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NYCU CCS MAGAZINE

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以人才培育
攜手面對未知、
創造未來

隨著 AI 熱潮不斷攀升，「不可預測的未來」不但使得人才的議題受到了高度的關注，人才培育的方式與人才應對環境變化的能力，更是面臨了全新的挑戰。值此歲末年終之際，與大家分享幾個本院在人才培育上的一些努力與成績，以及優秀校友與系友的經驗分享，期待在新的一年中，共同攜手面對未知、創造未來。

首先，特別祝賀劉育綸教授榮獲全球只有 70 位年輕學者獲獎的 2024 Google Research Scholar Award，這是 Google 開辦這個獎項以來，第一次有台灣學者獲獎，實為陽明交大及資訊學院之光。此外，也恭喜曾新穆教授榮獲教育部第 68 屆學術獎，以及詹力韋教授研究團隊榮獲 ACM CHI 2024 Best Paper Award，是非常亮眼的成績。

為了替學生帶來更多元豐富的學習經驗，本院繼去年與美國伊利諾大學 CS 簽署雙　學位協議書 (3+X Program) 後，今年又與 UIUC　iSchool 簽署了另一個雙聯學位合約。而今年八月，已有三位同學：侯博軒、劉玥睿及游建峰通過申請，啟程就讀 UIUC 3+2 雙聯學位。

培育人才需要優秀的師資；然而，受限於台灣大學教授薪資的結構，本院甚至面臨過去兩年發出九張聘書予國外名校博士都遭放棄的困境。所幸，持續在師資人才招聘上的努力，新增了校長青年獎座、資訊學院系友捐款獎座，以及加上許多熱心校友的募款捐助，讓薪資偏低的問題得到了彌補。而今年 2 月間，本院也成功邀請兩位分別來自於全球排名前十的美國普林斯頓及伊利諾大學香檳分校優秀的年輕學者：張庭榕及顏羽

君助理教授加入本院，相信二位教授會對學生帶來更多元視野的啟發。

校內師生優秀表現之外，畢業的矽友與校友們除了在業界的傑出表現，更難能可貴的是願意持續回饋母校，與學弟妹分享自身成功的經驗、提攜後進。今年四月本院於「交大日」舉辦的「資工系友回娘家」，除了表彰在各領域表現卓越的校友與系友之外，藉由大家的分享，也提供了許多寶貴的經驗。此外在今年八月，本院也前進美國矽谷舉辦「矽友會」，邀請六位資深學長姐分享在矽谷求職的經驗，以及面對 AI 浪潮和未知的未來時，該如何因應；學長姐們分別從主管、工程師、PM、招募的角色出發，提供許多在第一線的思考與經歷。

最後，也很開心的與大家分享，本人研究團隊所開發的 5G 核心網路開源軟體 free5GC，已於今年九月於奧地利維也納的「歐洲開源高峰會」（Open Source Summit Europe）中，宣布加入 Linux 基金會。在全球通訊產業發展二十的時間，台灣主要專注在手機和小型基地台，本團隊希望藉由 free5GC 此通訊網路核心領域的開源，降低許多組織追求創新的門檻，提供產業推動協作和標準化，加速未來全球 5G 與 6G 技術創新與演進。

資訊學院院長

陳志成

2024.12

Cultivating Talent to Face the Unknown and Create the Future Together

As the AI wave continues to surge, the "unpredictable future" has brought significant attention to talent development. The ways we nurture talent and equip individuals to adapt to environmental changes face unprecedented challenges. As we approach the end of the year, I would like to share some of our efforts and achievements in talent cultivation, as well as the experiences of our outstanding alumni, hoping that in the coming year, we can face the unknown and create the future together.

First, congratulations to Professor Yu-Lun Liu (note: make sure the spelling is correct.) for receiving the 2024 Google Research Scholar Award, a prestigious recognition awarded to only 70 young scholars worldwide. This marks the first time a Taiwanese scholar has received this award since its inception, a great honor for both National Yang Ming Chiao Tung University (NYCU) and the College of Computer Science (CCS). Additionally, congratulations to Professor Hsin-Mu Tseng (note: make sure the spelling is correct.) for receiving the Ministry of Education's 68th Academic Award, and to Professor Li-Wei Chan's (note: make sure the spelling is correct.) research team for winning the ACM CHI 2024 Best Paper Award—truly remarkable achievements.

To provide students with more diverse and enriching learning experiences, following last year's dual-degree agreement with the University of Illinois Urbana-Champaign (UIUC) CS department (3+X Program), our college has signed another dual-degree agreement with UIUC's iSchool this year. In August, three students—Po-Hsuan Hou, Ying-Jui Liu, and Chien-Feng You—successfully enrolled in the UIIC 3+2 dual-degree program.

Talent cultivation requires exceptional faculty. However, constrained by the structure of university faculty salaries in Taiwan, our college faced challenges, such as nine offers to graduates from prestigious foreign universities being declined over the past two years. Fortunately, through continued efforts in faculty recruitment, including the establishment of the President's Young Scholar Award, donations from

alumni, and contributions from dedicated alumni fundraising campaigns, we have mitigated the issue of low salaries. This February, we successfully recruited two outstanding young scholars—Assistant Professors Ting-Jung Chang and Yu-Chun Yen—from globally top-ranked institutions Princeton University and UIUC. We believe their diverse perspectives will inspire our students greatly.

In addition to the outstanding performances of our faculty and students, our alumni have not only excelled in their fields but also generously given back to their alma mater by sharing their experiences and mentoring juniors. In April, during "NCTU Day," our college hosted the "CS Alumni Homecoming," honoring alumni who have excelled in various fields and providing a platform for valuable experience sharing. Furthermore, in August, our college held an alumni gathering in Silicon Valley in the United States, inviting six senior alumni to share their experiences in job hunting and navigating the AI wave and unpredictable future. They offered practical insights and advice from perspectives such as management, engineering, product management, and recruitment.

Finally, I am delighted to share that my research team's open-source 5G core network software, free5GC, was announced in September as part of the Linux Foundation during the "Open Source Summit Europe" in Vienna, Austria. Over the past two decades, Taiwan's telecommunications industry has primarily focused on mobile phones and small base stations. Through the open-source initiative of free5GC in the core network, we aim to lower innovation barriers, promote industry collaboration and standardization, and accelerate global innovation and advancement in 5G and 6G technologies.

Dean of the College of Computer Science

2024.12

陽明交大與伊利諾大學香檳分校雙聯學位 3 名學生八月出發

文／秘書處公共關係組

陽明交大與美國伊利諾大學的 3+2 雙聯學位今年 (2014 年) 正式啟動。只要在資工系修滿三年課程，即可申請進入伊利諾大學計算機科學系 (Department of Computer Science, UIUC) 或資訊科學學院 (School of Information Sciences，iSchool, UIUC)，畢業後一次取得陽明交大資工系學士以及伊利諾大學碩士學位。三名獲得 3+2 攻讀雙聯學位資格的學生將於今年八月啟程。

繼去年四月陽明交大資訊學院拜訪美國伊利諾大學計算機科學系，並在十月正式簽署雙聯學位協議書 (3+X Program) 後，陽明交大與伊利諾大學再度深化合作，與資訊科學學院簽署另一個雙聯學位合約，為學生帶來更多元豐富的學習經驗。

資訊學院陳志成院長說明，全美資訊領域排名前五的名校伊利諾大學與陽明交大資訊學院簽訂雙聯學位計畫，肯定我們在國際上的學術成就與表現。他也進一步說明，今年二月資訊學院也從美國延攬了兩位分別來自於全球排名前十的普林斯頓及伊利諾大學香檳分校優秀的年輕學者，她們也都在取得博士學位後在美國工作，但最後都選擇回到台灣、進入陽明交大。相信有兩位年輕老師的加入，可以為學院帶來更多創新思維和學術活力。

林奇宏校長表示，國際化時代的國際觀無價，雙聯學制不僅五年即可取得兩個頂尖大學的學位，對於培養國際觀及拓展文化視野，也有很大的助益。伊利諾大學是美國資訊領域排名前五的名校，畢業後還可爭取在美國工作或是申請博士班與全球頂尖人才共事，站上世界舞台。

今年八月即將有三名學生，包括侯博軒、劉珆睿及游建峰申請通過即將啟程出發前往伊利諾大學計算機科學系攻讀雙聯學位。游建峰說，他本來就有準備出國留學的計畫，原預計要透過交換學生的方式至國外體驗一學期的大學生活，回國後再申請出國留學。剛好去年資訊學院與 UIUC CS 簽訂雙聯學位，讓他可以提早出國並節省許多申請留學的心力過程。

劉珆睿則表示自己未來較偏向進入學術領域，已規劃八月進入 UIUC 後學習人工智慧和電腦視覺方面的專業。雙聯學位計畫提供了他進入頂尖資訊領域的殿堂，也希望未來多認識來自於世界各地的資訊頂尖人才，互相交流學習。

問到給學弟、妹們的建議時，侯博軒說雙聯學位計畫是非常難能可貴的機會，因透過校際間合作較易申請。只要保持優秀的成績，即可有很大的機會進入國際頂尖名校就讀，取得碩士學位，建議有出國留學規劃的學弟妹，好好把握機會，「顧好成績、及早準備托福，若有可能，還可規劃於暑假期間先將兵役服完。」

The School of Information Sciences (iSchool) of UIUC, represented by Associated Dean Stephen Downie (third from the left) signed a dual degree agreement ceremony with NYCU President Lin Chi-Hung (third from right in the front row) with other faculty members and Dean JC Chen (second from the left).

NYCU and UIUC Announce Launch of a New Dual Degree Program:
Three Students to Begin Study at UIUC in August

This year, National Yang Ming Chiao Tung University (NYCU) in Taiwan and the University of Illinois at Urbana-Champaign (UIUC) in the USA are excited to announce the official launch of their 3+2 dual degree program. Students who successfully complete three years at NYCU's College of Computer Science (CS) are eligible to apply to either the Department of Computer Science or the School of Information Sciences (iSchool) at UIUC. After two additional years of study, graduates will earn a Bachelor's degree from NYCU and a Master's degree from UIUC. Three exemplary students have qualified for this program and will commence their studies in August of this year.

The partnership was further strengthened following a visit by NYCU's College of Computer Science to UIUC in April 2023, culminating in the signing of a formal dual degree agreement in October 2023. An additional agreement with the School of Information Sciences was signed in March 2024, thus broadening the academic opportunities with two departments in two distinct colleges at UIUC. Dean Chen Jyh-Cheng of the CS College of NYCU remarked that the program with UIUC—a top-five U.S. institution in information technology—recognizes and validates our international academic standing and accomplishments. In February of this year, the CS College also welcomed two talented young scholars from Princeton and UIUC, enhancing the faculty with fresh perspectives and scholarly vigor.

President Lin Chi-Hung of NYCU highlighted the immense value of an international outlook in today's globalized era. The dual degree program not only allows students to acquire degrees from two prestigious universities within five years but also significantly helps in cultivating a broad cultural perspective and a comprehensive global view. UIUC, ranked among the top five U.S. institutions in information technology, provides graduates with opportunities to work in the U.S., pursue PhD programs, and collaborate with leading global talents.

In August, students Hou Bo-Syuan, Liu Yi-Ruei, and Yu Jian-Fong will embark on their journey to UIUC's Department of Computer Science to pursue their dual degrees. Yu Jian-Fong shared that he initially planned to study abroad through an exchange program before applying for further studies overseas. The dual degree agreement with UIUC's CS department from the previous year allowed him an earlier start, streamlining the complex application process. Liu Yi-Ruei, who is more academically inclined, is looking forward to specializing in artificial intelligence and computer vision after joining UIUC this August. He is eager to enter the elite realm of information technology and interact with top international scholars.

When asked for advice for younger students, Hou Bo-Syuan emphasized that the dual degree program is a remarkable opportunity facilitated by inter-university collaboration, which simplifies the application process. He advises prospective students to maintain excellent academic records, prepare for the TOEFL early, and if possible, complete mandatory military service during the summer to optimize readiness for this prestigious program.

The first batch of three dual-degree students will join the CS Department of UIUC this coming fall semester. (Mr. Yu and Mu. Hou on the left photo and Mr. Liu on the right)

連訓練人才的人才都不夠，各大學出現教授荒！
陽明交大資訊學院如何出奇招吸引兩位年輕女學霸加入

文／林宏文，本文轉載自今周刊

陽明交大資訊學院今年加入兩位優秀的助理教授，左邊是張庭榕，右邊是顏羽君。

近年來電子資訊產業發展迅速，到處都缺人才，台灣電子業以高薪爭取優秀人才，頂大電機電子研究生畢業後，已有機會拿到年薪 200 萬元的高薪工作，超過國內許多大學教授的薪資。在這種薪資結構下，也難怪台灣許多大學都很難爭取優秀教職員加入，成為大學培育年輕師資的最大障礙。

去年 4 月，我回陽明交大母校參加校慶，抽空去資訊學院串個門子，聽到聖洋科技執行長、交大資訊工程系友會會長邱繼弘演講，他提到過去兩年資訊學院曾發出九張聘書，但這些畢業自國內名校的博士，最後都選擇放棄，沒有到陽明交大報到。

當時我很感慨地寫了一篇「台灣半導體人才面臨最大危機，不只學生太少，連教授都請不起」的文章，談台灣目前不只企業找不到足夠人才，連訓練人才的人才也不夠，這將是台灣產業發展的最大隱憂。

當時這篇文章曾引發一些話題與討論，不過，今年陽明交大資訊學院的招募情形已有明顯好轉。今年 2 月間，陽明交大資訊學院新加入兩位助理教授張庭榕及顏羽君，資訊學院院長陳志成開心地告訴我，她們兩位都是優秀的年輕學者，願意選擇來陽明交大任教，資訊學院終於可以擺脫人才難覓的困境，陽明交大的經驗及作法，或許可以提供國內大學爭取優秀海外學人回國貢獻的參考。

於是，陳院長安排我於今年校慶日，與兩位年輕教授做訪談。兩位教授分別畢業自全球排名前十的普林斯頓及伊利諾大學香檳分校，也都在取得博士學位後在美國工作，但最後都選擇回到

台灣，而且加入陽明交大資訊學院。她們如何做決定及思考未來，很具參考性，也值得在此與大家分享。

張庭榕：趁著年輕時做自己想做的事

首先，我請教她們兩位，如今人工智慧（AI）當道，許多公司都用高薪吸引人才，兩位都是優秀且學有專精的資訊相關人才，也是許多國內外企業積極爭取的目標，為何最後選擇回台任教，而不是到業界工作？

張庭榕說，對於選擇學界或業界，她沒有特別偏好，她說自己從小讀書就沒有太大壓力，父母也都很尊重她，讓她自己選擇。新竹女中畢業後，她順利考上交大電機資訊學士班，還到伊利諾及康乃爾大學做短期交換學生，也做了很多有趣的研究。

例如在康乃爾，她與美國教授做研究，是探討美國人的長相與姓名的關連，把很多美國民眾的照片與名字輸入，做大數據分析，可以從照片判斷這個人可能叫什麼名字，相當有趣。

張庭榕取得陽明交大電機資訊學士後，直接申請攻讀美國博士，結果普林斯頓給了她全額獎學金，她就決定去了。當時有人跟她說，為何不去找高薪的工作，念博士 CP 值很低，而且還可能嫁不出去。但她聽了都笑一笑，依然我行我素，反正自己喜歡讀書，開心做自己就好。

張庭榕在美國拿到博士學位後，曾在一家美國 AI 晶片新創公司 SambaNova 工作，後來還從紐澤西搬到德州，身邊全都是男性工程師，只有她一位女生。不過，她也很享受那個環境，「反正女生廁所只有我一個人用，挺好的。」

後來，張庭榕決定回母校任教，是因為想做自己覺得有趣的事，朝計算機結構、 數位系統設計等領域發展。她說，去企業工作，通常研究與工作都是被指定的，很難自己選擇，而且她也很清楚，「當開始享受領高薪的快樂時，大概就回不來了。」因此，她要趁著年輕時做自己想做的事。

回母校任教，除了環境熟悉外，張庭榕也提到，陽明交大資訊學院相對年輕化，是她選擇時很重要的考量。她認為，助理教授比例高，做的題目也新，感覺上會更有活力，大家可以互相討論學習的地方很多，而且學校願意培養年輕人，也代表學校願意傳承且重視未來。

張庭榕說，她在普林斯頓時，助理教授占全部教授的 20%，但台灣的大學普遍都低於

10%，至於陽明交大資訊學院目前總計 69 位教授，其中 9 位是助理教授，比例達到 13%，在國內大學算是非常高的，這是她選擇回母校任職很重要的原因。很多學校這幾年沒有年輕教授加入，等到資深教授逐步退休後，很容易出現人才斷層。

顏羽君：取得家庭與職涯平衡點非常重要

另一位新任助理教授顏羽君，求學過程中一直是學霸級人物，一路從師大資工系、台大資工所，之後獲得全額獎學金自美國伊利諾大學香檳分校（UIUC）取得資訊工程博士。研究領域則是目前很熱門的人機互動、群眾智慧及人智協作等。

顏羽君在博士期間便被知名企業 Adobe Research 聘為實習研究員兩年，畢業後更被美國國家科學委員會 (National Science Foundation) 評選為年度創新科技新秀學者 (Computing Innovation Fellow)，給予高額獎金至加州大學聖地牙哥分校 Design Lab 擔任博士後研究員，直到去年決定返回台灣投入學界。

不只顏羽君是學霸，她家中四個兄弟姐妹也全都擁有博士學位，大姐往音樂發展，和她都投身學界成為教授，弟弟妹妹則分別進入 Meta 及 Amazon 服務。

顏羽君說，在學術界服務，不僅能延續自己對學術研究的熱情，在題目選擇上也有更大的自由。她發現在業界雖然也有機會進行研究，但方向通常受限於公司的發展方針，甚至因為同業競爭，有些前端研究不能對外發表。另外，從事教職的過程中，能獲得培養創新科技人才的成就感，這也是相當重要的事。

顏羽君的先生也是美國伊利諾大學香檳分校的電機博士，原本在美國英特爾 (Intel) 公司擔任主任工程師，在了解她對台灣學術界的期許和熱情後，決定陪她回家鄉，並且加入台灣谷歌 (Google) 工作。

顏羽君說，取得家庭與職涯的平衡點，對她來說非常重要，而回台灣的另一個重要因素之一，便是希望讓長輩有更多時間與自己的小孩相處。也幸好有父母的大力支持，讓她與先生可以偶爾喘口氣。

顏羽君說，她回台灣時，只申請陽明交大的教職，因為陽明交大一向是工程很強的學校，她在 UIUC 的指導教授也收過不少交大學生，對於她要回陽明交大任教也相當祝福。此外，陽明交大資訊學院有不少老師是她素來很景仰的人，例如林文杰、張永儒老師，她很早就知道他們的成就，希望找機會和他們合作。

顏羽君也說，她其實很早就想往學界發展，但國內大學的薪資水準確實與國外有很大差距，但與陽明交大資訊學院接觸的過程中，學校一直很有誠意地彌補薪資上的差距，並且提供許多其

他的支援，因此才大幅增加她回國的意願。

至於談到自己的未來規畫，顏羽君說，選擇陽明交大的教職工作，也不一定就會終老在此，或許有一天學校的研究或任務達成時，去業界也不是不可能。在她的想法裡，未來的職場生涯還很長，重點是要持續保持競爭力，不是進一個學校就是終點，也不用當成一輩子的工作。

校友募款彌補薪資　有助於吸引年輕學者回台任教

在很現實的待遇問題上，目前台灣的大學教授薪資，由於受限於教育部規定，助理教授月薪只有 8 萬元，即使是正教授頂多也只拿 13 萬餘元，這種薪資在人才競爭激烈的當下，根本一點吸引力都沒有。也因為這個限制，讓許多大學理工科系根本找不到年輕學者加入，新聘教授名額一直空缺的奇特現象。

陽明交大資訊學院院長陳志成說，過去教育部有提供玉山青年學者，在教授薪資外，每年可再增加最多 150 萬元的獎金，以助理教授每月薪資只有 8 萬餘元，若再加上平均每個月增加 12.5 萬元 (150 萬元除以 12 個月) 的獎金，月薪就明顯拉高。不過，玉山青年學者名額有限，不是所有人都申請得到。

陳志成說，也因為這些限制，因此陽明交大向許多熱心的校友募款，已獲得不少捐助，包括校方新增校長青年獎座，另外資訊學院也有系友捐款的講座，加入資訊學院的助理教授，若申請不到玉山青年學者，就可以申請陽明交大校長青年獎座，若再申請不到，也一定有資訊學院系友捐款的獎座，可以彌補目前薪資偏低的問題，這是今年資訊學院邀請年輕學者回台任教很大的誘因。

陳志成也說，要請年輕學者回國任教，不能只靠熱情，還是要考量現實的待遇問題。他與這些年輕學者溝通，國外企業或學校提供的薪資可能很高，但以美國為例，不只稅課貴很重，生活開銷也很高，能夠存下來的錢並不多，但若在台灣，有學校及學院補貼，可以留下來的錢說不定更多。

去年 3 月，台灣 IC 設計產業發表政策白皮書時，包括聯發科董事長蔡明介等多位 IC 設計領袖一起出席，其中奇景光電執行長吳炳昌提到，台灣目前不只企業找不到足夠人才，連訓練人才的人才也不夠了。

人才絕對是未來產業發展最大的優勢，台灣目前當然要想辦法把優秀的台灣子弟留下來，更要努力吸引世界各國人才，因此，薪資有無競爭力，絕對是關鍵因素。

陽明交大一直擁有最熱心的校友支持，如今對於吸引年輕人才已初見成效，也讓資訊學院過去兩年找不到人才的困擾一掃而空，或許這也可以成為國內其他大學攬才與傳承很好的示範。

University Professor Shortage Crisis:
NYCU's College of Computer Science Implements
Surprising Tactics to Attract Two Young Female Scholars

This year, the College of Computer Science at National Yang Ming Chiao Tung University welcomed two outstanding assistant professors: Yu-Chun Yen (third from the left) and Ting-Jung Chang (fourth from the left), pictured here with the dean, Jyh-Cheng Chen (second from the left), and other colleagues from the college.

