference: IEEE International Conference on Robotics and Automation 2026 (ICRA 2026)

Significance:

The IEEE International Conference on Robotics and Automation (ICRA), hosted by the IEEE Robotics and Automation Society, is one of the most representative and influential top-tier international conferences in the fields of robotics, autonomous driving, and artificial intelligence worldwide. The conference brings together leading universities, research institutions, and technology companies to present cutting-edge research in robotic perception, control, embodied intelligence, autonomous driving, and intelligent transportation. Beyond its strong academic influence, ICRA also serves as an important platform for international academia-industry exchange, technology demonstration, and research collaboration, reflecting the latest trends and future directions in the field. Presenting research at ICRA not only signifies international peer recognition of research quality, but also helps raise the international visibility of research outcomes, build cross-border collaboration networks, and connect academic achievements with industry needs.

The experience of Yu-Hsiang Chen:

This time, I traveled to Vienna, Austria to attend ICRA 2026, where I presented “HetroD: A High-Fidelity Drone Dataset and Benchmark for Autonomous Driving in Heterogeneous Traffic.” HetroD focuses on real-world heterogeneous traffic involving cars, motorcycles, bicycles, and pedestrians, using drone-collected data and a benchmark to support trajectory prediction, traffic simulation, scenario generation, and autonomous driving validation. During the conference, many scholars and industry representatives showed strong interest in our data collection methods, application value, and future extensions; more than fifty dataset requests have already been received, confirming that this research genuinely addresses the needs of the international community. Through exchanges with teams from Waabi, UC Berkeley, UCLA, Waymo, and Toyota Research Institute, I gained further insight into the latest trends in autonomous driving and generative simulation, and came to realize that publishing a paper is only the starting point — real impact comes from whether the results continue to be used, evolve into challenges and evaluation standards, and foster cross-border collaboration. This conference also prompted me to rethink traffic simulation methods that rely solely on imitation learning; going forward, I plan to further explore road users' intentions, anticipatory behavior, and interactive dynamics. The biggest change from this experience is that it shifted my focus from completing a single study to thinking about how to leverage our lab's strengths in heterogeneous traffic data to build a research direction with long-term value and international recognition.

Published Paper: Safety-Aware Dialogue System for Postoperative Oral Cancer Care with Structured Clarification and a Clinically Curated Dataset

Authors: Tzu-Chi Liu, Hui-Ying Yang, Shioh-Ching Shun, Yu-Chi Chen, Lu-Yen Anny Chen, Yong-Sheng Chen

Advisor: Professor Yong-Sheng Chen

Conference: Annual Meeting of the Association for Computational Linguistics (ACL)

Significance:

The Annual Meeting of the Association for Computational Linguistics (ACL) is one of the most representative top-tier international conferences in the fields of computational linguistics and natural language processing, consistently featuring cutting-edge research on language models, natural language understanding, dialogue systems, information extraction, machine translation, and interdisciplinary applications. ACL papers undergo rigorous peer review, and acceptance at this conference reflects strong recognition of a study's methodological innovation, technical rigor, and international academic impact.

The experience of Tzu-Chi Liu:

I am honored to have presented the research from my PhD studies at ACL. This project gave me a deep appreciation that medical AI cannot simply pursue model performance or fluent responses — it must also understand the uncertainty and safety risks inherent in clinical settings. This is especially true in postoperative oral cancer care, where patients' questions are often brief and lack sufficient context, requiring the system to proactively clarify questions and respond based on trustworthy clinical knowledge. The research process also taught me the importance of interdisciplinary communication; only by combining information technology with clinical expertise can AI truly meet real-world care needs. I would like to thank my advisor, Professor Yong-Sheng Chen, and our collaborators for their support.

Published Paper: StealthAttack: Robust 3D Gaussian Splatting Poisoning via Density-Guided Illusions

Authors: Bo-Hsu Ke, You-Zhe Xie, Yu-Lun Liu, Wei-Chen Chiu

Advisor: Professor Wei-Chen Chiu and Professor Yu-Lun Liu

Conference: International Conference on Computer Vision (ICCV 2025)

Significance:

ICCV (International Conference on Computer Vision), jointly organized by the IEEE Computer Society and the Computer Vision Foundation (CVF), is one of the most authoritative international conferences in the field of computer vision, ranked alongside CVPR and ECCV as one of the field's three premier conferences. It is designated a CCF Recommended Category A conference, ranked A1 in Qualis and A in ERA, and attracts more than 5,000 researchers annually. ICCV 2025 was held in Honolulu, Hawaii, over five days, featuring technical paper presentations, workshops, and exhibitions in various formats. This year's acceptance rate was just 24.19%, the lowest in nearly a decade, reflecting intense competition.

The experience of Bo-Hsu Ke:

I am extremely grateful to Professor Wei-Chen Chiu and Professor Yu-Lun Liu for their guidance, which gave me the opportunity to attend this major international event. In addition to presenting our paper, I was also honored to receive the Best Poster Award at the ICCV Responsible Imaging Workshop. During the conference, I actively attended numerous workshops as well as oral presentations and poster sessions at the main conference, where I not only observed many creative and in-depth pieces of cutting-edge research, but also had the chance to see talks by leading scholars in the field such as Noah Snavely and William T. Freeman. I found these especially inspiring, particularly the perspective of “starting from a dataset to identify a research question.” At my own poster session, I explained my work to more than a dozen scholars from around the world. I was initially nervous about presenting in English, but with encouragement from my mentors I gradually overcame that anxiety, receiving a great deal of positive feedback and suggestions while getting to know researchers from different countries through meaningful academic exchange. This experience at ICCV 2025 not only benefited my academic research greatly and significantly improved my English communication skills, but more importantly, it broadened my perspective on the field of computer vision. These gains will serve as important nourishment and motivation on my future academic journey.

Published Paper: FIPER: Factorized Features for Robust Image Super-Resolution and Compression

Authors: Yang-Che Sun, Cheng Yu Yeo, Ernie Chu, Jun-Cheng Chen, Yu-Lun Liu

Advisor: Professor Yu-Lun Liu

Conference: NeurIPS (Neural Information Processing Systems) 2025

Significance:

NeurIPS is the world's most prestigious and largest annual academic conference for artificial intelligence and machine learning.

The experience of Yang-Che Sun:

This is my first paper and also my first top-conference experience. From brainstorming, experiments, and evaluation to writing and submission, it has been a long journey, and I have learned a lot throughout the process. This paper was rejected four times before finally being accepted. Although receiving negative reviews was frustrating each time, I persisted and kept refining the manuscript. I believe that not giving up hope is one of the most important parts of innovation and research.

Published Paper: GRITS: A Spillage-Aware Guided Diffusion Policy for Robot Food Scooping Tasks

Authors: Yen-Ling Tai, Yi-Ru Yang, Kuan-Ting Yu, Yu-Wei Chao, Yi-Ting Chen

Advisor: Professor Yi-Ting Chen

Conference: IEEE International Conference on Robotics and Automation (ICRA 2026)

Significance:

ICRA is one of the most representative top-tier

international conferences in the field of robotics and automation. The conference covers key research topics such as robotic perception, planning, control, manipulation, human-robot interaction, and automation, bringing together representative achievements from academia, research institutions, and industry worldwide each year, with high international visibility and significant academic impact.

The experience of Yen-Ling Tai:

I was honored to give an oral presentation at ICRA 2026, sharing our spillage-aware guided diffusion policy for robot food scooping tasks. I would like to thank my advisor and collaborators for their guidance and support. During the conference, we had the chance to closely observe live demonstrations of robotic arms, humanoid robots, and quadruped robots, and through exchanges with scholars from around the world, gained a deeper understanding of the challenges of translating research into real-world applications. This experience not only broadened my international perspective, but also helped me better understand where my research stands within the fields of robot learning and manipulation, and I look forward to continuing to improve my academic communication and exchange skills in the future.

Published Paper: LightsOut: Diffusion-based Outpainting for Enhanced Lens Flare Removal

Authors: Shr-Ruei Tsai, Wei-Cheng Chang, Jie-Ying Lee, Chih-Hai Su, Yu-Lun Liu

Advisor: Professor Yu-Lun Liu

Conference: International Conference on Computer Vision (ICCV) 2025

Significance:

ICCV is one of the most influential academic conferences in the field of computer vision, showcasing the latest theories, techniques, and applications in areas such as image classification, object detection, 3D vision, and generative models. In 2025, a total of 11,239 papers were reviewed, of which 2,698 were accepted, resulting in an acceptance rate of approximately 24%.