The electronics and information industry has rapidly expanded in recent years, creating a widespread talent shortage. Taiwan's electronics sector offers high salaries to attract skilled professionals. Graduates from top universities in electrical engineering and electronics have opportunities to secure high-paying jobs with annual salaries of up to 2 million Taiwanese dollars, surpassing the salaries of many university professors in the country. Given this salary structure, it is not surprising that many Taiwanese universities struggle to recruit top faculty members, posing a significant obstacle to nurturing young teaching talent in universities.

In April 2023, during my visit back to my alma mater, National Yang Ming Chiao Tung University (NYCU), for its anniversary celebration, I took the opportunity to visit the College of Computer Science (CCS). While there, I attended a speech by Nathan Chiu (邱繼弘), CEO of cacaFly (聖洋科技) and chairman of the alumni association for the Department of Computer Science at NYCU. He mentioned that over the past two years, the CCS had issued nine job offers to Ph.D. graduates from prestigious overseas universities. However, none of these candidates ultimately joined NYCU.

At that time, I penned an article titled "Taiwan Semiconductor Talent Facing Its Greatest Crisis: Not Only a Shortage of Students But Also Unaffordable Professors," expressing my deep concern. The article discussed how Taiwan is currently facing a talent shortage that companies need and a scarcity of educators capable of nurturing such talent. This poses the most significant hidden threat to Taiwan's industrial development.

This article sparked discussion and debate; however, recruitment at the College of Computer Science has significantly improved this year. In February, the CCS welcomed two new assistant professors, Ting-Jung Chang and Yu-Chun Yen. Professor Jyh-Cheng Chen, the dean of the CCS, happily informed me that they are outstanding young scholars who chose to join NYCU. The CCS has finally overcome the challenge of talent scarcity. NYCU's experience and practices may serve as a reference for other universities in Taiwan seeking to attract excellent overseas scholars to contribute to the country.

As a result, Dean Chen arranged for me to interview the two young professors on this year's anniversary celebration day. Both professors graduated from globally top-ten-ranked universities, Princeton and the University of Illinois at Urbana-Champaign. They also worked in the United States after obtaining their doctoral degrees, but ultimately, they chose to return to Taiwan and join the College of Computer Science at NYCU. Their decision-making process and thoughts about the future are highly informative and worth sharing with everyone.

First, I asked both of them, given the prominence of artificial intelligence (AI) today and the high salaries offered by many companies to attract talent, why they ultimately choose to return to Taiwan to teach instead of pursuing careers in the industry, especially considering their expertise and qualifications, which are highly sought after by both domestic and international companies?

Ting-Jung Chang: Doing What You Want While Young

Ting-Jung Chang stated that she does not prefer academia to industry. She mentioned that she hadn't felt much pressure about studying since childhood, and her parents respected her decisions, allowing her to choose freely. After graduating from National Hsinchu Girls' Senior High School, she smoothly entered the Electrical Engineering and Computer Science Bachelor's Program at NYCU. She also participated in short-term exchange programs at the University of Illinois and Cornell University, where she conducted various exciting research projects.

For instance, during her time at Cornell, Ting-Jung Chang researched the correlation between Americans' facial features and their names with an American professor. Together, they inputted numerous photos and names of American individuals for big data analysis. The results were quite fascinating.

After obtaining her Bachelor's degree in Electrical Engineering and Computer Science at NYCU, Ting-Jung Chang applied directly to pursue a Ph.D. in the United States. Princeton University offered her a full scholarship, so she accepted it. At that time, some people advised her to seek high-paying jobs instead, mentioning that pursuing a Ph.D. had low value and might affect her marriage prospects. However, she simply laughed it off and remained steadfast in her decision. She followed her own path, stating that everything would be fine as long as she enjoyed studying and was happy being herself.

After obtaining her Ph.D. in the United States, Ting-Jung Chang worked at a US AI chip startup called SambaNova. She later moved from New Jersey to Texas, where she found herself surrounded by male engineers, being the only female in her environment. However, she also enjoyed the atmosphere, stating, "Well, at least I have the women's restroom all to myself. It's pretty nice."

Later, Ting-Jung Chang decided to return to her alma mater to teach because she wanted to pursue what she found interesting, such as computer architecture and digital system design. She mentioned that research and work assignments are usually predetermined in corporate settings, making it challenging to have autonomy. Moreover, she knew that once she began to enjoy the perks of a high-paying job, it would likely be difficult to return to academia. Therefore, she aimed to do what she wanted while still young.

Returning to her alma mater to teach, Ting-Jung Chang mentioned that besides the familiar environment, the relative youthfulness of the CCS at NYCU was an essential factor in her decision. She noted that the high proportion of assistant professors and the freshness of the topics being pursued created a vibrant atmosphere.

There were ample opportunities for mutual learning and discussion among colleagues. Moreover, the school's willingness to cultivate young talent reflected its commitment to succession and future-oriented values.

Ting-Jung Chang mentioned that during her time at Princeton, assistant professors comprised 20% of all faculty members, while in Taiwan, universities generally have less than 10%. As for the CCS at NYCU, it currently has a total of 69 professors, with 9 being assistant professors, accounting for 13% of the total, which is considered very high compared to other universities in Taiwan. This high proportion of assistant professors was crucial in her decision to return to her alma mater. Many universities in Taiwan have not seen the addition of young professors in recent years, which could lead to a talent gap when senior professors gradually retire.

Yu-Chun Yen: Striking a Balance Between Family and Career is Crucial

Yu-Chun Yen, another newly appointed assistant professor, has been an academic achiever throughout her educational journey. She graduated from the Department of Computer Science at National Taiwan Normal University. She pursued her master's degree at the Department of Computer Science and Information Engineering at National Taiwan University. Afterward, she received a full scholarship to pursue her Ph.D. in Computer Engineering at the University of Illinois at Urbana-Champaign (UIUC) in the United States. Her research focuses on popular areas such as human-computer interaction, crowdsourcing, and human-AI collaboration.

Yu-Chun Yen was recruited as an intern researcher by the renowned company Adobe Research for two years during her doctoral studies. After graduation, she was selected as a Computing Innovation Fellow by the National Science Foundation in the United States, receiving a substantial grant to serve as a postdoctoral researcher at the Design Lab of the University of California, San Diego. She decided to return to Taiwan last year to pursue a career in academia.

Yu-Chun Yen mentioned that serving in academia allows her to continue her passion for academic research and provides greater freedom in choosing research topics. She found that while there are opportunities for research in the industry, the direction is often constrained by the company's development policies. Moreover, some cutting-edge research cannot be published externally due to peer competition. Additionally, the teaching process provides a sense of achievement in nurturing innovative technology talent, which is also crucial.

Yu-Chun Yen's husband is also a Ph.D. graduate in Electrical Engineering from the University of Illinois at Urbana-Champaign. He initially worked as a principal engineer at Intel in the United States. After understanding her expectations and passion for Taiwan's academic community, he accompanied her to their hometown and joined Google Taiwan.

Yu-Chun Yen mentioned that balancing family and career is crucial for her. Another significant factor in returning to Taiwan is her desire to allow her parents more time with their grandchildren. Fortunately, with her parents' strong support, she and her husband can occasionally catch their breath.

Yu-Chun Yen mentioned that she only applied for a teaching position at NYCU upon returning to Taiwan. This decision was made because NYCU has always been known for its strong engineering programs. Her advisor at UIUC had also supervised many NYCU students, so he supported her decision to return to NYCU to teach. Additionally, she admires many professors at NYCU's College of Computer Science, such as Professor Wen-Chieh Lin and Professor Yung-Ju Chang. She has long been aware of their achievements and hopes to have the opportunity to collaborate with them.

Yu-Chun Yen also mentioned that she had wanted to pursue an academic career early on, but the salary level at domestic universities is significantly lower than overseas. However, during her interactions with NYCU's College of Computer Science, the school has worked earnestly to bridge the salary gap and provided many other forms of support. This significantly increased her willingness to return to Taiwan.

Alumni Fundraising to Supplement Salaries Helps Attract Young Scholars to Return to Teach in Taiwan

Regarding the very real issue of compensation, the salaries for university professors in Taiwan are currently limited by regulations from the Ministry of Education. Assistant professors receive a monthly salary of just over 80,000 NT dollars, and even professors receive no more than just over 130,000 NT dollars. In the fiercely competitive environment for talent, these salaries are simply not attractive. This restriction has also led many universities, especially those in STEM fields, to struggle to recruit young scholars, resulting in vacant positions for newly appointed professors.

Jyh-Cheng Chen, the dean of the CCS, stated that in the past, the Ministry of Education provided the Yushan Youth Scholar program, which offered an additional annual bonus of up to 1.5 million NT dollars on top of professors' salaries. This was intended to supplement the monthly salary of assistant professors, which is just over 80,000 NT dollars. The monthly salary would be significantly increased with an additional bonus averaging 125,000 NT dollars per month (1.5 million NT dollars divided by 12 months). However, the Yushan Youth Scholar program has limited quotas, and not everyone can successfully apply for it.

Jyh-Cheng Chen also mentioned that due to these restrictions, NYCU has been actively seeking donations from enthusiastic alumni, which has resulted in substantial contributions. These include establishing the President's Young Scholar Award by the university and endowed chairs funded by alumni specifically for the CCS. Assistant professors joining the CCS who cannot secure the Yushan Youth Scholar program can apply for the President's Young Scholar Award. If that option is not available, endowed chairs are also funded by alumni of the CCS. These initiatives aim to address the issue of relatively low salaries and serve as significant incentives for young scholars to return to Taiwan and teach at the College of Computer Science this year.

Jyh-Cheng Chen emphasized that inviting young scholars back to Taiwan to teach cannot rely solely on enthusiasm; the practical issue of compensation must also be considered. In his discussions with these young scholars, he highlighted that while salaries offered by foreign companies or universities may be high, in countries like the United States, heavy taxation and high living expenses often leave little room for savings. Conversely, with subsidies provided by universities and colleges, scholars may save more money by staying in Taiwan.

In March 2023, during the release of the policy white paper on Taiwan's IC design industry, several IC design leaders, including MediaTek Chairman Ming-Kai Tsai, attended the event. Wu Bing-Chang, CEO of Himax Technologies, mentioned that Taiwan is currently facing a shortage of talent for companies and a shortage of talent for training purposes.

Talent is undoubtedly the most significant advantage for future industrial development. Taiwan must find ways to retain outstanding Taiwanese talents and work even harder to attract talents from around the world. Therefore, the competitiveness of salaries is undoubtedly a crucial factor.

NYCU has always enjoyed the most enthusiastic support from its alumni. The initial success in attracting young talents has alleviated the College of Computer Science's previous two-year struggle in recruitment. Perhaps this could serve as an excellent demonstration for other universities in Taiwan in talent acquisition and succession planning.
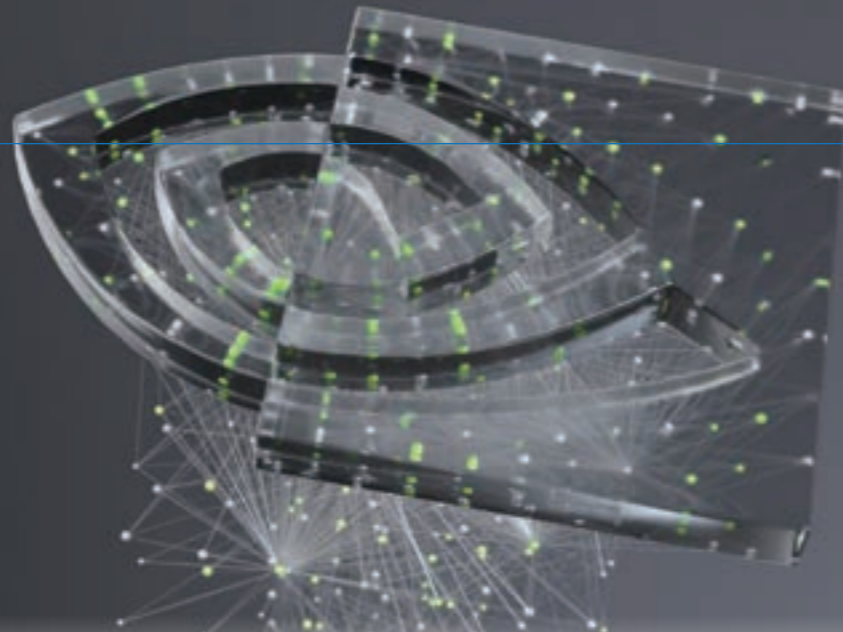
NVIDIA・陽明交大聯合創新中心

以 NVIDIA 資源 攜手提升 AI 教學、技術研發、應用與新創發展

文／杜懿洵

輝達（NVIDIA）創辦人兼執行長黃仁勳於今年六月的訪台行程中，除了參與 COMPUTEX 展，更公佈了在台灣成立 AI 研發中心，與台灣廠商共同進行 AI 應用開發，以及與台灣頂尖大學洽談 AI University 的合作計畫，短短數天將台灣 AI 熱潮帶動至最高點！

NVIDIA 與台清交、中原大學共同合作 AI University

根據經濟部之資料，早在 2021 年，技術處便已核定通過輝達「人工智慧創新研發中心計畫」，總計共約 243 億元之計畫，經濟部補助 67 億元，輝達自籌經費 176 億元。依據此一計畫，輝達要在台灣成立 AI 研發中心，聘用 1000 人的研發團隊，並建置運算平台以供給台灣 AI 研發中心使用，以及開放部分算力給國內的學研機構、合作夥伴或新創業者等。除此之外，計畫內容還包括培育 AI 人才，並與台灣頂尖大學洽談 AI University 的合作計畫；而黃仁勳此行於台大的演講中，也公布了合作的 17 所公私立大學，其中，包含台大、清大、陽明交大與中原四所大學，皆與已輝達展開在 AI University 的合作。

台大校長陳文章表示，台大已和輝達成立 AI University 中心，將推動 AI 融入教學、研究、與創業三個方面；除了在教學上會培訓 AI 教師，讓每個學院的課程都可融入 AI 之外，還會進行

AI 各領域方面的研究，並同時藉由外界資源，鼓勵師生運用 AI 技術創業。清大則是成立「清華與 NVIDIA 聯合創新中心」，進行 AI 教育與 AI 醫療領域發展。至於中原，則是與輝達簽署合作備忘錄，成立「NVIDIA- 中原大學 AI 應用發展聯合服務中心」，並投入 1600 萬元建置人工智慧設備、優化相應空間，並根據各學院的特色發展，推出智慧創新課程與協作教學模式；截至今年三月，中原已有三位老師取得 NVIDIA DLI(Deep Learning Institute) 深度學習師資證照。

NYCU Taiwan AI University 與 NVIDIA 在 AI 教學、研究與新創孵化攜手合作

至於國立陽明交通大學，則早在 2022 年底，便與輝達合作成立校級研究中心「NVIDIA・陽明交大聯合創新中心」（NVIDIA-NYCU Innovation Center），具體目標為：(1) 借用 NVIDIA 資源提升 AI 教育與實作經驗、(2) 加速先進 AI 技術研究、(3) 加速 AI 應用技術開發、(4) 促進 AI 新創公司的成立與發展，並由擅長機器人與人工智慧的資工系教授曾煜棋帶領，目前已有深度學習、電路設計等六個研究案正在進行。

而 與 輝 達 合 作 的 NYCU Taiwan AI University，則以替 AI 技能提升奠定基礎為主，並據此設立「Graduate Programs」、「Post Graduate Programs」 與「Industry Collaboration」。

Graduate Programs 強力招募 DLI Teaching Kits 與 University Ambassador

Graduate Programs 的 課 程 以 Machine Learning, Computer Vision, NLP 以 及 產 業 特定課程為主，並針對 NVIDIA 的 Deep Learning Institute（DLI） 招 募 老 師 申 請 Ambassador Program 及更多師生使用該機構提供的 Teaching Kits。輝達的 DLI 除了有隨時隨地能進行自學式的線上課程之外，也提供由 DLI 認證之講師所主持的遠距工作坊，此外，在學習中還能使用雲端 GPU 加速伺服器，以及在各種技術和領域中建立並部署 end-to-end project，結束課程之後，更能獲得 NVIDIA DLI 證書，認證專業領域能力。

NVIDIA・陽明交大聯合創新中心表示，凡具備大學教育工作資格者，皆可以下載涵蓋加速運算、深度學習和機器人領域等課程教材，教學套件除了包含講義資料、GPU 雲端資源、自學進度的 DLI 課程使用權限等之外，課程教材還包括課程投影片、課程影片、實作實驗室習題 / 解答、測驗 / 考試題目集 / 解答、紙本和電子書籍、免費 DLI 線上課程 / 證書機會、免費 AWS 雲端額度、以及包含整合式 DLI 線上課程的授課大綱。目前本校已有五位教授成功申請 Teaching Kits，分別為申請機器學習與資料科學領域的機械工程學系鄭雲謙副教授、科技法律研究所李界昇助理教授、申請機器學習領域的醫務管理研究所陳翔助理教授，以及申請機器學習與深度學習領域的資訊工程學系林政寬副教授、電機工程學系 Stefano Rini 助理教授。

至於 Ambassador Program，目前全球已有數百所大學擁有經認證的 DLI 大使，歡迎陽明交大的教職員與研究人員踴躍申請，不但可以免費獲得認證，更能向學生進行 DLI 工作坊之教授；而本校除了資訊工程學系謝秉均助教已獲得認證之外，還有智慧計算與科技研究所陳建志副教授，與醫務管理研究所陳翎助理教授兩位提出申請。

Post Graduate Programs 期待更多教授加入 Advanced Research Projects

而 在「Post Graduate Programs」 部 分，主要分為「運用 NVIDIA 之研究能量，結合 AI 與加速運算技術，所提升之國家研究與學術成就」與「應用研究加速計畫（Applied Research Accelerated Program）」兩部分；前者目前已有曾煜棋與易志偉教授的「應用 AI 技術於羽球戰情收集與戰術分析計畫」，後者則有楊智傑教授的腦科學醫療聯邦式學習計畫、林彥宇教授的「Deep Cross-domain Learning for Computer Vision Applications Grant Proposal」、 邱 維 辰 教 授 的 Learning Explainable Model and Discovering Hierarchical Concepts、 謝 秉 鈞 教 授 的 Meta RL for Multi-Objective Bayesian Optimization for Circuit Design、李毅郎教授的 Fast Rip-up and Rerouting Convergence in Chip Detailed Routing by RL、前瞻半導體研究所林柏宏教授的 Circuit Schematic to Netlist，以及電子研究所陳柏宏教授的 Development of High Efficiency 48V-to-1V DC-DC Converter Grant Proposal。

Industry Collaboration 招募產學研發新創公司加入 NVIDIA Inception 計畫

而在 Industry Collaboration，主要是希望透過 NVIDIA Inception 計畫來推動 AI 新創發展，共分成三個部分：將 AI 大學的新創團隊培育進入 NVIDIA Inception 計畫、推動以製造業、醫療保健及自動駕駛領域為重點的產學聯合研究，以及推動產學界共同參與的駭客松和密集訓練營，在此部分，目前有盧鴻興教授的人工智能輔助診所的統計學習醫療計畫參與 Incubator Program。

此外，在 NVIDIA 與華碩支持下，本校應用藝術研究所 NYCU IAA 也能使用 NVIDIA Studio 平台來進行數位創作。陽明交大很榮幸能參與 NVIDIA AI University 的計畫，除了感謝 NVIDIA 所提供的合作與資源，更期待未來能與全台及全世界夥伴共同開拓 AI 時代的願景。
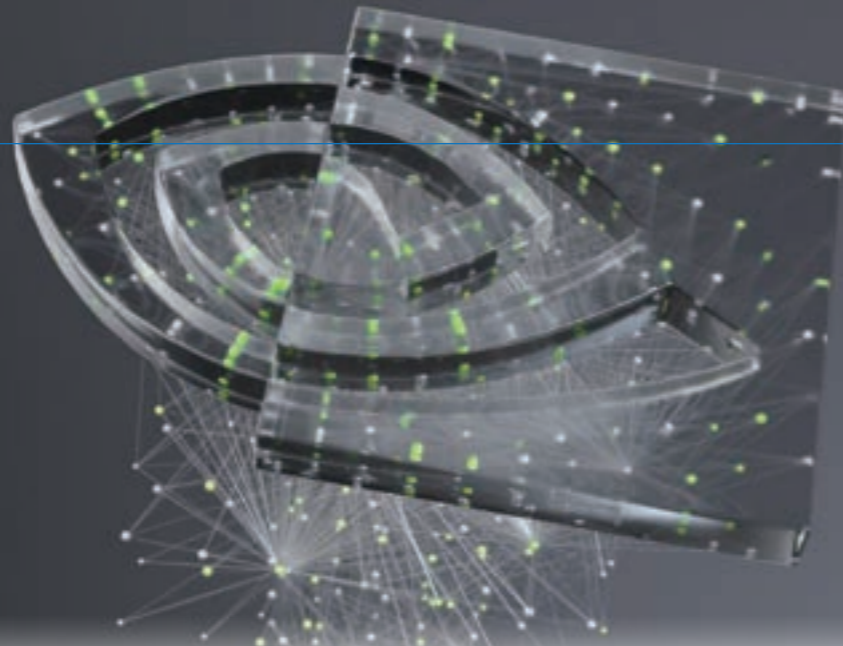
NYCU'S TAIWAN AI UNIVERSITY

NVIDIA–NYCU Innovation Center

In collaboration with NVIDIA, NYCU advances AI education, technology R&D, applications, and innovation

During his visit to Taiwan in June, NVIDIA founder and CEO Jensen Huang not only joined COMPUTEX but also revealed plans to establish an AI R&D center in Taiwan. The center will collaborate with local industries on AI application development and work with leading Taiwanese universities on the AI University initiative. In just a few days, Huang's visit ignited an unprecedented surge in Taiwan's AI landscape!

NVIDIA partners with National Taiwan University, National Tsing Hua University, National Yang Ming Chiao Tung University, and Chung Yuan Christian University to establish AI University.

According to the Ministry of Economic Affairs, as early as 2021, the Department of Industrial Technology approved NVIDIA's "AI Innovation R&D Center Project," a plan worth approximately 24.3 billion NTD. The Ministry provided a subsidy of 6.7 billion NTD while NVIDIA funded 17.6 billion NTD. As part of this project, NVIDIA plans to establish an AI R&D center in Taiwan, employing a team of 1,000 researchers, and develop a computing platform for the Taiwan AI R&D center. The project will also offer partial computing power to domestic academic and research institutions, as well as partners and startups. Additionally, the project includes fostering AI talent and exploring collaboration with Taiwan's top universities on the AI University initiative. During his speech at National Taiwan University, Huang announced the 17 public and private universities involved in the project, including National Taiwan University (NTU), National Tsing Hua University (NTHU), National Yang Ming Chiao Tung University (NYCU), and Chung Yuan Christian University (CYCU), all of which have partnered with NVIDIA to establish AI University.

The President of National Taiwan University Wen-Chang Chen announced that NTU has partnered with NVIDIA to establish the AI University Center, to integrate AI into teaching, research, and entrepreneurship. The initiative will train AI instructors to incorporate AI into curricula across all departments and foster research in various AI fields. Additionally, it will encourage faculty and students to leverage AI technology for entrepreneurial ventures, supported by external resources. Meanwhile, National Tsing Hua University has launched the "Tsing Hua-NVIDIA Joint Innovation Center" to focus on AI education and healthcare applications. As for Chung Yuan Christian University, it has signed a memorandum of understanding with NVIDIA to create the "NVIDIA-Chung Yuan Christian University AI Application Development Joint Service Center." CYCU invests 16 million NTD to develop AI infrastructure, optimize related spaces, and offer smart innovation courses and collaborative teaching models tailored to each department's specialties. By March 2024, three CYCU faculty members had obtained the NVIDIA Deep Learning Institute (DLI) deep learning instructor certification.

NYCU Taiwan AI University and NVIDIA Collaborate in AI Education, Research, and Startup Incubation

In late 2022, National Yang Ming Chiao Tung University partnered with NVIDIA to establish the "NVIDIA-NYCU Innovation Center," a university-level research hub. The center aims to: (1) leverage NVIDIA's resources to enhance AI education and practical experience, (2) accelerate research in cutting-edge AI technologies, (3) drive the development of AI application solutions, and (4) foster the creation and growth of AI startups. The center is led by Professor Yu-Chee Tseng from the Department of Computer Science, an expert in robotics and artificial intelligence. Just now, six research projects, including those focused on deep learning and circuit design, have proceeded.

In partnership with NVIDIA, NYCU Taiwan AI University is dedicated to building a strong foundation for advancing AI skills. To support this goal, the university has established "Graduate Programs," "Postgraduate Programs," and "Industry Collaboration" initiatives.

Graduate Programs Actively Recruiting DLI Teaching Kits Users and University Ambassadors

The Graduate Programs offer courses including Machine Learning, Computer Vision, Natural Language Processing (NLP), and industry-specific subjects. The programs actively seek instructors to join the Ambassador Program, and encourage students and faculty to utilize the Teaching Kits provided by NVIDIA's Deep Learning Institute (DLI). In addition to flexible, self-paced online courses that can be accessed anytime and anywhere, DLI offers remote workshops led by certified instructors. Participants have the opportunity to use cloud-based GPU-accelerated servers as well as create and deploy end-to-end projects across various technologies and fields. Upon completing the courses, learners receive the NVIDIA DLI certificate, a recognized credential that validates their professional expertise.

The NVIDIA-NYCU Innovation Center announces that individuals with higher education teaching qualifications can access course materials in areas such as accelerated computing, deep learning, and robotics. The comprehensive teaching kits include lecture notes, GPU cloud resources, self-paced access to DLI courses, and more. The kits also feature course slides, instructional videos, lab exercises with solutions, quizzes and exams with answer keys, physical and digital textbooks, free access to DLI online courses and certifications, free AWS cloud credits, and integrated DLI course syllabi. Currently, five professors from NYCU have successfully applied for Teaching Kits. They include Associate Professor Yun-Chien Cheng from the Department of Mechanical Engineering, who is focusing on machine learning and data science; Assistant Professor Jieh-Sheng Lee from the Institute of Technology Law; Assistant Professor Ling Chen from the Institute of Hospital and Health Care Administration, specializing in machine learning; Associate Professor Cheng-Kuan Lin from the Department of Computer Science; and Assistant Professor Stefano Rini from the Department of Electronics and Electrical Engineering, both of whom are concentrating on machine learning and deep learning.

The Ambassador Program currently has certified DLI ambassadors at hundreds of universities worldwide. Faculty and researchers at NYCU are encouraged to apply, as they can receive free certification and the opportunity to teach DLI workshops to students. In addition to Associate Professor Ping-Chun Hsieh from the Department of Computer Science, who is already certified, two other professors have applied:

Associate Professor Jen-Jee Chen from the Institute of Computational Intelligence and Assistant Professor Ling Chen from the Institute of Hospital and Health Care Administration.

Post Graduate Programs Welcome More Professors to Join Advanced Research Projects

The "Post Graduate Programs" are divided into two main sections: "Leveraging NVIDIA's research expertise and integrating AI with accelerated computing technologies to advance the nation's research and academic accomplishments" and the "Applied Research Accelerated Program." The former includes Professors Yu-Chee Tseng and Chih-Wei Yi's project "Application of AI Technology for Badminton Tactical Analysis and Strategy Collection." The latter encompasses several initiatives, including Professor Albert Chih-Chieh Yang's "Neuroscience Medical Federated Learning Program," Professor Yen-Yu Lin's "Deep Cross-domain Learning for Computer Vision Applications Grant Proposal," Professor Wei-Chen Chiu's "Learning Explainable Models and Discovering Hierarchical Concepts," Professor Ping-Chun Hsieh's "Meta RL for Multi-Objective Bayesian Optimization for Circuit Design," Professor Yih-Lang Li's "Fast Rip-up and Rerouting Convergence in Chip Detailed Routing by RL," Professor Po-Hung Lin's "Circuit Schematic to Netlist" from the Institute of Pioneer Semiconductor Innovation, and Professor Po-Hung Chen's "Development of High-Efficiency 48V-to-1V DC-DC Converter Grant Proposal" from the Institute of Electronics.

Industry Collaboration Inviting Industry-Academic R&D Startups to Join the NVIDIA Inception Program

The goal of the Industry Collaboration is to foster the development of AI startups through the NVIDIA Inception Program, which focuses on three main areas: supporting AI startup teams from universities to join the program, advancing industry-academia collaborative research in sectors such as manufacturing, healthcare, and autonomous driving, and organizing hackathons and intensive training camps that engage both industry and academic participants. Currently, Professor Henry Horng-Shing Lu is participating in the Incubator Program with his AI-assisted clinic statistical learning project in healthcare.

Furthermore, with the support of NVIDIA and ASUS, the Institute of Applied Arts at NYCU (NYCU IAA) can utilize the NVIDIA Studio platform for digital creation. NYCU is proud to be part of the NVIDIA AI University program. We deeply appreciate the collaboration and resources provided by NVIDIA and are excited to work with domestic and global partners to help shape the future of AI.

陽明交大 X 群聯電子實習計劃

文稿整匯／黃之禹

群聯電子成立於 2000 年，總部位於竹南鎮，是一家總部位於台灣的全球領先的快閃記憶體控制器解決方案供應商。群聯潘建成先生是創辦人之一，亦是交大電機與控制工程系研究所校友。

近年來非揮發記憶體儲存方案的崛起，固態硬碟的技術逐漸取代傳統機械式硬碟機，將高容量可靠的儲存方案帶進各式消費電子產品中，如隨身碟、數位相機、智慧型手機等等。此外群聯亦與國際儲存大廠 Seagate 合作，推出全球最快 PCIe Gen4 SSD 控制晶片、世界首款 SD Express 卡、全球首款通過 SDA SVP 驗證 SD Express 方案等。在人工智慧的浪潮下，快閃記憶體挾其高容量高可靠性的特點，成為克服記憶體之牆 (memory wall) 的關鍵技術，讓大型語言模型訓練過程所需的大量權重參數得以高速存取，將大型模型訓練的計算成本縮減，使各企業在大型模型訓練上能擁有完全的主導權。

快閃記憶體儲存控制器除了微控制器的架構設計之外，實際上更需要高效率的演算法來駕馭這些硬體元件。其中牽涉的技術包括資料結構、演算法、計算機組織、作業系統等等的背景知識，並需要融會貫通克服記憶體的各種限制。群聯研發部門中，有很大一部分比例的人員負責演算法的開發。

為了讓陽明交大資訊學院的同學了解群聯電子的工作內容，自 111 年起，群聯電子與資訊學院便開始進行長期實習計畫。不同於以往暑期短期實習，此實習計畫通常以一學期或者一學年為期，並在資訊學院就地進行，實習期間提供優渥的實習獎助金。工作內容從背景知識的學習、演算法設計與模擬、到實際硬體環境開發測試等等，實習由資訊學院專任教授 (目前為張立平教授) 與群聯主管雙軌指導，透過定期的視訊會議，深入學習韌體演算法開發以及快閃記憶體特性的

知識。實習計畫開辦以來，參與的同學已有 11 位之多，同學們透過實習計畫，不但能加強個人求職履歷的可看性，亦能與業界技術脈動保持即時的接觸。以下為參與實習同學的心得分享：

楊立嘉同學心得 2023/9-1～2024/5：參與群聯實習中，並非一蹴而就，而是透過紮實的基礎建設，讓我在一年的歷程中逐步茁壯成長。一開始，我們從閱讀優秀的論文開始，逐漸積累背景知識；接著，我們勇於嘗試，自行實作了一份簡易的 FTL（Flash Translation Layer）模擬器；最後，我們深入研究了完整的 SSD 開發環境，並提出了自己的改進方案。這一切，由淺入深，步步為營。在這個過程中，我收獲了豐富的支援與指導，不管是教授還是群聯的主管，都積極地為我們提供協助。更難能可貴的是，我們有機會進群聯竹南公司，親身體驗一家大型企業的運作模式，深入了解各部門之間的協作與配合。總體來說，這次實習不僅讓我累積了硬體相關的知識和實務經驗，還擴展了我的產業視野。而每週兩天的工作安排，也未給學業帶來過多的壓力，相反地，它為我帶來了一段充實而有趣的實習體驗。

魏翌丞同學心得 2022/03～2023/01 參與群聯的實習計畫讓我深入了解許多學過的演算法是如何應用在實際產品上。通過實作，讓我理解到演算法的開發不同於課堂作業，必須考慮到有限的硬體資源，權衡空間以及時間去設計出可行的解決方案。這次實習不僅讓我學會如何讀懂大型專案，還提升了我整理文件的能力。最重要的是，我能夠更深入了解 SSD 內部的韌體演算法，這對我的專業知識和實作能力都有很大的幫助。

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NYCU X Phison Internship Program

Phison Electronics, established in 2000 and headquartered in Zhunan, is the global leading supplier in flash memory controllers and storage solution in Taiwan, which was co-founded by Mr. Khein-Seng Pua, an alumnus of the Institute of Electrical and Control Engineering at National Chiao Tung University.

In recent years, non-volatile memory storage solutions have become more prevalent, gradually replacing traditional mechanical hard drives with solid-state drives (SSDs). This shift has brought high-capacity and reliable storage options to various consumer electronic products like USB flash drives, digital cameras, and smartphones. Additionally, Phison has teamed up with the global storage leader Seagate to launch the world's fastest PCIe Gen4 SSD controller chip, the first SD Express card, and the first SD Express solution to pass SDA SVP certification. With the rise of artificial intelligence, the high capacity and reliability of flash memory have become essential in overcoming the memory wall. This technology enables high-speed access to the extensive weight parameters needed for training large language models, thus reducing the computational costs of training large models and giving enterprises complete control over the process.

In addition to the architectural design of microcontrollers, efficient algorithms are more critical for optimal management of the hardware components of the flash memory controller. This requires expertise in data structures, algorithms, computer organization, operating systems, and related fields, all of which need to be integrated thoroughly to address various memory constraints. Within the Phison R&D department, a significant proportion of engineers are dedicated to algorithm development.

Since 2022, Phison has partnered with the College of Computer Science at National Yang Ming Chiao Tung University to introduce students to Phison's operations. This extended internship program, unlike short-term summer internships, typically spans one semester or an academic year and takes place on-site at the College of Computer Science. Participants receive significant stipends during their internships. The program includes learning foundational knowledge, algorithm design and simulation, and practice of hardware development and testing. Supervision is jointly provided by Professor Li-Ping Chang of the College of Computer Science and Phison executives. Regular video conferences enable participants to delve into firmware algorithm development and the characteristics of flash memory. Since its inception, the program has involved 11 students. Through this

internship program, students can enhance the appeal of their resumes and maintain real-time contact with industry trends. Below are the experiences shared by the participating students:

The experience of Lijia Yang 2023/9-1～2024/5: During my time with the Phison internship, I experienced steady growth, built on a strong foundation over the course of a year. We began by studying exemplary papers to accumulate background knowledge. Next, we took the initiative to create a basic Flash Translation Layer (FTL) simulator on our own. Finally, we explored a complete SSD development environment and developed our own improvement proposals. This progression from fundamental to advanced tasks was both gradual and methodical. Throughout this journey, I received considerable support and guidance from both professors and Phison supervisors. It was even more valuable to have the opportunity to visit Phison's Zhunan office, where we gained firsthand experience of a large enterprise's operations and learned about inter-departmental collaboration. This internship not only enriched my knowledge and practical experience in hardware but also broadened my industry perspective. The two-day workweek schedule was manageable and did not impose excessive pressure on my studies, providing a rewarding and engaging internship experience.

The experience of YiCheng We 2022/03～2023/01: Participating in Phison's internship program helped me gain valuable insights into the practical application of the algorithms I had studied. The hands-on experience demonstrated that developing algorithms differs significantly from classroom exercises; it involves managing limited hardware resources and balancing space and time to create feasible solutions. This internship not only taught me how to handle large-scale projects but also improved my documentation skills. Most importantly, it deepened my understanding of firmware algorithms in SSDs, greatly enhancing both my professional expertise and practical abilities.

For those interested in joining the Phison internship program, please contact Computer Science department Ms. Chih Yu Huang haungcy0512@nycu.edu.tw

Professor Li-Pin Chang lpchang@cs.nycu.edu.tw is responsible for overseeing the execution of the Phison program.

生成式人工智慧普及的機會：雲端算力服務與 Phison aiDAPTIV+

文／杜懿洵

生成式人工智慧（AI）自 2022 年底引起廣泛關注以來，不僅模型的數量在規模上年增數十、甚至數百倍，在架構上也從單一模型演化至多專家系統，展現出前所未有的多樣性和複雜性。然而，隨著各行各業積極探索將生成式 AI 技術融入工作流程，除了使得資訊安全和系統可控性的問題日益受到重視之外，生成式 AI 技術的普及更面臨著一個重大的挑戰：高昂的部署成本。

根據微軟研究報告指出，AI 模型的成長速度將會是 GPU 卡中的 DRAM 成長速度的 200 倍，這使得現行的 AI 運算硬體架構成長速度，逐漸地無法滿足 AI 應用的需求，而這將對許多組織採用生成式 AI 造成障礙，從而限制了生成式 AI 的廣泛應用。針對此一困境，出租算力的雲端服務商逐漸崛起，成為此波 AI 時代的另一個新商業模式。

除了 NVIDIA 不斷大力扶植 GPU 雲端託管商，並投資雲端串流服務業者，以推動各國雲端算力基礎建設之外，國際市場也大力挹注投資 AI 運算中心，像新創 CoreWeave 便計畫於今年底前興建 14 座資料中心，而其較為便宜的雲端租賃價格，也讓微軟選擇與其合作。其他像是 Lambda Labs、Together AI 也都獲得大量資金、擴建 GPU 機房，至於北美四大雲端巨頭，更開始自研 AI 晶片。而在台灣，除了有郭台強領軍的正崴集團，與在日本和台灣皆有自建機房的優必達合作，成立「優崴超級運算中心」，以第一階段 20 億的規模，向華碩採購千張 H100 顯示卡，並導入最新 G200 的 AI 運算基地，規劃建立全台最大 AI 算力中心之外，弘憶也獲得瑞昱旗集團約六億元的投資，向美超微採購，建立 55 台 H100 伺服器的算力中心。

除了出租算力的價格儼然即將開打之

外，深耕 NAND 控制晶片超過 23 年的群聯電子，則從自身優勢出發，通過利用 NAND Flash 技術擴充高帶寬記憶體（HBM）提升系統性能，藉由整合固態硬碟（SSD），提出自主研發的創新 AI 運算架構 aiDAPTIV+，以另一種模式降低生成式 AI 的部署成本，從而推動技術的更廣泛應用。

群聯 AI 研發團隊負責人暨國立陽明交通大學智慧科學暨綠能學院合聘助理教授林緯博士表示，群聯的本業與核心競爭力是 NAND 控制晶片研發，因此，如何擴大 NAND 儲存與 AI 應用的連結一直是群聯近幾年努力的方向。aiDAPTIV+ 此 AI 架構為透過群聯獨創整合 SSD 的 AI 運算架構，將大型 AI 模型做結構性拆分，並將模型參數隨應用時間序列與 SSD 協同運行，以達到在有限的 GPU 與 DRAM 資源下，最大化可執行的 AI 模型，預計能有效降低提供 AI 服務所需投入的硬體建構成本。

透過將 AI 技術導入 NAND 控制晶片與演算法裡，提升 NAND 儲存方案的運算效能與可靠度，群聯 aiDAPTIV+ 不僅能有效降低 AI 伺服器硬體建構成本，更能將此 AI 運算架構運用於各種 AI 應用場景，例如 aiDAPTIV+ AOI 光學檢測系統，首波應用場景便助力 SMT 工廠加速進入工業 4.0，並進一步提升檢測精準度，消除人力檢測所導致的不穩定性。

雖然生成式 AI 所引發的算力大戰正如火如荼地展開，但可預見的是，在應用成本越發降低之後，各種應用需求的研發也將越成為可能。本院張立平教授表示，之後就會引進教學課程，規劃作為學院老師的研究平台，也會與資訊學院老師成立 GAI（生成式 AI）教學，讓同學在學校就能開始學習與嘗試生成式 AI 的各種創新應用。

Opportunities for the Rapid Adoption of Generative AI: Cloud Computing Services and Phison aiDAPTIV+

Since generative artificial intelligence (AI) gained widespread attention in late 2022, the number of models has grown exponentially, increasing by tens or even hundreds each year. Architecturally, AI has evolved from standalone models to multi-expert systems, showcasing unprecedented diversity and complexity. As industries actively explore integrating generative AI into their workflows, they face growing concerns about information security and system controllability. A significant barrier to its widespread adoption, however, remains the high cost of deployment.