The experience of Shr-Ruei Tsai:

I would like to thank Professor Yu-Lun Liu for his guidance and my teammates for their collaboration. Looking back to the start of this project, after discussing with our advisor we decided to work together toward the most challenging goal of publishing a paper, and we were fortunate enough to eventually be accepted at ICCV, something we had not dared to imagine at the outset. In this research, we found that lens flare removal relies heavily on light-source information, causing performance to drop significantly when no light source is visible in the image. To address this underlying issue, we designed a diffusion-based outpainting approach to imagine the light source beyond the image boundary, and subsequent experiments showed that our method effectively improves performance across several different flare removal models. Attending this conference was an unforgettable experience — not only did I get to see the most cutting-edge computer vision research from around the world, but it also strengthened my determination to continue exploring and deepening my expertise in the field of computer vision.

本刊每學期發刊一期，做為本院師生與系友、家長、院友的溝通橋樑。每期報導本院近期研究現況，內容包括人事動態、國際交流、師生獲獎等。期能經由本刊使讀者掌握資訊學院最新動態，促進彼此互動。

Published twice per year, this periodical, as a bridge between faculty, students, alumni, parents and friends of the college, is dedicated to the latest research updates, including personnel changes, international collaboration, faculty & students honors, etc., in order to assist readers to keep update of the latest developments of the College of Computer Science (CCS) and encourage mutual interaction.



一、人事動態

- ◇ 陳碩漢老師、吳俊峯老師、劉育綸老師於 2026 年 2 月 1 日起升等為本校副教授。
- ◇ 丁羅邦芸老師自 2026 年 2 月 1 日起至本系服務、王偉豪老師同年 5 月 20 日起至本系服務，歡迎兩位老師的加入。
- ◇ 本院莊榮宏教授將於 2026 年 8 月退休。莊教授研究領域為計算機圖學、虛擬 / 擴增實境、資料視覺化與分析、幾何與實體模型，對本院學術與研究發展貢獻卓著，並作育英才無數。
- ◇ 自 115 年 8 月起，林彥宇教授擔任副院長、黃春融所長兼任跨校區合作推動辦公室主任。

二、國際交流

- ◇ 香港中文大學 (CUHK) John C. S. Lui 教授於 2025 年 11 月 19 日至本系演講，講題為：「Quantum Internet: The Final Frontier」。
- ◇ 美國美國伊利諾大學香檳分校 (UIUC) Stephen Downie 教授於 2025 年 11 月 26 日至本院演講，講題為：「Creating Data and Tools for Open Cultural Analysis Activities: TORCHLITE and Beyond」。
- ◇ 日本 NTT 株式會社 Yosuke Aragane 博士於 2025 年 12 月 16 日至本院演講，講題為：「IOWN - Optical Powered Next-gen IT Infrastructure for the Sustainable Society」。
- ◇ 捷克利貝雷茨工業大學 (TUL) Bohumil Kolar 教授於 2025 年 12 月 5 日至本系演講，講題為：「Applied ML/AI Projects with Focus on a CV

platform」。

- ◇ 日本東京大學 (UTokyo) Akihiro Nakao 教授於 2025 年 12 月 9 日至本院演講，講題為：「Network - AI Convergence: Communication Empowers AI, AI Transforms Communication」。
 - ◇ 美國加州大學戴維斯分校 (UC Davis) 馬匡六教授於 2025 年 12 月 10 日至本院演講，講題為：「AI x VIS Research Highlights and Future Perspectives」。
 - ◇ 美國萊斯大學 (Rice University) Ashutosh Sabharwal 教授於 2025 年 12 月 12 日至本系演講，講題為：「Near-Ground Precipitation Sensing for Next-generation Wireless Networks」。
 - ◇ 德國柏林工業大學 (TU Berlin) Falko Dressler 教授於 2025 年 12 月 10 日至本系演講，講題為：「Towards 6G Edge Computing for Resilient Edge-AI」。
 - ◇ 國際知名電腦圖學與模擬大師 Jos Stam 博士於 2025 年 12 月 19 日蒞校演講，講題為：「Reversibility in Simulation and Machine Learning」。
 - ◇ Google DeepMind Kuang-Huei Lee 先生於 2026 年 6 月 22 日至本系演講，講題為：「On Why LLMs are General Problem Solvers and the Path to Physical World」。
 - ◇ 美國德州農工大學 (Texas A&M University) Sabarish Babu 教授於 2026 年 6 月 22 日至本系演講，講題為：「Examining the Roles of Embodiment and Theory of Mind in Shaping User Perception of LLM-Driven Embodied Conversational Agents」。
- ### 三、教師榮譽
- ◇ 謝秉均副教授榮獲中華民國資訊學會 2025 年李國鼎青年研究獎！
 - ◇ 邱維辰教授榮獲中華民國資訊學會 2025 年李國鼎磐石獎！
 - ◇ 彭文志教授榮獲 114 年度國科會傑出研究獎！
 - ◇ 陳昱芝助理教授、王邦任助理教授榮獲教育部 115 年玉山青年學者！