A Microsoft research report indicates that the growth rate of AI models will surpass that of DRAM in GPUs by a factor of 200. This significant disparity is putting pressure on current AI hardware architectures, making it increasingly challenging to meet the demands of AI applications. As a result, this creates obstacles for many organizations looking to adopt generative AI on a large scale. In response to these challenges, cloud service providers have emerged, offering rentable computational power and introducing a new business model for the AI era.

In addition to NVIDIA's ongoing and robust support for GPU cloud hosting providers and its investments in cloud streaming services to bolster global cloud infrastructure, international investments in AI computing centers have also increased significantly. For instance, the startup CoreWeave plans to build 14 data centers by the end of this year with competitive prices of cloud rental services which has prompted Microsoft to partner with the company. Similarly, companies such as Lambda Labs and Together AI have secured substantial funding to expand their GPU data centers. Meanwhile, North America's four leading cloud giants have started developing their own AI chips. In Taiwan, Foxlink Group, led by T.C. Gou, has teamed up with Ubitus, a company operating data centers in Japan and Taiwan, to establish the "Ubilink Supercomputing Center." With an initial investment of 2 billion NTD, Ubilink plans to acquire 1,000 H100 GPUs from ASUS and integrate the latest DGX GH200 AI computation platform to establish the latest AI computing infrastructure in the project's first phase. This initiative aims to establish the largest AI computing center in Taiwan. Additionally, G.M.I. Technology has secured an investment of approximately $600 million NTD from Realtek and is purchasing 55 H100 servers from Super Micro Computer to build its own AI computing center.

Beyond the impending price war in the cloud computing

market, Phison Electronics Corp., with over 23 years of expertise in NAND controller chips, is leveraging its core strengths to improve system performance by utilizing NAND Flash technology to expand high-bandwidth memory (HBM). Phison has also developed its innovative AI computing architecture, aiDAPTIV+, by integrating solid-state drives (SSDs). This approach provides an alternative model to reduce the deployment costs of generative AI, thereby facilitating its broader adoption and application.

Dr. Wei Lin, Head of Phison's AI R&D team and Assistant Professor at the College of Artificial Intelligence at National Yang Ming Chiao Tung University, explained that Phison's core business and competitive advantage lie in NAND controller chip development. As a result, the company has increasingly focused on strengthening the integration of NAND storage with AI applications in recent years. Phison's innovative aiDAPTIV+ AI architecture, which integrates SSDs with AI computing framework to optimize performance, structurally decomposes large AI models and coordinates the operation of model parameters with SSDs according to application time sequences to maximize the efficiency of AI models within the constraints of limited GPU and DRAM resources. This solution is expected to substantially reduce the hardware cost associated with deploying AI services.

By integrating AI technology into NAND controller chips and algorithms to enhance both computational performance and reliability, Phison's aiDAPTIV+ not only effectively reduces the hardware costs of AI servers but also makes the AI computing architecture applicable to a wider range of AI use scenarios. For example, the aiDAPTIV+ AOI optical inspection system helps accelerate the transition to Industry 4.0 in SMT factories. Additionally, it enhances inspection accuracy and reduces the instability caused by manual inspection.

Although the competition for computing power driven by generative AI is intensifying, it is expected that the research and development of a wide range of applications will become increasingly feasible as application costs continue to decrease. Professor Li-Pin Chang from the College of Computer Science at NYCU stated that the college will introduce training courses and establish a research platform for faculty members. Additionally, the faculty will collaborate to develop a GAI (Generative AI) curriculum, providing students with opportunities to learn about and experiment with innovative generative AI applications.

全球第一套 5G 核心網路開源軟體 free5GC 加入 Linux 基金會
推動全球 5G/6G 技術新里程碑

文／秘書處公共關係組

陽明交大資訊學院院長陳志成開發的 5G 核心網路開源軟體 free5GC，本周正式加入 Linux 基金會的開源平台。這一進展標誌著陽明交大在全球 5G 技術研發中的重要地位，並為未來 6G 技術的發展奠定了堅實基礎。

Linux 基金會是在 9 月 16 日於奧地利維也納的「歐洲開源高峰會」（Open Source Summit Europe）宣布此事。這是全球最具規模的開放原始碼軟硬體、標準及數據協作平台，有助於專家社群互相協作，進一步簡化 5G 技術在各各行各業的部署與全球推廣，甚至推動 6G 技術的研發與應用。

針對這項對世界的貢獻，陳志成院長說明，5G 與 6G 技術的高速、低延遲及高可靠特性，結合 AI 應用，將加速催生更多人類想像中的創新場景。透過 5G/6G 網路，智慧醫療如遠距手術、智慧診斷與個人化健康管理等技術，將能實時運行，提供精準且安全的醫療服務。更進一步，6G 技術的觸覺回饋與虛擬實境（VR）應用將能模擬更真實的觸感，甚至讓使用者在虛擬世界，如購物或遊戲中，體驗觸摸、嗅覺與味覺的真實感。

事實上，陳志成研究團隊早在 2019 年就已釋出 free5GC，當時是全世界第一套完全依照國際標準開發的 5G 核心網路開源軟體。

陳志成更進一步說明，在全球通訊產業發展的過去二十年間，台灣雖在手機和小型基地台方面有所突破，卻在通訊網路的核心網路領域缺乏影響力。核心網路是行動通訊的「大腦」，其技術門檻高且成本昂貴，阻礙了許多組織的創新和發展。為解決這一問題，他才會釋出作為開源軟體。該軟體已在全球的產品測試與概念驗證中廣泛應用，並因其開源特性，受到國際學術界與產業界的高度重視。

在維也納的高峰會上，Linux 基金會網路、邊緣和物聯網總經理 Arpit Joshipura 特別提及陽明交大陳志成院長的貢獻：「我們非常高興能夠歡迎 free5GC 加入 Linux 基金會，這標誌著我們在推動電信領域開源創新方面的一個重要里程碑。free5GC 帶來了一個強大且開源的 5G 核心網路解決方案，符合我們推動產業協作和標準化的使命。這次合作將使各組織能夠利用 5G 的變革潛力，提供一個透明、可擴展且具有成本效益的核心網路解決方案。」

free5GC 加入 Linux 基金會後，預期可透過 Linux 基金會強大的生態系統與廣泛的社群支持，讓 free5GC 更具影響力，成為未來全球 5G 與 6G 技術創新與演進的關鍵推動者。
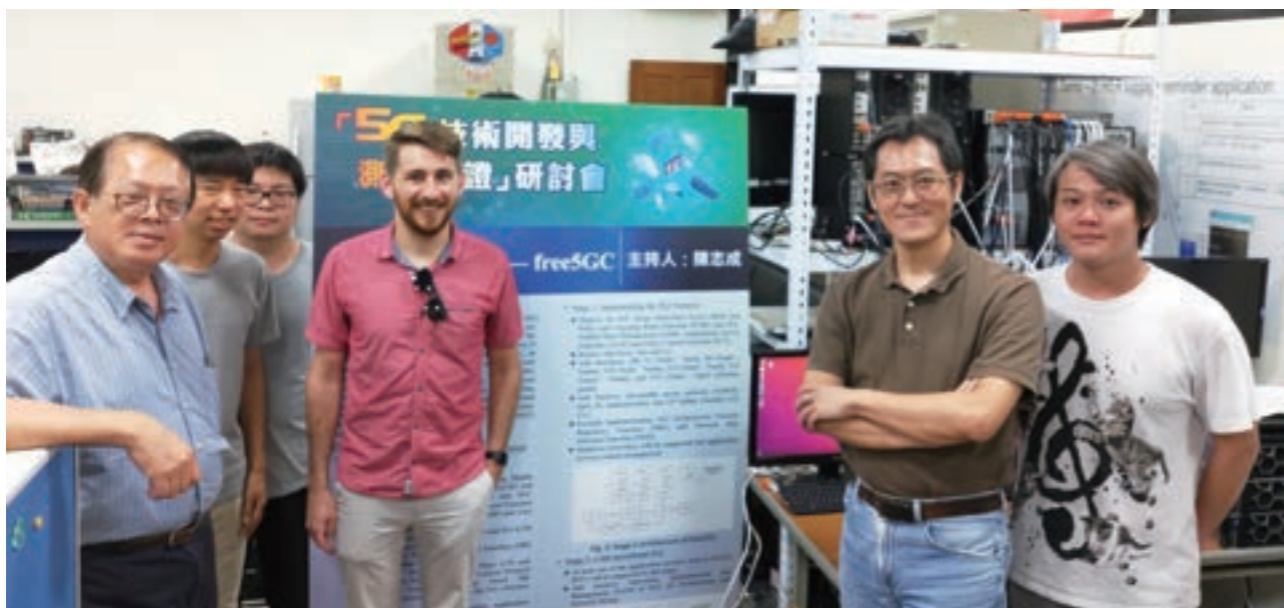
World's Leading Open Source Mobile Core Network, free5GC, Moves to Linux Foundation to Advance a New Milestone in Global 5G/6G Technology

The open-source 5G mobile core network free5GC, developed by Dr. Jyh-Cheng Chen, Dean of the College of Computer Science at National Yang Ming Chiao Tung University (NYCU), has officially joined the Linux Foundation community this week. This milestone underscores the university's prominent role in global 5G technology research and development, while also establishing a strong foundation for the future progress of 6G technology.

The Linux Foundation made this announcement at the Open Source Summit Europe in Vienna, Austria, on September 16. As the world's leading platform for open-source software, hardware collaboration, and standards development, The Foundation plays an essential role in promoting collaboration among expert communities. This partnership will not only streamline the global deployment and adoption of 5G technology across industries but also accelerate the research, development, and application of 6G technology.

Regarding this contribution to the world, Dr. Chen explained that the high speed, low latency, and exceptional reliability of 5G and 6G technologies, when combined with AI applications, will drive the realization of innovative scenarios that were once only imagined. Through 5G/6G networks, smart healthcare technologies—including remote surgery, advanced diagnostics, and personalized health management—will operate in real-time, delivering precise and secure medical services. Moreover, the tactile feedback and virtual reality (VR) capabilities of 6G technology will enable a more lifelike sense of touch, allowing users to experience realistic sensations of touch, smell, and taste in virtual environments, such as during shopping or gaming experiences.

As early as 2019, Dr. Chen's research team launched free5GC, the world's first fully open-source 5G core network software developed in strict accordance with international standards.

Dr. Chen further explained that, over the past two decades of global telecommunications evolution, Taiwan has made significant advancements in mobile devices and small cell base stations. However, the country has had limited influence in the core network domain, a critical component of communication networks. The core network, often referred to as the "brain" of mobile communications, presents substantial technical challenges and incurs high costs, which has hindered innovation and development for many organizations. To address this challenge, he chose to release the software as open-source. Since then, it has been widely adopted in product testing and proof-of-concept projects worldwide. Its open-source nature has garnered considerable attention from both the international academic community and the telecommunications industry.

At the summit in Vienna, Arpit Joshipura, General Manager of Networking, Edge, and IoT at the Linux Foundation, emphasized the significant contributions of Dr. Jyh-Cheng Chen, Dean of the College of Computer Science at NYCU: "We are excited to welcome free5GC to the Linux Foundation. This represents a major milestone in our ongoing efforts to drive open-source innovation within the telecommunications industry. free5GC provides a robust, open-source 5G core network solution that aligns with our mission to promote industry collaboration and standardization. Through this collaboration, organizations will be empowered to harness the transformative potential of 5G, thereby delivering a transparent, scalable, and cost-effective core network solution.

With free5GC now under the Linux Foundation, its influence is expected to increase significantly, supported by the Foundation's strong ecosystem and extensive community backing. This will place free5GC in a pivotal role in the ongoing innovation and development of global 5G and 6G technologies.

吳俊峯老師：
堅持夢想，永不放棄

文／鍾乙君

資訊學院今年迎來了一位資歷豐富且充滿熱情的新進教授——吳俊峯教授。吳教授自小立志於科學研究，成長於資訊教育的氛圍中，並在多年學術探索中深耕於系統設計與軟體開發領域，累積了豐富的教學與研究經驗。作為一位教學熱忱滿滿的學者，吳教授加入學院後，將為資訊學院注入新的視野與活力，並致力於引導學生探索自我、發展個性化的學習之路。

早期啟蒙：家庭影響與興趣探索

吳俊峯教授的資訊之路可追溯至童年，他自小受到父親的影響，對科技產生濃厚興趣。吳教授回憶，儘管當時的資訊技術並不像今天普及，他仍從自學數學、物理，閱讀科學家傳記中汲取靈感，渴望成為如同牛頓般的科學家。到了高中，吳教授首次接觸程式語言，逐步開始探索資訊科學的奧妙，並在大學階段決心專攻資訊工程。此後，他始終秉持著對知識的熱情與對教學的堅持，投入到學術研究的長期目標中。

深耕學術：系統設計與軟體研究的探索之旅

吳俊峯教授的學術旅程中，系統設計和軟體研究佔據了關鍵的位置。他自碩士階段起就選擇系統設計作為主要研究方向，並且抱持著挑戰自我的態度，深入探索資訊工程中這個相對複雜且需要扎實基礎知識的領域。談及選擇系統設計的契機，吳教授坦言，這段研究歷程充滿了未知和困難，但也正因如此讓他獲益匪淺。

最初的探索起於碩士班時期，那時軟體和網路技術蓬勃發展，IoT（物聯網）及車載網路等新興領域備受關注。然而，吳教授並沒有順應潮流選擇熱門的網路技術，而是抱持著「補足短板」的決心，選擇了系統設計這個相對冷門的領域。他在早期的研究過程中接觸到大型系統設計，不僅需要精湛的程式技術，更要對系統運作的邏輯和架構有深刻理解。吳教授花費兩年時間熟悉和掌握系統研究的核心技術，並逐步在這方面建立了紮實的知識基礎。他坦言，這段時間的系統學習不僅是技術的突破，也為他日後的學術研究打下了穩固的基石。

在系統設計研究的道路上，吳教授遇到過無數挑戰。他指出，系統設計的複雜性在於其涉及多層級的技術整合，包括硬體架構、軟體程式以及操作系統的運行邏輯。當時的資源有限，他必須在有限的條件下完成複雜的系統設計課題，並在學術文獻中尋找突破的路徑。他在這段研究中體悟到，系統設計需要的不僅僅是技術能力，更需要細緻的觀察力和堅定的耐心。這些經歷成為他日後在教學和科研中所倚重的資產，也讓他對資訊工程中的「系統思維」有了更深層的理解。

隨後的博士研究期間，吳教授進一步深入軟體與系統整合的研究。他選擇了一個長期難題：如何在現有系統架構上達到最佳的軟硬體協同效果，並提高系統穩定性與效率。這是一項需要耐

心、創意和堅韌的研究，他花費數年時間設計並測試不同的軟體架構，以找到能最佳適應未來需求的系統方案。吳教授認為，系統設計領域的研究不僅涉及技術創新，更重要的是深層的問題解決思維。他在研究過程中多次遇到瓶頸，但始終堅信「系統的價值在於實踐中的解決方案」，這種以實際需求為導向的研究態度讓他在系統設計研究中取得了顯著成就。

在博士後研究階段，吳教授前往國外頂尖大學進行深造和合作研究。他表示，國外的系統研究氛圍不僅講求技術創新，還極為重視跨領域合作。在國外期間，他與多位來自不同專業的學者合作，進一步拓展了系統設計的應用層面，並以此提升自己對系統研究的視野和理解。他分享道，在國外的學習讓他深刻體驗到不同的學術文化，尤其是「學生帶動老師」的研究模式。在這樣的氛圍下，師生間共同努力解決實際問題，讓研究更具動力和方向性。他相信，這樣的經驗不僅拓寬了自己的技術視野，也帶給他在教學中的新靈感。

如今，吳俊峯教授回到台灣的資訊學院，將其多年來在系統設計與軟體整合的累積經驗傳授給新一代學生。他堅信，系統設計不僅是一門技術，更是一種全面性和精確性的思維訓練。他希望通過教學讓學生具備紮實的基礎知識，並能夠在研究和實踐中靈活運用。吳教授的系統設計之旅，展現了學術研究中的不懈探索精神，也啟發著學生如何在學習過程中找尋屬於自己的專業道路。

教學理念：自我探索與個性發展的指引

吳俊峯教授不僅是一位深耕學術的研究者，也是一位熱忱教學的老師。他認為，教學的核心不僅是知識傳授，更重要的是幫助學生在學習過程中發現自我，找尋真正的興趣。他希望藉由自己的經歷，幫助學生在學術或職涯方向上做出更清晰的判斷，而不是僅僅追隨潮流或其他人的選擇。

針對自己的實驗室經營，吳教授強調「自我探索」的重要性，他希望學生們在兩年學習期間能更深入地了解自己的個性、興趣和適合的發展方向。他認為，與其追逐熱門的專業或公司，不如以真實的自己去選擇合適的學習和職涯路徑。這種重視個性發展的教學風格深受學生喜愛，也讓他與學生建立了親近而信任的互動。

堅持夢想，永不放棄

在專訪結束時，吳教授談到了他一生信奉的座右銘：「永不放棄」。他分享了自己在求學與工作過程中的挫折與挑戰，但始終堅信「成為教授」的夢想。他認為，無論走哪條路，對於目標的堅持和對自身信念的執著都是成功的關鍵。吳教授的經歷和教學理念無疑為資訊學院注入了新思維與活力，相信他的加入將會啟發更多年輕學子勇於探索、堅持夢想。最後，讓我們一同歡迎吳俊峯教授加入資訊學院，也期待他在教學與研究上不斷突破，帶領學院邁向更光輝的未來！

Professor Chun-Feng Wu:
Pursue Dreams Unwaveringly, Never Give Up

The College of Computer Science is excited to welcome a new professor this year who brings extensive experience and a deep passion—Professor Chun-Feng Wu. Professor Wu has been devoted to scientific research since childhood. Growing up in an environment immersed in information technology education, he has spent many years in academic exploration, specializing in system design and software development, while accumulating extensive experience in both teaching and research. With a profound passion for education, Professor Wu will bring fresh perspectives and energy to the college. He is committed to helping students discover their potential and create personalized learning paths.

Family Influence and Interest Exploration

Professor Wu's passion for information technology began in childhood, and he was influenced by his father and had an early fascination with technology. Although computer science was not as widespread at that time, he found inspiration through self-study in mathematics and physics, as well as by reading biographies of renowned scientists, thereby fueling his aspiration to become a scientist like Newton. In high school, Professor Wu was introduced to programming languages, which ignited his curiosity in computer science and led him to pursue a degree in the subject. Throughout his academic journey, he has remained dedicated to his passion for knowledge and teaching, with a long-term focus on advancing research.

Academic Pursuit: A Journey of Exploration in System Design and Software Research

System design and software research have been central to Professor Wu's academic journey. Since his master's studies, he has made system design his primary research focus. Driven by a self-challenging mindset, he has thoroughly explored the complex field of computer science, which requires a solid foundation of knowledge. Reflecting on his decision to pursue system design, Professor Wu acknowledges that the path was fraught with uncertainties and challenges. However, it was these very obstacles that made the experience profoundly rewarding for him.

His initial exploration began during his master's studies, a time when software and networking technologies were rapidly developing, and emerging fields like IoT (Internet of Things) and automotive networks were gaining significant attention. However, Professor Wu did not follow the trend by choosing popular networking technologies; instead, with a determination to "fill the gap," he chose the relatively niche field of system design. During his early research, he delved into large-scale system design, which not only required excellent programming skills but also a deep understanding of the logic and architecture behind system operations. Professor Wu spent two years familiarizing himself with and mastering the core technologies of system research, gradually building a solid knowledge foundation in this area. He admits that this period of system study was not only a technical breakthrough but also laid a strong foundation for his future academic research.

Throughout his journey in system design research, Professor Wu encountered numerous challenges. He highlights that the complexity of system design arises from the need to integrate multiple layers of technology, including hardware architecture, software programming, and the operational logic of operating systems. With limited resources available at the time, he had to tackle intricate system design problems under constrained conditions, frequently turning to academic literature for insights and breakthroughs. This experience taught him that system design demands not only technical expertise but also sharp observational skills and unwavering patience. These lessons have since become invaluable assets in his teaching and research, enriching his understanding of "systems thinking" within Computer Science.

During his doctoral research, Professor Wu advanced his exploration of software and system integration. He tackled a long-standing challenge: how to optimize hardware-software collaboration within existing system architectures while improving system stability and efficiency. This endeavor required not only patience and creativity but also resilience. Over several years, he designed and tested a

range of software architectures to identify solutions that would best meet future demands. Professor Wu asserts that research in system design goes beyond technological innovation; it demands a deep, analytical approach to problem-solving. Despite facing numerous bottlenecks, he remained committed to his belief that "the true value of a system lies in the practical solutions it offers." This practical, demand-driven mindset led to significant breakthroughs in his system design research.

During his postdoctoral research, Professor Wu traveled abroad to study and collaborate with leading universities. He observed that the research environment abroad not only emphasizes technological innovation but also strongly values interdisciplinary collaboration. During his time overseas, he worked with scholars from various fields, which broadened the application of system design and deepened his understanding of system research. He shared that his time abroad allowed him to immerse himself in different academic cultures, especially the research model where "students lead teachers." In this collaborative environment, professors and students work together to address real-world problems, infusing research with greater motivation and direction. He believes such experience not only expanded his technical knowledge but also inspired new ideas for his teaching.

Today, Professor Wu has returned to Taiwan and is teaching at the College of Computer Science, where he imparts his extensive experience in system design and software integration to the next generation of students. He strongly believes that system design is not merely a technical skill but also a discipline that fosters comprehensive and precise thinking. He hopes to provide students with a solid foundation of knowledge through his teaching, enabling them to apply it effectively in both research and practice. Professor Wu's journey in system design embodies the unwavering spirit of academic exploration and serves as an inspiration for students to discover their professional paths throughout their learning journey.

Teaching Philosophy: Guiding Self-Discovery and Personal Growth

Professor Wu is both a committed academic researcher and a passionate educator. He believes that teaching goes beyond the mere transfer of knowledge; its true essence lies in helping students discover their own identities and uncover their genuine interests throughout the learning journey. Drawing from his own experiences, he hopes to guide students in making informed decisions about their academic and career paths, rather than simply following trends or the choices of others.

In managing his laboratory, Professor Wu places a strong emphasis on the importance of "self-exploration." He encourages students to use their two years of study to gain a deeper understanding of their personalities, interests, and the career paths that best align with their strengths. Rather than pursuing fleeting trends or following the crowd, he believes students should focus on finding personal and professional paths that reflect their true selves. This focus on personal growth has made his teaching style particularly popular among students, fostering a close, trusting relationship between him and those he mentors.

Pursue Dreams Unwaveringly, Never Give Up

At the end of the interview, Professor Wu shared the guiding motto that he has lived by: "Never give up." He reflected on the setbacks and challenges he encountered throughout his academic and professional journey, yet remained steadfast in his pursuit of his dream of becoming a professor. He firmly believes that, regardless of the path, success is rooted in perseverance and a strong belief in oneself. Professor Wu's experiences and teaching philosophy have undeniably brought fresh perspectives and energy to the College of Computer Science. His presence will undoubtedly inspire more students to boldly explore their potential and pursue their dreams. Finally, let us warmly welcome Professor Chun-Feng Wu to the College of Computer Science and look forward to his continued breakthroughs in both teaching and research as he leads the college toward a brighter future!

資深教授蔡中川博士終身貢獻獎

文／鍾乙君

　　2024 年 5 月 3 日陽明交通大學資訊學院於台北的天成大飯店，舉辦了一場意義非凡的餐敘。活動中，最受矚目的焦點即是資深教授蔡中川博士榮獲「終身貢獻獎」，以表彰他長達 35 年來對學術及科研的卓越貢獻。蔡教授的這份榮譽，無疑成為當晚最為重要的核心時刻。

　　此次餐敘由計算機工程系 69 級、108 學年度交大傑出校友、現任創為精密材料趙書華董事長主持，並由計工系 68 級、109 學年度交大傑出校友、現任彥陽科技董事長及酩陽實業公司吳銘雄董事長提供紅酒。現場師長、校友及系友們共同見證這一榮耀時刻，向蔡教授表達最誠摯的敬意。

　　蔡中川教授在交大任教三十五年期間，不僅致力於培育無數優秀人才，更以卓越的技術研發為國內資通訊技術奠定堅實基礎。他的多項突破性成就包括：

1. 1971 年，主導成功研製國內第一部小型電子計算機，並榮獲 1972 年優秀青年獎章，為我國計算機技術的發展奠定了基礎。

2. 1981 年，蔡教授指導研製成功國內第一部可由程式控制之工業機械手，推動自動化技術的進步，提升國內工業自動化水平。

3. 1986 年，指導開發完成國內第一套可排印全頁中文報紙的電腦化系統。

4. 1991 年，蔡教授成功研發完成中文中端控制機。

　　蔡教授自願於 2003 年退休，並被授予榮譽退休教授的頭銜。他的教學生涯始於 1968 年，以講師身份開始，之後逐步升任副教授（1975 年）及教授（1978 年），直至 2003 年榮譽退休。蔡中川教授對教育的熱忱和對學生的無私奉獻，不僅讓他成為學生心目中的良師益友，更是資訊界的先驅典範。

　　在頒獎當晚，許多來自資訊學院的師長及校友們齊聚一堂，共同分享彼此在學術、校務及事業上的成就與經歷。這些傑出的貢獻者無論是在產業界或是學術界，都為我國資通訊產業的發展注入了源源不絕的活力。

　　當晚的活動在台北天成大飯店圓滿結束，現場的校友、系友和師長們紛紛向蔡教授獻上最崇高的敬意，感謝他長年來的辛勤付出，並為他的榮譽退休獻上最美好的祝福。這是一場不僅紀念蔡中川博士終身貢獻的宴會，更是資訊系學子和師長們對我國資通訊產業未來充滿信心與期待的見證。

　　在此也要特別感謝這場活動的發起人，即系友會副會長兼創為精密科技董事長的趙書華學姐，因為她的大力支持，才使得這場活動得以圓滿成功。

Senior Professor Jong-Chuang Tsay Receives Lifetime Contribution Award

On May 3, 2024, the College of Computer Sciences at Yang Ming Chiao Tung University (NYCU) hosted a prestigious banquet at the Cosmos Hotel Taipei. The standout moment was the presentation of the "Lifetime Achievement Award" to Dr. Jong-Chuang Tsay, a distinguished senior professor, in recognition of his remarkable contributions to academia and research over the past 35 years. This award was truly a highlight of the event.

The banquet was hosted by Ms. Shu-hua Zhao (CS 69), President of Apex Material Technology Corp and a distinguished alumna of the 108th academic year at NYCU. The fine red wine for the occasion was generously provided by Mayor Wu (CS 68), chairman of Promaster Technology Corporation and President of Prowine Co. Ltd., who is also recognized as an outstanding alumnus of the 109th academic year at NYCU. Faculty, alumni, and friends gathered to celebrate this special occasion, offering their heartfelt respect to Professor Tsai.

Professor Tsay has dedicated his 35 years at Yang Ming Chiao Tung University to nurturing a generation of exceptional talent. He has also laid a strong foundation for the nation's Information and Communication Technologies through his significant contributions to research and development. Among his many groundbreaking achievements are:

1. In 1971, he led the successful development of Taiwan's first small electronic computer and was awarded the Outstanding Youth Award in 1972, laying a foundation for the advancement of computer technology in Taiwan.

2. In 1981, Professor Tsay supervised the development of Taiwan's first programmable industrial robotic arm, advancing automation technology and improving the level of industrial automation in Taiwan.

3. In 1986, he led the development of Taiwan's first computerized system capable of printing full-page Chinese newspapers.

4. In 1991, Professor Tsay successfully developed the Chinese terminal controller.

Professor Tsay voluntarily retired in 2003 and was honored with the title of Emeritus Professor. He began his teaching career in 1957 as a lecturer and gradually advanced to associate professor in 1964 and full professor in 1967, culminating in his honorary retirement in 2003. Professor Tsay's deep passion for education and unwavering dedication to his students not only made him a cherished mentor but also established him as a pioneer in the field of information technology.

On the evening of the award ceremony, numerous faculty members and alumni from the College of Computer Science came together to celebrate and share their accomplishments and experiences in academia, university affairs, and their professional journeys. These remarkable individuals, whether in industry or academia, have consistently infused new energy into the development of Taiwan's information and communication industry.

交大日資工系友回娘家暨傑出系友頒獎典禮

文／鍾乙君

2024 年 4 月 13 日，國立陽明交通大學資訊工程學系舉辦了「交大日」、「資工系友回娘家」活動，邀請傑出校友回到母校分享經驗，並進行頒獎典禮，表彰在各領域表現卓越的校友與系友。這次活動為校友和師長提供了寶貴的交流機會，展現了交大資工系深厚的校友人脈以及系所培育的無數卓越人才。

傑出校友致詞

李良猷學長的卓越成就與分享

李良猷學長是國立交通大學計算與控制工程學系 61 級的傑出校友，現職為羅昇企業獨立董事的他在科技領域的成就堪稱典範，並且仍持續在科技前沿發展。作為一位已 74 歲的資深學者與技術專家，李學長展現出對技術和創新的熱情，他不僅掌握當前的科技趨勢，還保持著不斷學習的心態。

在他的致詞中，李學長提到，保持對科技的興趣和不斷學習是他成功的關鍵。他回憶起自己在交大求學時期，學校當時僅有四個學系，而他所學的計算與控制領域，後來逐漸成為今日智慧製造與工業 4.0 的核心。他特別提到，當年所學的基礎，讓他能夠在工業自動化和 AI 等新興技術中發揮作用。他幽默地分享了他如何利用快速學習方法，不僅在課業中取得成功，也能夠在日後的職場中快速掌握新技術。他還強調，問題分析與解決能力是科技領域中最重要的技能之一，這也是他著作《問題分析與解決》的主題。

李學長回憶了他創立「中華民國資訊經理人協會」的過程，當時臺灣的資訊產業正處於起步階段，資訊管理的概念也尚未普及。在戒嚴時期創辦協會，過程充滿挑戰，但在李國鼎先生的支持下，這個協會最終得以成立，並為後來的資訊產業發展提供了重要的平臺。協會經過 42 年的發展，如今已經成為資訊主管們的重要組織，並由後輩蔡奇仁博士接棒繼續發揚光大。

李良猷學長還提到，交大的教育對他的職業生涯影響深遠。他在學校不僅學到了扎實的技術知識，還在社團活動中學會了團隊合作與領導能力。作為前溜冰社和星聲社的社長，這些經驗幫助他在後來的工作中能夠有效組織團隊，並在大型專案中發揮關鍵作用。他鼓勵學弟妹們要珍惜在校園中的每一段時光，因為這些經歷不僅會影響專業成就，還會在人際關係和職業發展中留下深遠的影響。

陳士元學長的團隊合作與溝通之道

陳士元學長是計算機工程學系 73 級畢業生，現為奧迪碼股份有限公司董事長暨執行長。他的職業生涯充滿了對團隊合作與溝通能力的深刻理解與實踐。他在多個跨國企業中擔任重要職位，並且在技術開發、產品管理和危機解決方面展現了出色的領導才能。陳學長的致詞中，特別強調了這些軟技能在職場中的重要性，並分享了自己如何在高壓環境中，通過有效的溝通與協作，化解危機，推動專案順利完成。

在回顧他的一段職場經歷時，陳學長講述了他在擔任中強光電歐洲總經理時，領導團隊解決重大產品危機的過程。當時，他們即將推出的一項產品遇到了預期外的品質問題，這對公司及其供應鏈都產生了巨大的影響。陳學長表示，當問題無法在技術團隊之間迅速解決時，溝通和協作成為了關鍵。他飛往美國與主要供應商進行直接對話，並提出了針對問題的快速解決方案。在這個過程中，他不斷強調，爭論誰對誰錯並不重要，重點是如何團結一致，快速解決問題，保障產品的成功推出。這段經歷讓他深刻理解到，無論是在技術還是管理層面，團隊合作和溝通能力都能帶來事半功倍的效果。

陳士元學長還進一步探討了如何在團隊中建立有效的溝通渠道，並指出個人的能力永遠無法與強大的團隊力量相匹敵。他鼓勵在場的學生，除了在學校學習專業技能外，還應該學習如何與他人有效合作，這將在未來的職場生活中成為成功的基石。他認為，現代企業面臨的挑戰越來越多元化，科技的快速發展要求每個人不斷提升自己，並與來自不同背景的專業人士共同努力，才能實現真正的創新與突破。

此外，陳學長還分享了他對人工智慧（AI）和數位化未來發展的看法，認為這些技術將徹底改變全球產業格局。他勉勵學弟妹們要保持學習熱情，主動迎接數位轉型帶來的挑戰，並通過不斷提升自己的專業與軟技能，為未來職場做好充分準備。

綜觀李良猷與陳士元兩位學長的致詞不僅展示了他們在職場上卓越的成就，也反映了他們對於不斷學習、團隊合作與有效溝通的深刻洞見。他們的經歷和建議為年輕學子提供了寶貴的啟示，讓大家了解如何在快速變化的科技時代中保持競爭力，並在職場中不斷創造價值。

傑出系友頒獎典禮

今年的頒獎典禮中，共有十位傑出系友獲得了表彰，他們在學術界與產業界皆有卓越表現，並對社會有重要貢獻。

王其動（資訊工程系 78 級學士）： 現任聯強國際執行長。王學長憑藉其出色的跨文化管理能力，帶領聯強國際在全球市場上取得了顯著成就。他分享了自己在不同文化背景下的管理經驗，並鼓勵在場的學弟妹要謙虛學習，掌握多元文化背景下的溝通技巧，並在跨國企業的運作中發揮領導力。

何偉光（計算機工程系 79 級學士）： 現任盛弘醫藥副總經理，積極推動智慧醫療領域的發展。何學長在致詞中提到，他所致力的數位健康發展已經成為資訊產業中的重要一環。他也回顧了自己早年在媒體業的經驗，強調了數位轉型對於傳統產業的重要性，並分享了如何將這些經驗應用於智慧醫療領域。

吳明蔚（資訊科學系 91 級學士）： 創辦奧義智慧科技，領先開發 AI 自動化資安技術，並將這些技術應用於國內外多家企業。吳學長回憶了他在交大的求學經歷，並特別感謝當年嚴格的指導老師，幫助他建立了扎實的技術基礎。他還提到，創業過程中的艱難挑戰促使他不斷提升解決問題的能力，最終成功將公司發展至國際市場。

呂欣育（資訊工程系 83 級學士）： 現任 Google Cloud Taiwan 業務副總，專注於推動企業的數位轉型和 AI 賦能。呂學長由於因公出差，無法親自出席，但通過影片分享了他的工作經驗，特別是在跨產業的雲端商業模式創新領域的貢獻。他勉勵學弟妹們抓住數位時代的機遇，利用新興技術推動傳統產業轉型。

梁凱智（資訊科學系 83 級學士、85 級碩士、92 級博士）： 現任聖洋科技技術長，並創辦了臺灣首個程序化廣告系統。梁學長回顧了自己在交大的時光，尤其是參與社團活動和實驗室生活，這些經驗促使他在職場上發展出解決問題的能力。他也提到創辦經緯廣告科技的過程，並強調了創業中的挑戰與學習如何在國際市場中取得競爭優勢。

陳同孝（計算機工程系 75 級學士、81 級博士）： 現任國立臺中科技大學校長。陳學長透過影片分享了他在學術界的豐富經歷，並感謝交大資工系在他職業生涯中的重要作用。他提到，交大的學術訓練不僅幫助他在專業領域取得成就，也幫助他在管理學校事務時更加從容。

黃慧珠（計算機工程研究所 78 級碩士）： 曾任臺灣 IBM 總經理，推動企業數位轉型。黃學姊回顧了她 35 年的職業生涯，並分享了她在 IBM 推動數位化的經驗，尤其是在金融與製造業的技術升級過程中所做的貢獻。她還提到自己在退休後持續參與多家公司的管理，並鼓勵大家在職場之外也應該追求生活的豐富與快樂。

楊慧琪（資訊科學系 76 級學士）： 現任中華電信資訊分公司總經理。楊學姊在致詞中提到她在中華電信的創新經驗，尤其是推動數位服務的過程。她鼓勵年輕一代勇敢接受挑戰，並在工作中不斷創新。

鄭俊琪（計算機工程系 75 級學士）： 現任 LiveABC 互動英語教學集團創辦人及執行長、希伯崙股份有限公司總經理。學長為台灣第一位投入『電腦英語學習系統』研發的先驅，他在語言教學與資訊技術與系統集成領域展現了傑出才能，並將其專業應用於多個互動英語教學專案，為產業發展作出重要貢獻。

謝有慶（資訊工程系 85 級學士）： 現任聯發科技副總經理的謝學長，帶領聯發科技晶片開發團隊每年成功產出 25 至 30 個多元產品線晶片，涵蓋從 N28 至 N3 的成熟到先進製程，產品涵蓋智慧型手機，電視 , wifi, 平板等產品，並都取得市佔第一的好成績。於 2023 獲國家傑出經理人獎。在資訊技術創新和創業方面的表現深受業界認可。他的經歷特別鼓勵了現場的年輕學子，讓他們看到科技創新在市場中的巨大潛力。

系友會與系務發展

在頒獎典禮後，系友會會長邱繼弘致詞，感謝校友們的支持，並強調了系友會在促進校友與學校聯繫中的重要角色。他呼籲更多校友加入系友會，持續為母校的發展貢獻力量。隨後，系主任黃俊龍教授也介紹了資工系近期的發展成果，特別是與產業界的合作計畫，並展望未來系上的研究方向，期望資工系能繼續在資訊科技領域保持領先地位。整場活動充滿了溫馨與感動，校友們不僅回顧了在交大的時光，也分享了他們在職場上的成功經驗。與會者表示，這次「回娘家」活動不僅加強了校友與母校的聯繫，也激勵了在校學生，為未來的挑戰做好準備。

2024 CS Alumni Reunion and Outstanding CS Alumni Ceremony

On April 13, 2024, the Department of Computer Science at National Yang Ming Chiao Tung University (NYCU) celebrated "CS Reunion" as part of the NYCU Anniversary Celebration Day. This event welcomed distinguished alumni back to campus to share their insights and included an award ceremony recognizing individuals who excelled in various fields. It provided a valuable opportunity for alumni and faculty to connect, showcasing the department's strong alumni network and the exceptional talents nurtured within the department.

Distinguished Alumni Speech
Insights from Mr. Liang-You Lee on His Outstanding Achievements

Liang-You Lee, a graduate of the Institute of Electrical and Control Engineering at NYCU, has served as an independent director of ACE PILLAR. His exceptional technological industry accomplishments demonstrate his ongoing dedication to innovation and development. At 74 years old, Lee embodies a passion for technology and innovation; he not only stays up to date with current trends but also embraces a mindset of lifelong learning.

In his speech, Lee emphasized that a passion for technology and a commitment to lifelong learning are essential for success. He looked back on his time at NYCU, when the university had only four departments, noting how the field of computation and control he studied has since become a cornerstone of today's smart manufacturing and Industry 4.0. He specifically mentioned that the foundational knowledge he gained enabled him to thrive in emerging technologies such as industrial automation and AI. With a sense of humor, he shared how he employed rapid learning techniques to excel academically and quickly adapt to new technologies throughout his career. Lee also stressed that problem analysis and resolution skills are among the most vital competencies in the technology industry—a theme that is central to his book, "Problem Analysis and Resolution."

Lee reflected on the founding of the "Information Management Association" during a time when Taiwan's information industry was still emerging and the concept of information management was not widely recognized. Establishing the association amid martial law presented numerous challenges, but with the support of Mr. K. T. Li, it was successfully created, laying a crucial foundation for the future development of the industry. After 42 years of growth, the association has evolved into an essential organization for information executives, now led by Dr. Chi-Jen Chai, who continues to uphold its legacy.