- ◇ 李毅郎教授獲選為 IEEE Transactions on CAD Associate Editor！
- ◇ 蔡孟勳教授榮獲 IT Matters 教師獎！
- ◇ 陳志成教授榮獲國家科學及技術委員會 114 年度傑出特約研究員！
- ◇ 陳碩漢教授榮獲 ACM RACS 2025 Best Paper Award！
- ◇ 謝秉均教授榮獲第三屆資訊年輕學者卓越貢獻獎！
- ◇ 曾新穆教授榮獲第三十二屆東元獎！
- ◇ 謝續平教授榮獲 IEEE Life Fellow！

四、學生榮譽

- ◇ 曾煜棋教授、林政寬教授指導李秉倫、高韵晴同學參加 2026 CVPR VizWiz Grand Challenge Workshop 榮獲 Few-Shot Localization of Private Objects 第一名！
- ◇ 嚴力行教授指導吳受恩同學榮獲 2025 中華民國資訊學會 IICM 碩士論文佳作獎！
- ◇ 李奇育教授指導謝明煌同學榮獲 2025 中華民國資訊學會 IICM 碩士論文佳作獎！
- ◇ 葉宗泰教授指導楊辰彬同學榮獲 2025 中華民國資訊學會 IICM 碩士論文佳作獎！
- ◇ 曾意儒教授指導蔡壁如同學、林昆衛同學榮獲 2025 中華民國資訊學會 IICM 碩士論文佳作獎！
- ◇ 彭文孝教授指導陳詒歆同學榮獲 2025 中華民國資訊學會 IICM 碩士論文佳作獎！
- ◇ 吳丞恩、許佳硯、曾睿銓、鄭傳嶧、湯語珣同學參加 2025 年中華電信智慧創新應用大賽榮獲最佳技術獎！
- ◇ 彭文孝教授指導陳詒歆同學榮獲 IEEE Taipei Section 114 年博士論文獎！
- ◇ 吳毅成、吳迪融教授指導黃柏維同學榮獲 IEEE Taipei Section 114 年碩士論文獎！
- ◇ 嚴力行教授指導吳受恩同學榮獲台灣作業研究學會 2025 年碩博士論文競賽佳作！
- ◇ 林哲維、劉俊鍵同學榮獲中國電機工程學會 114 年度「青年論文獎」！

1. Personnel Changes

- Dr. Shuo-Han Chen, Dr. Chun-Feng Wu, and Dr. Yu-Lun Liu have been promoted to Associate Professor at National Yang Ming Chiao Tung University, effective February 1st, 2026.
- Dr. Lo Pang-Yun Ting has joined the Department of Computer Science as a faculty member, effective February 1st, 2026, and Dr. Harry Wai Ho Wong has joined the department, effective May 20th, 2026. We warmly welcome both professors to our department.
- Prof. Jung-Hong Chuang will retire in August 2026. Prof. Chuang's research areas include computer graphics, virtual/augmented reality, data visualization and analysis, and geometric and solid modeling. He has made outstanding contributions to the college's academic and research development and has inspired and mentored numerous students throughout his distinguished career.
- Prof. Yen-Yu Lin will serve as the Associate Dean of the College, and Director Chun-Rong Huang will concurrently serve as the Director of the Cross-Campus Cooperation Promotion Office, effective August 2026.

2. International Collaboration

- Professor John C. S. Lui from The Chinese University of Hong Kong (CUHK) gave a lecture at our department on November 19, 2025. The topic was "Quantum Internet: The Final Frontier."
- Professor J. Stephen Downie from the University of Illinois Urbana-Champaign (UIUC), USA, gave a lecture at our college on November 26, 2025. The topic was "Creating Data and Tools for Open Cultural Analysis Activities: TORCHLITE and Beyond."
- Professor Bohumil Kolar from the Technical University of Liberec (TUL), Czech Republic, gave a lecture at our department on December 5, 2025. The topic was "Applied ML/AI Projects with Focus on a CV platform."
- Professor Akihiro Nakao from The University of Tokyo (UTokyo), Japan, gave a lecture at our

college on December 9, 2025. The topic was "Network-AI Convergence: Communication Empowers AI, AI Transforms Communication."

- Professor Kwan-Liu Ma from the University of California, Davis (UC Davis), USA, gave a lecture at our college on December 10, 2025. The topic was "AI x VIS Research Highlights and Future Perspectives."
- Professor Falko Dressler from the Technical University of Berlin (TU Berlin), Germany, gave a lecture at our department on December 10, 2025. The topic was "Towards 6G Edge Computing for Resilient Edge-AI."
- Professor Ashutosh Sabharwal from Rice University, USA, gave a lecture at our department on December 12, 2025. The topic was "Near-Ground Precipitation Sensing for Next-generation Wireless Networks."
- Dr. Yosuke Aragane from NTT Corporation, Japan, gave a lecture at our college on December 16, 2025. The topic was "IOWN – Optical Powered Next-gen IT Infrastructure for the Sustainable Society."
- Dr. Jos Stam, a world-renowned expert in computer graphics and simulation, visited our university and gave a lecture on December 19, 2025. The topic was "Reversibility in Simulation and Machine Learning."
- Mr. Kuang-Huei Lee from Google DeepMind gave a lecture at our department on June 22, 2026. The topic was "On Why LLMs are General Problem Solvers and the Path to Physical World."
- Professor Sabarish Babu from Texas A&M University, USA, gave a lecture at our department on June 22, 2026. The topic was "Examining the Roles of Embodiment and Theory of Mind in Shaping User Perception of LLM-Driven Embodied Conversational Agents."

3. Faculty Honors

- Dr. Ping-Chun Hsieh received the 2025 K. T. Li Young Researcher Award from the Institute of Information and Computing Machinery (IICM).

- Dr. Wei-Chen Chiu received the 2025 K. T. Li Rock Award from the Institute of Information and Computing Machinery (IICM).
- Dr. Wen-Chih Peng received the 2025 (114th Academic Year) Outstanding Research Award from the National Science and Technology Council (NSTC).
- Dr. Yu-Chih Chen and Dr. Dennis Wang were selected as 2026 (115th Academic Year) Yushan Young Scholars by the Ministry of Education.
- Dr. Yih-Lang Li was selected as an Associate Editor for IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD).
- Dr. Meng-Hsun Tsai received the IT Matters Faculty Award.
- Dr. Jyh-Cheng Chen received the 2025 (114th Academic Year) Merit Research Fellow Award from the National Science and Technology Council (NSTC).
- Dr. Shuo-Han Chen received the Best Paper Award at ACM RACS 2025.
- Dr. Ping-Chun Hsieh received the 3rd Outstanding Contribution Award for Young Information Scholars.
- Dr. Vincent S. Tseng received the 32nd TECO Award.
- Dr. Shihpyng Shieh was named an IEEE Life Fellow.

4. Student Honors

- Students Ping-Lun Lee and Yun-Ching Kao, guided by Professors Yu-Chee Tseng and Cheng-Kuan Lin, won First Place in the Few-Shot Localization of Private Objects track at the 2026 CVPR VizWiz Grand Challenge Workshop.
- Student Shou-En Wu, guided by Professor Li-Hsing Yen, received the Honorable Mention in the Master's Thesis category of the 2025 IICM Thesis Awards from the Institute of Information and Computing Machinery.

- Student Ming-Huang Hsieh, guided by Professor Chi-Yu Li, received the Honorable Mention in the Master's Thesis category of the 2025 IICM Thesis Awards from the Institute of Information and Computing Machinery.
- Student Chen-Pin Yang, guided by Professor Tsung-Tai Yeh, received the Honorable Mention in the Master's Thesis category of the 2025 IICM Thesis Awards from the Institute of Information and Computing Machinery.
- Students Pi-Ju Tsai and Kun Wei Lin, guided by Professor Yi-Ju Tseng, received the Honorable Mention in the Master's Thesis category of the 2025 IICM Thesis Awards from the Institute of Information and Computing Machinery.
- Student Yi-Hsin Chen, guided by Professor Wen-Hsiao Peng, received the Honorable Mention in the Master's Thesis category of the 2025 IICM Thesis Awards from the Institute of Information and Computing Machinery.
- Students Cheng-En Wu, Chia-Yen Hsu, Rui-Quan Zeng, Chuan-Yi Cheng, and Yu-Xun Tang won the Best Technology Award at the 2025 Chunghwa Telecom Smart Innovation Application Competition.
- Student Yi-Hsin Chen, guided by Professor Wen-Hsiao Peng, received the 2025 (114th Academic Year) Doctoral Dissertation Award from the IEEE Taipei Section.
- Student Po-Wei Huang, guided by Professors I-Chen Wu and Ti-Rong Wu, received the 2025 (114th Academic Year) Master's Thesis Award from the IEEE Taipei Section.
- Student Shou-En Wu, guided by Professor Li-Hsing Yen, received the Honorable Mention in the 2025 Master's and Doctoral Thesis Competition from the Operations Research Society of Taiwan (ORSTW).
- Students Che-Wei Lin and Chun-Chien Liu received the 2025 (114th Academic Year) Young Author Paper Award from the Chinese Institute of Electrical Engineering (CIEE).