Lee highlighted the significant influence of his education at NYCU on his career. In addition to acquiring strong technical expertise, he developed essential teamwork and leadership skills through his active participation in extracurricular activities. Serving as president of both the roller-skating club and the Star Voice club, he gained valuable experience in team organization and project management that proved crucial in his subsequent professional endeavors. He encourages younger students to fully embrace their time on campus, as these formative experiences not only shape their career successes but also profoundly affect their interpersonal relationships and overall development.

Mr. Shih-Yuan Chen's Path to Teamwork and Communication

Shih-Yuan Chen, a graduate of the Computer Science Department (CS '73), currently serves as the president and chairperson of Optoma Corporation. Throughout his career, he has demonstrated a deep understanding and practical application of teamwork and communication skills. Having held key positions in various multinational companies, he has showcased outstanding leadership in areas such as technical development, product management, and crisis resolution. In his speech, Chen emphasized the critical role of soft skills in the workplace, sharing insights on how he successfully navigated crises and drove projects to completion through effective communication and collaboration, even in high-pressure situations.

Reflecting on a pivotal moment in his career, Chen recounted how he successfully guided his team through a significant product crisis while serving as the general manager of Coretronic Corporation's European Office. Just before launching the product, they encountered an unexpected quality issue that significantly impacted the company and its supply chain. Chen emphasized that when problems cannot be quickly resolved within the technical team, effective communication and collaboration are essential. To address the issues, he traveled to the United States to engage directly with key suppliers and propose swift solutions. He emphasized that debating who was right or wrong was irrelevant; the priority should be on uniting the team to resolve the problem quickly and ensure a successful product launch. This experience reinforced his belief that strong teamwork and communication skills can lead to remarkable outcomes, regardless of whether one is in a technical or managerial role.

Chen delved deeper into the importance of establishing effective communication channels within a team, emphasizing that individual abilities cannot rival the power of a united group. He urged students to not only to prioritize acquiring professional skills in school but also to develop their ability to collaborate effectively with others, as this will be foundational to their success in future careers. He pointed out that modern businesses face increasingly diverse challenges, and the rapid pace of technological advancement necessitates that everyone continually enhance their skills and work alongside professionals from various backgrounds to drive genuine

innovation and breakthroughs.

Furthermore, Chen expressed his insights on the future of artificial intelligence (AI) and digitalization, asserting that these technologies will fundamentally reshape the global industrial landscape. He urged younger students to sustain their passion for learning, proactively tackle the challenges presented by digital transformation, and consistently develop both their professional and soft skills to be well-equipped for the evolving job market.

The speeches by Mr. Liang-You Lee and Mr. Shih-Yuan Chen not only highlighted their remarkable professional achievements but also conveyed their deep insights into the significance of continuous learning, teamwork, and effective communication. Their experiences and advice offered invaluable guidance for young students, illustrating how to stay competitive in a swiftly evolving technological landscape while consistently generating value in their careers.

Outstanding Alumni Award Ceremony

During the 2024 Awards Ceremony, the Computer Science Department honored ten remarkable alumni who have distinguished themselves in both academia and industry, making significant contributions to society.

Kee Ong (CS 78), CEO of Synnex Group, has leveraged his exceptional cross-cultural management expertise to drive the company's impressive success in the global market. During his talk, he shared valuable insights from his experience managing across diverse cultural contexts. He urged the younger generation to stay humble, commit to lifelong learning, refine their communication skills across cultures, and demonstrate strong leadership in the operations of multinational enterprises.

Vincent Ho (CS 79), currently the Deputy General Manager of ShareHope Medicine Co., is at the forefront of advancing smart healthcare. In his speech, Ho highlighted how digital health has emerged as a vital segment within the information technology industry. Reflecting on his early career in the media industry, he stressed the critical role of digital transformation in revitalizing traditional industries. He also shared how he has leveraged those experiences to drive innovation in the field of smart healthcare.

Benson Wu (CS 91), founder of CyCraft Technology, is a pioneer in AI-powered automation cybersecurity solutions that have been adopted by numerous companies worldwide. Reflecting on his academic journey at NYCU, Wu expressed deep appreciation for his strict yet nurturing professors, who played a key role in shaping his solid technical foundation. He also shared how the challenges of entrepreneurship drove him to continually enhance his problem-solving skills, ultimately leading his company to successful expansion in international markets.

Andrew Lu (CS 83), Business Development Manager at Google Cloud Taiwan, is dedicated to advancing digital transformation and AI-driven empowerment for businesses. Although he was unable to attend in person due to a prior commitment, Lu shared his insights through a video message, emphasizing his work in pioneering cross-industry innovation in the cloud business model. He encouraged the younger generation to embrace the opportunities of the digital age and harness emerging technologies to drive the transformation of traditional industries.

Anderson Liang (CS 83, CS M.S. 85, CS Ph.D. 92), Chief Technology Officer (CTO) of cacaFly, is the founder of Taiwan's first programmatic advertising system. Reflecting on his years at NYCU, Liang highlighted how his participation in extracurricular activities and research in the university's labs were instrumental in shaping his problem-solving skills for the professional world. He also shared his journey to founding adHub Inc., discussing the entrepreneurial challenges he faced and underscoring the importance of learning how to secure a competitive advantage in the global market.

Tung-Shou Chen (CS 75, CS Ph.D. 81), the current President of the National Taichung University of Science and Technology, shared his wealth of academic experience through a video message. He expressed heartfelt gratitude to the Department of Computer Science at NYCU for playing a pivotal role in shaping his career. Chen emphasized that the rigorous academic training he received at NYCU not only enabled him to excel in his field but also provided him with the management skills and confidence necessary to lead and oversee university affairs effectively.

Hui-Chu Huang (CS M.S. 78), former General Manager of IBM Taiwan, was instrumental in driving digital transformation across businesses. Reflecting on her 35-year career, Huang shared valuable insights from her time at IBM, focusing on her pivotal contributions to the digitalization of the financial and manufacturing industries. Even after retiring, she remains actively engaged in the management of several companies. Huang encouraged everyone to not only strive for professional success but also to embrace a fulfilling and joyful life beyond the workplace.

Hey-Chyi Young (CS 76), currently the President of the Business Group at Chunghwa Telecom, shared her experiences in driving innovation at the company, with a particular focus on advancing digital services. In her speech, Young urged the younger generation to boldly embrace challenges and foster a mindset of continuous innovation in their career.

Jerry Cheng (CS 75), founder and CEO of LiveABC Interactive English Group and General Manager of Hebron Soft Limited, is a pioneer in the development of computer-based English learning systems in Taiwan. As the first to invest in the research and development of such systems, Cheng has showcased remarkable expertise in language education, information technology, and system integration. His innovative contributions to numerous interactive English teaching projects have played a pivotal role in advancing the industry.

Harrison Hsieh (CS 85), Vice President at MediaTek Inc., leads a high-performing development team that annually delivers 25 to 30 diverse chipsets, covering a wide range of technologies from mature process N28 to advanced process N3. These chipsets, powering products such as smartphones, TVs, Wi-Fi routers, and tablets, have consistently dominated their respective markets. In 2023, Hsieh was honored with the National Manager Excellence Award in recognition of his exceptional leadership. Widely acknowledged for his contributions to information technology innovation and entrepreneurship, his career serves as an inspiring model for young students, demonstrating the vast market potential that lies in technological innovation.

Alumni Association and Department Development

After the award ceremony, Alumni Association President Nathan Chiu took the stage to express his heartfelt gratitude to the alumni for their continued support. He emphasized the crucial role the Alumni Association plays in strengthening the connection between alumni and the university, urging more alumni to join and actively contribute to the ongoing growth and success of their alma mater. Next, Professor Jiun-Long Huang provided an update on the Department of Computer Science's recent developments, with a particular focus on its collaborative initiatives with the industry. He also shared insights into the department's future research directions, expressing confidence that the department would continue to lead the way in the ever-evolving field of information technology. The atmosphere at the event was warm and inspiring, as alumni reflected on their time at NYCU and shared their professional achievements. Attendees remarked that this "Alumni Reunion" not only deepened the bond between alumni and the university but also served as a source of inspiration for current students, motivating them to face new challenges and opportunities confidently.

資工矽友職涯經驗分享論壇
六位矽友不藏私分享在矽谷從應徵、轉職到升遷的經歷以及面對 AI 浪潮的心態與技能！

文／杜懿洵

　　今年的資訊矽友交流會於 8 月 24 日在工研院矽谷辦公室舉辦，除了資訊學院陳志成院長、曾建超副院長、黃俊龍系主任、黃俊穎所長及系友會會長大河馬，一同前往灣區與大家交流並分享系上現況之外，計科系 80 歲系主任 - 杜敏文老師也特別蒞臨參與，而當天更邀請到了六位在矽谷的校友，與大家分享職涯經驗與對 AI 趨勢的看法。一個多小時的交流會，就在熱烈的分享與歡笑聲中圓滿落幕。

　　此次交流會由在 Google 任職軟體工程師的 Victor 與 Irene 擔任主持人，邀請的六位矽友除了軟體工程師之外，也包含硬體、PM、管理職與面試官等工作背景，六位矽友的資料如下：

1. **Meta 擔任 Engineering Manager 的劉峻瑋**
2. **Juniper Networks 擔任 Senior Director of Software Engineering 的賈德勤**
3. **Covariant AI 擔任 Head of Software 的林起武**
4. **Salesforce 擔任 Senior Software Engineer 的游雅軒**
5. **Google 擔任 PM 的林永彧**
6. **Rivos 擔任 Lead of CPU Design Verification Team 的鍾懿軒**

Q1：分享找工作的看法和經驗。

鍾懿軒： 在 Apple 工作十二年後轉入 start up 的懿軒表示，自己是做硬體的，但就她的觀察，資工系是很有發展潛力的；除了 performance analysis、detect 硬體、做 verification 之外，還可以 bring up 一整個 CPU、GPU，再加上美國管制人才是嚴格的，像中國人就不能做設計這塊，所以如果大家有工作是可以學習到設計這塊，在找工作上會很有機會。但懿軒也提醒，因為設計主要是在解題，是要從已知達到未知，因此面試的時候會看重求職者的 critical thinking，會給一個求職者不會的題目，看求職者解題的過程。此外，懿軒也強調，資工系的 computer architect 很重要，大家在學校的時候一定要好好學習。

劉峻瑋： 在 Meta 擔任面試官的 Tony 表示，履歷要能突顯自己的話，工作經歷和工作符合度是重要的，像他們招募就會優先找 NVIDIA 或是 A&D 的人，因此鼓勵大家畢業的時候，可以試著找大公司的 intern，這樣會讓履歷更為吸睛；此外，META 現在正在招募 AI 與 GPU 相關的人，如果是這個領域的人，現在求職是很好的機會。

Q2：AI 對現在矽谷的科技人有什麼影響？轉型成下一世代的 PM、軟體工程師需要什麼技能？

林永彧： 從 PM 的角度與大家分享，自己兩年前已經在 machine learning AI team，但即使已經站在比較第一線的位置，仍不能看出 Open AI 後來爆發的趨勢，所以建議大家對於 AI 的議題可以回到本質上去思考。而從 PM 的角度來看，雖然 AI 帶來很多正面的轉換點，但最重要的是 business 的 ROI 評估為何？從這個角度去衡量 AI，就比較不會隨波逐流。

林起武： 從 engineer 的角度與大家分享，矽谷是走在尖端的，大環境不斷在變，也經歷了產業從半導體變成 PC、網路，再到現在 AI 的時代。因此面對 AI 趨勢，第一個是要想如何去 implement application，像是有 open source 之後，寫程式的方式與寫的重點就完全不一樣；第二個是要思考怎麼變得更 productive，像現在有很多 internet information 教大家怎麼寫 code。總結而言，在一直變化的環境中，engineer 一定要先能夠適應、才能生存、然後才能成功。至於 AI 的影響，除了對工作的工具與方法產生影響之外，另一個就是已經吸走大部分的資金，而這也導致 META、Google 的裁員，但另一方面，這些公司又在 hire AI 的人，所以大家除了要看到環境變化之外，也要了解如何去調整自己、不斷學習。

賈德勤： 從管理者的角度來看，除了把 AI 當作是一個 tool、要能夠駕馭它之外，最重要是「發現問題」，要從不同角度，像是消費者端、產品端等去看問題，而不是等別人告訴你要解什麼題。

劉峻瑋： 現在的 AI 與以前在學校學的已經不一樣，所以即使是主管職，也是每天要不斷學習新東西、看 paper、參加研討會、跟大家討論、找網路資源、更新在業界的資訊等等。因為很難預測下一個 open AI、NVIDIA，就連產業界也都還在思考 AI 要怎麼做，所以建議大家不要跟風，要相信自己，照自己的興趣去做；市場很大，只要認真做，把自己東西做精，錢和機會就等著你。

鍾懿軒： 從硬體角度來看，還是要跟大家強調，computer architect 很重要！因為在硬件設計上的 design methodology 是可以互相應用的，而 computer architect 是 CPU design，是業界最複雜的設計。因此建議大家在學校要選 CPU 的課，學習最複雜的解題方法、練習最複雜的 design trade off thinking，這樣之後什麼樣的 design 都可以 apply。

QA3：AI 趨勢之下，除了自我學習心態、持續精進之外，在工作多年之後，要怎麼思考 promotion？

游雅軒： 給剛畢業的學生建議：很多人覺得 promotion 是老闆會幫忙，但其實是要自己去嘗試，要思考自己喜歡做什麼，然後去找機會展示，讓自己被看見。

林起武： promotion 需要能力與機會；能力要靠自己培養與鍛鍊，機會有時候看老闆，有時候自己去找。除了要讓老闆了解你，知道什麼樣的機會對你很重要、願意幫助你之外，自己也要想辦法找；通常比較 junior 的位置，能力比機會重要，但比較 senior 的時候，就需要花時間去找不同的機會，甚至創造自己的機會，才有辦法成功。

賈德勤： 大家可以想一想一個公司能有幾個 VP？幾個 senior director？所以機會是有限的。如果大公司沒有缺，可以試著從 start up 做起。而除了能力很重要之外，也要學會說，像印度人就很會說，三分可以包裝到十分。此外，也可以思考藉由跳槽去創造更多機會。

鍾懿軒： 提供大家一個今天就可以開始做的：閱讀《The Pragmatic Programmer》並開始練習裡面七十幾條 good habits，這樣會讓你在工作上與做同樣事情的同事有差異化。另外一個非常好開始的機會是：好好思考自己的目標，並利用跟主管一對一談話的時間去討論你的成長路徑。

劉峻瑋： 提供大家兩個 tip，第一個就是跟主管聊天時，直接開門見山說你要升職，並討論該怎麼做。明確的把目標講出來、訊息送出去，不然有可能就會變成其他人都很積極在談，主管可能沒有時間，或是就忘記你了，這樣你的 promotion 就會不在主管的考慮範圍內。第二個 tip 就是可以試試看去了解自己職位的上面幾層

可以叫得出自己的名字。這是一個很好的指標，可以測試你在組織的位置，也可以了解你自己的談資。

林永彧：針對 junior，我的建議跟大家一樣，就是要很明確的跟主管溝通，在你人生的這個階段，你想要做什麼事情？這裡是可以接受你要 level up 或是因為家庭或個人因素，不想再往上。至於中階或稍微資深一點的，我的建議就是隨時做好準備，因為機會有可能隨時找上門來。像我就是每半年會整理自己的履歷，每一年隨機去面試兩、三家公司，讓自己記得面試的感覺。有一定年紀的工作者，隨時做好準備是非常重要的事情！

Q4：分享職場必備技能。

林永彧：要花多一點心思在跟同事、主管的 small talk，所以要多收集資訊、多訓練足夠的話題、以及一些社交的英文用法。

游雅軒：現在蠻多遠端工作的，所以訓練溝通的能力變得特別重要。

劉峻瑋：建議大家「多運動」，因為除了會有一個健康的身體之外，也可以成為跟同事 small talk 時候的談資，一舉數得。

鍾懿軒：跟大家分享要 reaching out，不要畫地自限、被組織限制，當有不懂或沒做過的事情，可以去找這個領域最厲害的人問，跟最棒的老師學。Reaching out 會帶給你很多益處，讓更多人認識你，你也能擁有跨域的人際關係，這是非常重要的。

賈德勤：我分享比較適用在老牌一點的傳統大公司，就是大家可以去搞懂公司的 process，這樣就可以弄到很多 benefit，我之前就是這樣成為整個 BU 最有錢的工程師。但這個方法不適合 start up，因為它們沒有 process。另外就是建議大家去搞懂 framework，像是 google 的 OKR，尤其是當從小公司要 scale up 變成大公司的時候，framework 是很有用的，可以幫助你在組織裡去探索你的目標是什麼，你可以貢獻什麼。

林起武：第一點要支持懿軒的建議，就是要好好學習 computer architect，這個對於做 RD 有很大的幫助。第二個就是建議大家去找一個 mentor，因為會有一些事情不大敢跟老闆說，跟同事說好像也不是很合適，但是又需要有人幫助、互相腦力激盪，這種狀況最好的方法就是找 mentor，也可以互相交換經驗，在困難的時候獲

得幫助。一些大公司有 program 幫你找，如果沒有，就需要自己去找，可以透過運動或 small talk 的時候去找。

QA5：請大家分享一個自己的 tip，是如何去 incentive 或 motivate 自己去做到覺得害怕的事情。

林起武：我的方式是設立一個目標，譬如說公司有 party，就設定要跟幾個從來沒有見過面的人說話，用強迫的方式讓自己去溝通、擴展。

賈德勤：如果是做軟體的，可以主動去 own bug，這樣就有機會跟其他人互動，也容易被大老闆記住。

鍾懿軒：一開始我也不太敢講話，我的解法是想辦法每天都跟講英文的同事午餐，這樣就必須要社交，最後不但英文練習得很好，也有了 mentor 和朋友，所以就是要勇敢幫自己創造機會。

劉峻瑋：因為我不是很 social 的人，所以也沒有很刻意的去增加 social 的機會，但我覺得可以想想自己喜歡的事情，然後找到一個願意談的人一起聊，譬如像是兩個人都喜歡健身，或是慢跑，這樣自然就可以找到互動的人。另外，我就是接受我自己不是一個很會 small talk 的人，但是當我有機會跟別人相處時，我就會關注對方，把握住機會真心和別人聊天、了解別人。

林永彧：我覺得大家會對於 social 或 small talk 有 concern 的話，很多時候是因為對英文的自信心不夠。我因為來美國的時候是先唸了兩年書，所以我雖然本身比較內向，但在學校就是善用資源，去找英文 coach 聊天，慢慢等到一個程度之後，壓力就不會那麼大了。另外一個就是「興趣很重要」，不要覺得自己的興趣太冷門或太小，因為那永遠是一個說話的起始點，藉由興趣去接觸，就可以增加很多機會。像我自己對車子很有興趣，就會開始找 local event 去看，去了之後發現不到 10% 的人是亞洲人，各種背景的人都有，但因為是自己有興趣的東西，被強迫亂聊也會學到東西，也不會覺得是很刻意的，或是要裝得很厲害。

游雅軒：我自己的經驗是跟找做同一個 project 的同事聊，可以是工作或是分享私人的事情，這樣也會拉近距離，讓工作的氛圍更好。然後也可以找一個 career coach，會有蠻多幫助的。

Silicon Valley CS Alumni Career Insights Forum
Six Silicon Valley Alumni Share Candid Insights: Navigating Job Applications, Career Transitions, Promotions, and Embracing the AI Revolution with the Right Mindset and Skills

The Computer Science Alumni Networking Event took place on August 24, 2024, at the Industrial Technology Research Institute's Silicon Valley office. Attending were several distinguished guests, including Dr. Jyh-Cheng Chen, Dean of the College of Computer Science; Dr. Chien-Chao Tseng, Associate Dean; Dr. Jiun-Long Huang, Department Chair; Dr. Chun-Ying Huang, Director; and Nathan Chiu, President of the Alumni Association. They traveled to the Bay Area to connect with alumni and share updates about the department. We were also honored by the presence of Dr. Min-Wen Du, the 80-year-old former Chair of the Department of Computer Science. The event featured six alumni from Silicon Valley who shared valuable insights into their career journeys and perspectives on AI trends. The event concluded on a high note, filled with lively discussions and laughter.

This event was hosted by Victor and Irene, both software engineers at Google. The six invited alumni included software engineers and individuals with backgrounds in hardware, project management, executive roles, and interviewers. Below are the details of the six alumni:

1. **Meta: Tony Liu, Engineering Manager**
2. **Juniper Networks: David Jea, Senior Director of Software Engineering**
3. **Covariant AI: Victor Lin, Head of Software**
4. **Salesforce: Hsuan-Ya Yu, Senior Software Engineer**
5. **Google: Nicolas Lin, Product Manager**
6. **Rivos: I-Shuan Tsung, Lead of CPU Design Verification Team**

Q1: Insights and Experiences on the Job Search Process.

I-Shuan Tsung: After spending twelve years at Apple and later transitioning to a startup, I-Shuan with her hardware background shared her insights on the potential for growth in the Department of Computer Science. She pointed out that, in addition to performance analysis, hardware detection, and verification, individuals can play a significant role in developing entire CPUs or GPUs. However, she noted that due to strict U.S. regulations on talent, obtaining design positions can be a challenge for individuals from countries such as China. Therefore,

acquiring design-related skills can greatly enhance one's career prospects. I-Shuan emphasized that design is fundamentally about problem-solving, which involves navigating from the known to the unknown. During interviews, employers often focus on candidates' critical thinking abilities by presenting unfamiliar problems to evaluate their approach to finding solutions. Additionally, she stressed the importance of mastering computer architecture, encouraging students to pay special attention to this area.

Tony Liu: Tony, an interviewer at Meta, emphasized the importance of aligning your work experience with the job you're applying for to make your resume stand out. He noted that Meta usually prioritizes candidates with experience from companies like NVIDIA or A&D. Tony advised graduates to seek internships at large companies, as these experiences can significantly enhance their resumes. Additionally, he mentioned that META is actively seeking talent with expertise in AI and GPU. For professionals in this industry, it is a great opportunity to explore new career options.

Q2: How is AI shaping the careers of tech professionals in Silicon Valley today? What skills are essential for transitioning into the next generation of project managers and software engineers?

Nicolas Lin: From a project manager's perspective, I have been part of the machine learning AI team for the past two years, but even in a front-line position, I couldn't predict the rapid rise of OpenAI. Therefore, I advise everyone to step back and approach AI from a fundamental standpoint. While AI has certainly led to many positive changes, assessing its business return on investment (ROI) is the most important factor. With this in mind, you'll be less likely to follow trends blindly.

Victor Lin: From an engineer's perspective, Silicon Valley is always at the forefront of technology, and the landscape is constantly evolving. We've seen industries transition from semiconductors to personal computers, then to the internet, and now into the AI era. When faced with the AI trend, our main priority should be determining how to implement applications. For example, the rise of open-source software has significantly changed the way people code and the focus of coding. Another key consideration is enhancing productivity. Today, numerous online resources are available to help people write code more effectively. In the rapidly changing landscape,

engineers must learn to adapt for survival, and only then can they succeed. The influence of AI has revolutionized available tools and techniques while reallocating substantial funding. This shift has unfortunately led to significant layoffs at major companies like Meta and Google. Nevertheless, these same companies are still actively hiring talent for AI-related roles. It is essential to recognize ongoing environmental changes to adjust accordingly and commit to continuous learning.

David Jea: From a manager's perspective, it's essential not only to view AI as a tool and learn to leverage its potential; but more importantly, to focus on 'identifying problems.' One should approach challenges from multiple perspectives—such as those of the consumer, product, and others—rather than waiting for others to define the problems.

Tony Liu: The AI we encounter today vastly differs from what we learned in college. As a result, even as a manager, it's important to continue learning every day. This can be achieved by reading research papers, attending seminars, participating in discussions, exploring online resources, and staying informed about the latest industry trends. Predicting the next breakthrough, such as OpenAI or NVIDIA, is challenging. Even industry professionals are still figuring out how to navigate the evolving AI landscape. I recommend you stop blindly following trends. Instead, trust your instincts and pursue your passions. The market is extensive, and by honing your expertise, opportunities and success will follow.

I-Shuan Tsung: From a hardware perspective, I want to emphasize the importance of computer architecture, as the design methodologies used in hardware development are highly transferable. Additionally, CPU design within computer architecture is one of the most complex challenges in the industry. Therefore, I strongly recommend taking CPU-focused courses in college to master advanced problem-solving techniques and enhance your ability to navigate complex design trade-offs. This solid foundation will empower you to apply your skills to any design challenge in the future.

QA3: In the age of AI, in addition to fostering a mindset of self-learning and continuous improvement, how should one approach the idea of promotion after many years in the workforce?

Hsuan-Ya Yu: Advice for new graduates: Many people think that promotions are solely determined by their boss, but the reality is that you need to take the initiative. Reflect on what you are passionate about, actively seek opportunities to showcase your skills, and ensure that you remain visible to others.

Victor Lin: Promotion requires both skill and opportunity. While developing and refining your abilities is essential, opportunities may depend on your boss or need to be

actively pursued by you. It is essential for your boss to understand your strengths, recognize the opportunities that are important to you, and be willing to support your growth. Furthermore, taking the initiative to seek out opportunities independently is crucial. In junior positions, skills are often valued more than opportunities. However, as you progress to more senior roles, it is essential to invest time in seeking diverse opportunities or even creating your own path to success.

David Jea: Consider the number of Vice Presidents (VPs) or senior directors a company can have; opportunities at these levels are often limited. If a large company lacks such openings, starting at a startup can be a good alternative. Besides skills and competence, being able to present yourself effectively is crucial. For example, people from India are particularly skilled at showcasing their strengths, often turning something that's only partially developed into something that appears fully polished. Moreover, switching jobs strategically can open up new opportunities and help you advance your career.

I-Shuan Tsung: Here's something you can start today: read The Pragmatic Programmer and begin practicing its 70+ good habits. This will help differentiate you from colleagues who are doing the same work. Another great opportunity to begin with is to take some time to reflect on your personal goals and use your one-on-one time with your manager to discuss your growth path.

Tony Liu: I'd like to share two valuable tips. First, when speaking with your manager, be upfront about your desire for a promotion. Clearly outline your goals and discuss the specific actions required to achieve them. Being transparent about your ambitions is essential; otherwise, while others may actively pursue their goals, your manager might overlook yours or not have the time to consider them. If that happens, your promotion could easily fall off their radar. The second tip is to assess whether higher-position managers can recognize you by name. This is an important indicator of your standing within the organization and helps you gauge your visibility and influence.

Nicolas Lin: For junior employees, my advice remains the same as everyone else: be clear and upfront with your manager about your goals at this stage in your career. Make sure to communicate whether you're aiming for advancement or, due to personal or family reasons, you're content with staying at your current level for now. For mid-level or more experienced professionals, it's essential to be always prepared, as opportunities can arise unexpectedly. I refresh my resume every six months and make it a point to interview with two or three companies annually. This helps me stay sharp and familiar with the interview process. For those with more experience, being constantly prepared is key to seizing opportunities as they arise!

QA4: Key workplace skills are fundamental to achieving success in any career.

Nicolas Lin: I recommend spending more time engaging in small talk with colleagues and managers. This can be achieved by gathering more information, practicing a variety of conversation topics, and mastering common social phrases in English.

Hsuan-Ya Yu: As remote work is becoming more common, developing effective communication skills has become increasingly important.

Tony Liu: I encourage everyone to "exercise more," as it promotes a healthy body and offers excellent conversation starters for small talk with colleagues—benefiting you in multiple ways.

I-Shuan Tsung: I want to emphasize the importance of "reaching out" and avoiding self-imposed limitations or restrictions set by your organization. When encountering something new or unfamiliar, don't hesitate to connect with experts in that field and learn from the best. Reaching out offers numerous advantages—it helps you expand your network, gain recognition, and build cross-disciplinary relationships, which are highly valuable for personal and professional growth.

David Jea: I want to offer some advice that is particularly useful in established, traditional companies: take the time to understand the company's processes. Mastering these processes can lead to significant advantages—this is how I became the highest-paying engineer in our business unit. However, this approach doesn't apply to startups, as they often lack structured processes. In addition, I recommend getting familiar with frameworks like Google's OKRs. This is especially valuable when transitioning from a smaller company to a larger one. Such frameworks can help you define your goals and understand where you can make the most meaningful contributions within the organization.

Victor Lin: First, I fully agree with I-Shuan's advice to focus on mastering computer architecture, as it is a critical skill for anyone in R&D. Secondly, I highly recommend seeking out a mentor. There will inevitably be times when you feel uncomfortable discussing certain matters with your boss, or when it's not quite appropriate to approach your colleagues. In these situations, a mentor can be invaluable. They can offer guidance, help you brainstorm solutions, and give support when challenges arise. Many large companies offer mentorship programs to help you connect with a mentor, but if that's not available, you can take the initiative to find one yourself. Participating in activities like sports or engaging in casual conversations can be excellent ways to build relationships with potential mentors.

QA5: Could everyone share a personal tip on how you motivate yourselves to take on tasks you find intimidating?

Victor Lin: My approach is to set specific goals. For instance, at a company party, I'll challenge myself to talk to a set number of people I've never met before. This helps push me out of my comfort zone and encourages me to communicate more, ultimately expanding my network.

David Jea: If you're in software development, consider taking the initiative to own your bugs. This approach allows collaboration and boosts visibility among senior leadership, increasing recognition opportunities.

I-Shuan Tsung: At first, I was hesitant to speak up. To overcome this, I made a point to have lunch with English-speaking colleagues every day. This forced me to engage socially, and as a result, my English improved significantly, and I gained both a mentor and new friends. The key is to be bold and actively create opportunities for yourself.

Tony Liu: I'm not a very sociable person, so I don't actively seek out social situations. However, I've found it helpful to focus on activities I enjoy and look for others who share those interests. For example, if both people enjoy fitness or jogging, it creates a natural way to connect. I've also accepted that small talk isn't my strength, but when I do have the chance to interact with someone, I make a conscious effort to engage with them sincerely and take the opportunity to build a genuine connection.

Nicolas Lin: Many people feel anxious about socializing or engaging in small talk because they lack confidence in their English skills. When I first came to the U.S., I studied for two years. Despite being naturally introverted, I took advantage of available resources by working with an English coach to practice speaking. Over time, as my skills improved, the pressure began to decrease. Another key point is that 'interests are important.' Don't worry if your hobbies seem niche or insignificant—these can serve as great conversation starters. Shared interests can open up many opportunities. For instance, I have a passion for cars, so I began attending local events. At these events, less than 10% of the attendees are Asian, and the crowd is incredibly diverse. Because I am genuinely interested in the topic, I can engage in conversations naturally, learn new things, and never feel the need to force anything or pretend to be an expert.

Hsuan-Ya Yu: Based on my experience, engaging in conversations with colleagues working on the same project helps strengthen my professional connections. Discussing work-related topics or sharing personal stories fosters a more positive and collaborative work environment. Furthermore, working with a career coach can be extremely beneficial, providing valuable insights and guidance for your professional growth.

羅夏克測試與大型語言模型

文／林一平 講座教授

　　我一直嘗試將不同的工具和大型語言模型（LLM）結合，這是將傳統軟體工具進行數位轉型最快的方式。例如曾將魚骨圖管理加上 ChatGPT，效果甚佳。接下來我想嘗試將 LLM 和羅夏克墨漬圖結合，進行心理投射測試時。

　　然而，我嘗試將 ChatGPT 和羅夏克墨漬圖」（Rorschach Inkblot Test）結合，進行心理投射測試時，ChatGPT 的表現就有點荒腔走板，言不由衷。

　　羅夏克測試使用 10 個墨漬圖案，每個墨漬圖案幾乎具有完美的對稱性。其中 5 個墨漬是黑墨，2 個是黑墨和紅墨，另外 3 個是彩色的。這些墨漬圖並非隨機或偶然的設計，羅夏克（Hermann Rorschach, 1884 ～ 1922）精心設計每一個墨漬圖，使其儘可能具有模稜兩可和「矛盾」的特點。

　　羅夏克將墨漬圖開發為診斷精神分裂症的工具。後繼者則擴大使用於一般的個性測試。無論是在心理學還是文化上，這個測試本身有著驚人的生命力。

　　羅夏克測試不僅僅關於你看到什麼，更重要的是你如何看待它。大多數的墨水渲染看起來像無意義的形狀，但羅夏克墨漬圖確實可以看出不同的東西，給個人的創造力留下空間，但這些墨水渲染也有一種真實的結構，可以客觀地檢查你所看到的東西是否符合標準或超出範疇。

　　羅夏克是一位瑞士精神科醫生，曾師從榮格（Carl Gustav Jung）。相較於羅夏克，弗洛伊德是一位文字型的人，他的心理學完全關乎言語療法，因此早期如 ChatGPT 的 LLM 較容易插入（plug in）弗洛伊德的測試。羅夏克認為，看見比說話更深刻，我們如何看待事物更能展示出我們是誰。最近，多模式學習模型（Multimodal LLM）就更能適應羅夏克的測試。

　　羅夏克在發明測試後不久就去世了，此測試在他無法控制的情況下朝著各種不同的方向發展。在美國，神祕的內在風格、個人魅力，是什麼讓你在人群中脫穎而出等特性，皆以不同羅夏克測試的變形版進行測驗。

　　第二次世界大戰爆發，羅夏克測試被大量運用於臨床心理學領域。它被用於紐倫堡的納粹審判，也被用於越戰期間叢林中的農民。專家對於不同被測者的反應會有奇妙的解讀。例如，您如果在 10 張卡片中有 4 個以上的性（Sexual）回應，可能暗示存在精神分裂症；如果被測試者的性回應過少，可能暗示性挫折。

　　羅夏克在墨點卡片濕潤的狀態下將它們沿中心軸對摺，使它們都具有對稱性，被測者很容易將它們旋轉 90 度，解讀它們像是水中的倒影。若被測者是罪犯，則鏡像回應被用來區分精神病患者和非精神病患者。對圖形細節的關注可以解釋為衝動或警覺性，亦即能夠看到他人忽視的事物。然而，如果過於關注細節，則可能表示對平凡事物的著迷，僵化的強迫性思維，有時還可能涉及偏執狂。

　　之後有大量論文發表對各種對象的測試，有些光怪陸離，有些還頗為搞笑。

　　羅夏克測試引發許多爭議，一些嚴謹的學者開始展開研究。一項於 2013 年進行的重要研究，回顧所有與該測試所聲稱測量的方面相關的研究，剔除不夠嚴謹的部分後，證實當前的羅夏克測試的可行性。這些墨水測試具有客觀的視覺特性，測試本身有著具體的歷史和用途，只要按照特定的方式運作，其結果就有意義。

　　羅夏克測試顯然不是容易駕馭的工具，若能巧妙地以微調模型或檢索增強生成 (RAG) 融入 LLM，其威力必然大增。

羅夏克（Hermann Rorschach, 1884 ～ 1922）。

Rorschach Test and Large Language Models

I have been consistently exploring the combination of various tools with large language models (LLMs) as the most effective method for digitally transforming traditional software tools. For example, merging the Fishbone Diagram with ChatGPT has proven to be highly effective. My next goal is to experiment with integrating LLMs and the Rorschach Inkblot Test for psychological projection assessments.

When I attempted to integrate ChatGPT with the Rorschach Inkblot Test for psychological projection assessments, ChatGPT's performance was inconsistent and lacked authenticity.

The Rorschach test consists of 10 inkblot patterns, each near-perfect symmetrical. Among them, five are black, two are black and red, and the remaining three are colored. These inkblots were not randomly created; Hermann Rorschach (1884–1922) meticulously crafted each one to maximize ambiguity and "contradiction."

Rorschach developed the inkblot test to diagnose schizophrenia. Successive researchers expanded its use to assess general personality traits. This test has demonstrated remarkable vitality in both psychological and cultural settings.

The Rorschach test pays more attention to how you interpret what you see rather than the images themselves. While most of the inkblots may appear as meaningless shapes, they can reveal various perspectives, allowing for individual creativity. However, these inkblots also possess a specific structure that enables an objective assessment of whether your interpretations align with standard expectations or deviate from them.

Hermann Rorschach was a Swiss psychiatrist who studied under Carl Gustav Jung. Unlike Rorschach, Freud focused on verbal processes, and his psychological approach was centered on talk therapy, making it easier for early language models like ChatGPT to incorporate Freud's methods. In contrast, Rorschach believed that visual perception delves deeper than verbal expression and that our interpretations of what we see can reveal more insight into our identities. Recently, multimodal learning models (Multimodal LLMs) have proven to be better suited for adapting to Rorschach's test.

Shortly after creating the test, Rorschach passed away, and the test started to evolve in ways he could not have anticipated. In the United States, different variations of the Rorschach test are used to assess traits such as mysterious inner qualities, personal charisma, and what sets someone apart in a crowd.

During World War II, the Rorschach test became extensively used in clinical psychology. It was utilized in the Nuremberg trials for Nazi war criminals and also used to evaluate peasants in the jungles during the Vietnam War. Experts provide interesting interpretations of the responses given by subjects. For example, having more than four sexual responses out of the ten cards might be interpreted as a sign of schizophrenia, whereas an unusual low number of sexual responses could indicate sexual frustration.

Rorschach created the inkblot cards by folding them along their central axis while still damp, resulting in a symmetrical effect. This design allowed subjects to rotate the cards by 90 degrees and view them as reflections in water. When analyzing criminal subjects, mirror responses help differentiate between psychotic and non-psychotic individuals. Observing fine details in the shapes can be interpreted as a sign of impulsivity or heightened alertness, reflecting the ability to notice what others might overlook. However, an excessive focus on details might indicate an obsession with trivial matters, rigid and compulsive thought patterns, or even paranoia.

Afterward, many studies were published involving tests on different subjects, with some being quite bizarre and others rather amusing.

The Rorschach test has sparked considerable controversy and prompted in-depth research by meticulous scholars. A comprehensive study conducted in 2013 reviewed all research related to the aspects the test claims to measure, excluding less rigorous studies, and confirmed the test's current validity. The inkblots have objective visual traits, and the test has a concrete history and purpose. When administered properly, its results remain meaningful.

The Rorschach test is clearly not a simple tool to master, but its effectiveness could be significantly enhanced if skillfully integrated into large language models (LLMs) using techniques such as fine-tuning or Retrieval-Augmented Generation (RAG).

雷達的趣聞

文／林一平 講座教授

烏克蘭與俄羅斯戰爭中使用的雷達技術玲瑯滿目。這些技術涉及監視雷達、防空雷達，以及由雙方部署的戰場監視系統。這些雷達系統用於偵測飛機、導彈或地面活動的系統。

這些雷達技術是哪些厲害人物發明的？

麻省理工學院輻射實驗室在第二次世界大戰時期將電磁波的研究發揮得淋漓盡致，對於雷達（Radar）的發展有不可磨滅的貢獻，也產生出多位諾貝爾獎得主，包括創造「核磁共振」這個名詞的拉比（Isidor Isaac Rabi, 1898～1988），在 1937 年確實驗證原子核的角動量，而於 1944 年獲頒諾貝爾物理獎。薄賽爾（Edward Purcell, 1912～1997）與布洛赫（Felix Bloch, 1905～1983）因發現在外加磁場下，所有物質只要是有奇數個質子或中子皆可以形成共振現象，能發射特定射頻信號，而在 1952 年榮獲諾貝爾物理獎。這項發現早期應用在化學物質的檢測上。薄賽爾得諾貝爾獎時好像只有發表 6 篇論文。

拉比（Isidor Isaac Rabi, 1898～ 1988）。

薄賽爾（Edward Purcell, 1912～ 1997）。

阿瓦雷茲（L.W. Alvarez, 1911 ～ 1988）因製成第一部質子直線加速器，以及對基本粒子研究發展的貢獻，而榮獲諾貝爾物理獎。冉濟（Norman F. Ramsey, 1915~2011）發展出分離的震盪場方法及其在氫邁射和其他原子鐘上的應用。

第二次世界大戰期間列強的戰爭需求使得先進科學技術得以快速的發展，於是雷達就出現了。大戰期間，德國空軍老是跨海轟炸倫敦，讓英國煩不勝煩，急需一種探測空中金屬物體的技術，能在反空襲戰中幫助搜尋德國飛機。

雷達的最早構想來自於沃森瓦爵士（Sr. Robert Watson-Watt, 1892 ～ 1973），希望與美國攜手合作，共同打擊德軍。於是上述這群偉大科學家的電磁波研究集中火力，在戰爭時期發展出地對空、空對地搜索轟炸、空對空截擊火控，以及敵我識別功能的雷達技術，德軍聞之喪膽。

戰後雷達有多項民生應用。例如微波爐（所謂的「雷達烤箱」）深受家庭主婦喜愛；雷達測速器則成為汽車超速者的剋星。沃森瓦開車超速曾被雷達測速器抓到罰錢，對於自己推動這項發明的應用，反讓他自食惡果，啼笑皆非。

林一平
國立陽明交通大學資工系終身講座教授暨華邦電子講座

現為國立陽明交通大學資工系終身講座 教授暨華邦電子講座，曾任科技部次長，為 ACM Fellow、IEEE Fellow、AAAS Fellow 及 IET Fellow。研究興趣為物聯網、行動計算及系統模擬，發展出一套物聯網系統 IoTtalk，廣泛應用於智慧農業、智慧教育、智慧校園等領域／場域。興趣多元，喜好藝術、繪畫、寫作，遨遊於科技與人文間自得其樂，著有＜閃文集＞、＜大橋驟雨＞。

Fun Facts about Radar

Various radar technologies have been utilized in the Ukraine-Russia war, including surveillance radar, anti-aircraft radar, and battlefield monitoring systems deployed by both parties. These radar systems are used to detect aircraft, missiles, and ground activities.