攜手共育未來菁英 — 華仁館（資訊二館）啟航計畫



資訊二館模擬圖 (陳柏宏建築師著作)

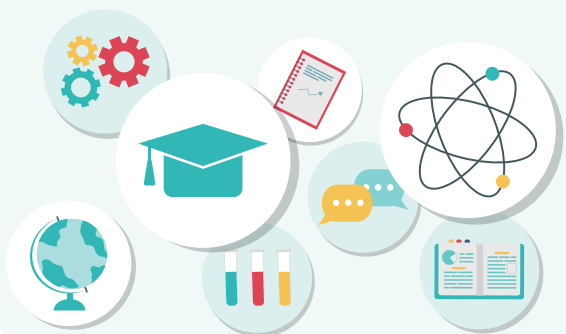
交大資訊自博愛校區奠基在光復校區茁壯，走過半世紀風華，培育無數資訊菁英，見證並引領台灣科技的蓬勃發展。從人工智慧、資安到雲端運算、半導體，我們的師生與系友屢創高峰，讓交大資訊成為亞洲頂尖、享譽國際的學術殿堂。

如今隨著資訊技術的突飛猛進，我們需肩負更大的使命，致力培育引領未來的科技人才。然而，我們的館舍仍停留在過去，難以承載蓬勃發展的研究與教學需求，限制了無限可能。為迎接挑戰，我們規劃興建全新大樓，打造跨領域合作、產學共創與創新研發的基地—資訊二館。這個新的大樓將成為提升學術研究、促進技術交流與應用落地的搖籃，並讓未來的工程師、科學家與創業家擁有更卓越的學習與成長環境，勇敢迎向科技新浪潮。

我們誠摯邀請您共襄盛舉，以熱忱支持資訊系邁向新高峰，為台灣乃至全球科技發展注入無限可能！

您的每一份心意，都是奠定未來的基石。讓我們共創卓越，點亮科技新未來！

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募款計畫 資心專案／出國交換獎學金

本院肩負培育國內外資訊領域一流人才重任，全球競爭日趨白熱，若在學生時期及早培養國際觀與視野，更能提升未來的競爭力。是以本院積極推動「資心專案/交換生募款計畫」，校友慷慨溫暖捐款，期能提升在校學子國際化競爭力，燃起更多學生參與國際舞台並貢獻台灣的想法。自2014年起已有近78位學生受惠於本募款計畫，2023至2024年間目前共有15位學生至瑞士蘇黎世聯邦理工學院、捷克布拉格捷克理工大學、德國慕尼黑工業大學、阿亨工業大學、美國伊利諾大學香檳分校、卡內基美隆大學等姐妹校交換。



募款計畫 資訊學院企業講座

資通訊產業是台灣高科技發展的核心支柱，而科技人才則是推動產業升級與創新的關鍵引擎。然而，大學目前正面臨多重挑戰。在資訊領域，教授的起薪普遍低於其所培育的碩士畢業新鮮人，使得碩士生進一步攻讀博士的意願降低，博士生投入教職的比例也呈現逐年下降的趨勢。另一方面，全台約三分之一的大學專任教師即將屆齡退休，師資斷層的風險日益浮現，對高階科技人才的培育品質與產量皆構成潛在影響。



為積極延攬並留住優秀青年學者投入教學與研究工作，本院特別推動「企業講座獎勵計畫」。本計畫透過企業捐款設置獎助金，不僅協助新進教師發展其學術職涯與穩定留任，同時也獎勵現職表現卓越的教授。獲獎教師將冠以企業名稱，以彰顯產學攜手培育人才的象徵意義。

本院期盼藉由企業的長期參與與支持，激勵優秀師資持續投入教學與研究，共同培育下一代科技領導人才，強化我國高等教育體系的永續發展與全球競爭力。

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一份心意即可帶來改變。您的每筆捐款都是推動教育前進的力量。定期定額不需大筆金額，也能累積長遠而穩定的影響。邀請您以持續的支持，一同助力教育永續發展。

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