Who were the brilliant minds behind the pioneering radar technologies?

During World War II, the Radiation Laboratory at the Massachusetts Institute of Technology excelled in studying electromagnetic waves and made significant contributions to radar development. The laboratory also produced several Nobel Prize winners, including Isidor Isaac Rabi (1898-1988), who coined the term "Nuclear magnetic resonance" and confirmed nuclear angular momentum in 1937, subsequently awarded the Nobel Prize in Physics in 1944. Edward Purcell (1912-1997) and Felix Bloch (1905-1983) discovered that substances with an odd number of protons or neutrons can undergo resonance under an external magnetic field, emitting specific radio frequency signals. They were jointly awarded the Nobel Prize in Physics in 1952. This discovery was initially applied to chemical analysis. Purcell reportedly had only six published papers at the time of receiving the Nobel Prize.

Luis W. Alvarez (1911-1988) was awarded the Nobel Prize in Physics for constructing the first proton linear accelerator and for his contributions to the study of elementary particles. Norman F. Ramsey (1915-2011) developed the separated oscillatory field method and applied it to hydrogen masers and other atomic clocks.

During World War II, the military needs of major powers accelerated the rapid development of advanced scientific technologies, leading to the creation of radar. The relentless bombings of London by the German Luftwaffe from across the sea greatly troubled the United Kingdom during the war. This prompted a pressing need for technology capable of detecting metallic objects in the air to aid in locating German aircraft during air defense operations.

Sir Robert Watson-Watt (1892-1973) developed the earliest concept of radar with the aim of collaborating with the United States to counter the German military. This collaboration led to a focused effort among scientists to research electromagnetic waves during the war. Their work resulted in the development of radar technologies for ground-to-air and air-to-ground bombing searches, air-to-air interception fire control, and enemy identification capabilities, which significantly impacted the German military.

After the war, radar technology found various civilian applications. For example, the microwave oven, nicknamed the "radar oven," became popular among housewives. Radar speed guns were used to deter speeding drivers. Sir Robert Watson-Watt was once caught speeding by a radar speed gun and fined. He experienced firsthand the consequences of his invention's adaptation, which elicited mixed feelings of irony and amusement.

Dr. Jason Yi-Bing Lin

Lifetime Chair Professor of the Department of Computer Science at National Yang Ming Chiao Tung University and Winbond Chair Professor

Dr. Lin is currently a lifetime chair professor of the Department of Computer Science at National Yang Ming Chiao Tung University and Winbond chair professor. He is an ACM Fellow, IEEE Fellow, AAAS Fellow and IET Fellow. His research interests include Internet of Things, mobile computing, and system simulation. He has developed an Internet of Things system called IoTtalk, which is widely used in smart agriculture, smart education, smart campus, and other fields. He has a variety of interests, such as art, painting, and writing, as well as voyaging through science, technology, and humanities.

Sergiy Popovych 博士演講：
A Cross-Cultural Journey: From NCTU to Princeton, and From Academy to AINeuroScience Startup

文／羅時弘 資科工碩士生

來自烏克蘭的 Sergiy Popovych 博士於 2014 年在國立交通大學資訊工程學系取得學士學位，隨後在普林斯頓大學（Princeton University）取得碩士與博士學位。Popovych 博士曾於在學期間開設新創公司並獲得普林斯頓大學校園新創加速器 YCombinator 1100 萬美元的投資，目前在神經科學研究新創公司 Zetta AI 單任首席技術長（CTO）。

Popovych 博士於 2024 年 6 月 24 日回到母校演講，分享他從在台灣學習資訊工程到在美國領到一間計算神經科學新創公司的心路歷程，以及自己在普林斯頓大學開發大規模計算機視覺應用程式的經歷是如何幫助他在就讀博士期間獲得新創投資，並討論在現今競爭激烈的環境中籌集新創投資所會面臨的挑戰和他取得的成功。此外，Popovych 博士介紹了目前他擔任 Zetta AI 技術長的情況，探討他和他的團隊是如何利用人工智慧分析腦組織的數據，分享最新、最尖端的人工智慧應用，以及再將這些技術應用於人類大腦分析之前需要解決的問題與挑戰。

演講的上半部分，Popovych 博士分享他的求學經歷。原先在交大時參與 EDA 領域的研究，但到普林斯頓大學後加入研究編譯器的實驗室，爾後指導教授更換研究領域，而 Popovych 博士最後因他在學習編譯器期間鍛鍊出的傑出軟體開發能力受其他教授賞識，轉往研究 AI 領域的

實驗室。在就學期間，他與其他同學合作開創 Activeloop 提供 GPU 等計算租賃服務，第一次 demo 時就獲得 100 萬美元的投資，很可惜的是由於簽證環境改變以及對共同投資人的選擇有歧異最後並沒有成功。Popovych 博士提到台美兩地的差異：在美國，新創風氣盛行，幾乎每個學生都想要且勇於募資開展事業，甚至許多人都沒有明確的提案也能募得資金，雖然學生非常有自信，但以工程能力上來說台灣學生並不落下風甚至更好，他不理解台灣為何有數量多且優秀的工程人才卻沒有大規模的新創產業，認為可能是籌募資金不便或者文化上的差異。

演講的後半提到博士目前在 Zetta AI 以人工智慧技術推進腦神經科學的研究。腦神經組織結構複雜，Popovych 博士和他的團隊利用 AI 處理腦組織切片的多張 2D 電子顯微鏡影像，重建出組織中每個神經元的 3D 構造和與其他神經元的突觸連結。其中所遇到的挑戰有：腦組織在切片的過程中會有抖動且可能會破裂或折疊，使得前後兩張影像的差異甚大；還有訓練 AI 所需的資料缺少 ground truth。Zetta AI 結合光流法（optic flow）等傳統影像處理以及自監督學習（self-supervised learning）解決這些問題，Popovych 博士認為結合 AI 與傳統方法是比分別純粹使用兩者還要更加務實且可行的模式。

Popovych 博士從資金來源分析為何利用 AI 進行神經科學研究十分重要。Zetta AI 目前主要的投資者是美國的政府部門，包含國家衛生院（NIH）及情報高等研究計畫署（IARPA）。對於 NIH 來說，如果想要推進對於精神疾病等健康研究，對於人類腦神經系統的了解必不可少，而這些研究又需要一項高效的工具分析腦組織，正如同人類基因組計畫利用電腦及演算法加速基因定序一樣，AI 技術也能加速研究流程。而在目前 AI 議題熱門，各國爭相推進 AI 研究的背景下，各國政府也將開發 AI 技術視為重點，因此 IARPA 投資許多 AI 新創產業以建議相關的技術儲備。

Speech by Dr. Sergiy Popovych
A Cross-Cultural Journey: From NCTU to Princeton, and From Academy to AINeuroScience Startup

Dr. Sergiy Popovych, originally from Ukraine, obtained his bachelor's degree in Computer Science from National Chiao Tung University in 2014. He then pursued and completed both his master's and doctoral degrees at Princeton University. Throughout his academic journey, Dr. Popovych established a startup that successfully secured $11 million in investment from Y Combinator, Princeton University startup accelerator. He is currently serving as the Chief Technology Officer (CTO) at Zetta AI, a company dedicated to neuroscience research.

On June 24, 2024, Dr. Popovych revisited his alma mater to deliver a speech. He recounted his journey from studying computer science in Taiwan to leading a computational neuroscience startup in the United States. Dr. Popovych detailed how his work on large-scale computer vision applications at Princeton University played a crucial role in securing startup investment during his doctoral studies. He also discussed the challenges of raising venture capital in today's competitive landscape and highlighted his successes in this area. Additionally, he introduced his current role as Chief Technology Officer at Zetta AI, explaining how he and his team leverage artificial intelligence to analyze brain tissue data. Dr. Popovych also shared insights into the latest advancements in AI, as well as the challenges that need to be addressed before these technologies can be effectively applied to human brain analysis.

In the first half of his speech, Dr. Popovych shared his educational journey, which began with EDA research at National Chiao Tung University. He then transitioned to a compiler research lab at Princeton University. When his advisor shifted research focus, Dr. Popovych's exceptional software development skills, honed through his work on compilers, attracted the attention of other professors and led him to a lab focused on AI research. During his studies, he and his classmates co-founded Activeloop, a company offering GPU and other computing rental services. Their initial demo secured a $1 million investment; however, the venture ultimately failed due to changes in visa regulations and disagreements with co-investors. Dr. Popovych compared the entrepreneurial environments of Taiwan and the U.S., noting that in America, the startup scene is dynamic, with nearly every student eager to raise funds and launch ventures, often without a well-defined proposal. While Taiwanese students demonstrate great confidence and are equally, if not more, skilled in engineering, he expressed confusion about why Taiwan, despite its abundance of talented engineers, lacks a robust startup industry. He speculated that challenges with

fundraising or cultural differences might be to blame.

Dr. Popovych discussed his current research at Zetta AI, where he is employing artificial intelligence to advance the field of neuroscience, in the second half of his speech. Given the inherent complexity of neural tissue, Dr. Popovych and his team use AI to analyze a series of 2D electron microscopy images of brain tissue slices, reconstructing the 3D architecture of individual neurons and their synaptic connections. They face challenges such as tissue jitter, potential rupturing, or folding during the slicing process, which can cause significant discrepancies between consecutive images, and the lack of ground truth data necessary to train the AI. To address these issues, Zetta AI combines traditional image processing techniques, such as optical flow, with self-supervised learning methods. Dr. Popovych believes that integrating AI with conventional techniques is a more practical and feasible approach than relying on either method alone.

Dr. Popovych emphasized the importance of using AI in neuroscience research, particularly from a funding perspective. Zetta AI's primary investors include U.S. government agencies such as the National Institutes of Health (NIH) and the Intelligence Advanced Research Projects Activity (IARPA). For NIH, advancing research on mental health and other conditions requires a deep understanding of the human brain and nervous system. This research demands effective tools for analyzing brain tissue. Just as the Human Genome Project used computers and algorithms to accelerate gene sequencing, AI technology has the potential to significantly expedite neuroscience research. With AI's growing prominence globally and the push to advance AI technologies, IARPA is making substantial investments in AI startups to build technological capabilities and foster innovation.
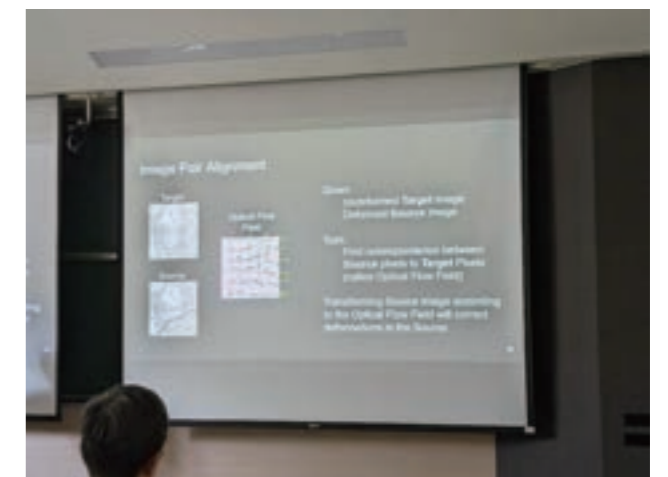
台達電子技術長 郭大維博士：
Data-Centric Computing

文／朱昱瑋 資訊科學與工程所碩士生

講者郭大維教授於 1986 年和 1994 年分別獲得國立臺灣大學和德克薩斯大學奧斯汀分校的計算機科學學士和博士學位。他目前是台達電子的首席技術長（自 2024 年 2 月起自）和國立臺灣大學計算機科學與資訊工程系的特聘教授。他曾擔任國立臺灣大學代理校長（2017 年 10 月至 2019 年 1 月）及學術研究副校長（2016 年 8 月至 2019 年 1 月）。郭教授亦曾是阿聯酋穆罕默德·本·扎耶德人工智慧大學的兼任／訪問教授及高級顧問（2023 年 2 月至 2024 年 1 月），以及香港城市大學的信息工程（Information Technology）講座教授、校長顧問及工程學院創院院長（2019 年 8 月至 2022 年 7 月）。他的研究領域包括嵌入式系統（Embedded Systems）、非揮發性記憶體程式設計（Non-volatile Memory Software Designs）、類神經網路計算（Neuromorphic Computing）和即時系統（Real-time Systems）。

20 多年前，快閃記憶體（Flash Memory）開啟了計算機領域的新世界的大門。自那時起，儲存裝置（Storage Devices）在性能、能耗甚至存取行為方面都獲得了巨大進步動力。在最近的幾年中，儲存裝置的性能提升已經超過 1000 倍，這引發了另一波在計算機設計中挑戰 --- 消除傳統 I/O 瓶頸的問題。在本次演講中，郭大維教授介紹了一些在類神經計算中的解決方案，這些方案賦予記憶體晶片新的計算能力。特別是，在其中探討了應用協同設計（Application Co-designs）在內存計算方面面臨的挑戰，並展示如何利用非揮發性記憶體的特性來優化深度學習。

演講內容主要分為兩個方案：電阻式隨機存取記憶體（Resistive Random Access Memory，ReRAM） 以及相變記憶體（Phase Change Memory；PCM）作為優化深度學習的解決方案，並且針對計算深度學習時 ReRAM 產生的準確度問題和 PCM 產生的耐久性問題提供解法。

首先講者探討了物聯網時代下，深度神經網絡（DNNs）在嵌入式系統中的應用，特別是在邊緣設備中的影像和語音識別。為了提高 DNN 計算效率引入一種新興的技術 —— 內存中處理（Processing in Memory, PIM），它將計算和記憶單元結合在一起，顯著降低了功耗。

近年來，帶有電阻式隨機存取記憶體（ReRAM）的交叉條加速器（Crossbar accelerators）成為研究熱點，尤其是作為物聯網設備的潛在解決方案。ReRAM 通過調整單元的電阻來存儲數據，同時實現計算功能，這使得它在物聯網和邊緣應用中具有重要的應用價值。然而，ReRAM 的編程變異誤差問題限制了其在大規模應用中的擴展性，特別是在多位元 ReRAM 設計和交叉條的可擴充性方面。郭教授主要專注探討如何通過創新的自適應數據操作策略來解決這些挑戰，從而降低 ReRAM 交叉條加速器中的模擬變異誤差。郭教授介紹了三個主要設計：權重捨入設計（WRD）、輸入子週期設計和位線冗餘設計（BRD）。這些設計不僅減少了重疊變異誤差，還提高了推理準確性。

至於相變記憶體（PCM），因其出色的性能、高密度和幾乎零漏電功率的特性，成為了一個神經網絡中極具潛力的幾決方案。然而，PCM 的寫入次數限制和讀寫性能不對稱等挑戰，使得在神經網絡中運用它面臨著諸多困難。郭教授主要探索如何在保持精度的同時，最佳地利用基於 PCM 的系統來訓練神經網絡。訓練和推理是神經網絡運行的兩個關鍵階段。訓練階段需要龐大的計算資源和主要存儲裝置容量，以進行反向傳播和梯度下降等操作。而推理階段則是應用神經網絡進行任務如分類等操作。雖然過去十年，研究人員通過縮減模型結構或優化數據流和數據內容等方法，努力解決了計算和存儲能力的挑戰，但在 NVM 上的應用研究仍然有限。郭教授提出了數據感知的編程設計，旨在優化 PCM 的寫入操作，以降低訓練過程中的內存訪問延遲，同時提升 PCM 的使用壽命，而這一切不會影響神經網絡的精度。並且透過實驗結果表明，所提出的方法能夠大幅改善訓練過程中的性能，並且提高 PCM 的生命週期達到 3.4 倍，同時保持神經網絡的準確性。

最後郭教授強調了記憶體性能對於類神經網路計算中扮演得中要角色，演講結束後，講者與聽眾做了一些問答，並針對聽眾的問題提出了一些建議。我非常感謝有這個機會，聆聽來自臺灣大學的郭大維教授所帶給我們的寶貴研究經驗。

Speech by Dr. Tei-Wei Kuo (CTO of Delta Electronics)
Data-Centric Computing

Dr. Tei-Wei Kuo received his Bachelor's degree in Computer Science & Information Engineering from National Taiwan University in 1986 and his Ph.D. in Computer Science from The University of Texas at Austin in 1994. He is currently the CTO of Delta Electronics (since February 2024) and a Distinguished Professor in the Department of Computer Science & Information Engineering at NTU. He previously served as the Acting President of National Taiwan University (from October 2017 to January 2019) and Vice President for Academic Affairs (from August 2016 to January 2019). Professor Kuo was also an Adjunct/Visiting Professor and Senior Advisor at the Mohamed bin Zayed University of Artificial Intelligence (from February 2023 to January 2024), and the Lee Shau-Kee Chair Professor of Information Engineering, Advisor to the President (Information Technology), and Dean of the College of Engineering at the City University of Hong Kong (from August 2019 to July 2022). His research areas include Embedded Systems, Non-volatile Memory Software Designs, Neuromorphic Computing, and Real-time Systems.

Over two decades ago, flash memory transformed the computing industry. Since then, storage devices have made notable advancements in performance, energy efficiency, and access behaviors. In recent years, their performance has increased by over 1000 times, creating new challenges in computer design, particularly in eliminating traditional I/O bottlenecks. During his speech, Professor Kuo introduced various solutions in neuromorphic computing that endow memory chips with new computational capabilities. He specifically addressed the challenges of application co-designs in in-memory computing and demonstrated how the characteristics of non-volatile memory can be leveraged to optimize deep learning.

The lecture focused on two main strategies: using Resistive Random Access Memory (ReRAM) and Phase Change Memory (PCM) as the optimization solution for deep learning. It covered approaches to address accuracy issues with ReRAM and durability issues with PCM in deep learning computations.

Professor Kuo began by discussing the utilization of deep neural networks (DNNs) in embedded systems during the Internet of Things era. The discussion focused on image and speech recognition on edge devices. To enhance the computational efficiency of DNNs, he introduced a new technology called Processing in Memory (PIM), which integrates computation and memory units, substantially reducing power consumption.

In recent years, crossbar accelerators equipped with resistive random-access memory (ReRAM) have caught much attention as a promising solution for IoT devices. ReRAM stores data by modulating the resistance of cells and also performs computational functions, making it highly valuable for IoT and edge applications. However, programming variation errors in ReRAM hinder its scalability in large-scale applications, especially in multi-bit ReRAM design and crossbar scalability. Professor Kuo is dedicated to addressing these challenges through innovative self-adaptive data manipulation strategies aimed at reducing analog variation errors of ReRAM crossbar accelerators. He has introduced three key designs: Weight Rounding Design (WRD), Input Sub-cycle Design, and Bit-line Redundancy Design (BRD). These designs not only mitigate overlapping variation errors but also enhance inference accuracy.

Phase-change memory (PCM) is also a promising solution for neural networks due to its excellent performance, high density, and near-zero leakage power. However, challenges such as limited write cycles and uneven read/write performance hinder its application in neural networks. Professor Kuo is exploring the optimal use of PCM-based systems for training neural networks while maintaining accuracy. Neural network operation involves two crucial stages: training and inference. The training stage requires significant computational resources and main storage capacity for operations like backpropagation and gradient descent. The inference stage applies the neural network to tasks such as classification. Over the past decade, researchers have addressed computational and storage challenges by reducing model structures and optimizing data flow and content. However, research on non-volatile memory (NVM) applications remains limited. Professor Kuo has proposed a data-aware programming design to optimize PCM write operations, reduce memory access latency during the training process, and extend PCM's lifespan without compromising neural network accuracy. Experimental results indicated that this method significantly improved training performance and extended PCM's lifespan by up to 3.4 times while maintaining neural network accuracy.

In the end, Professor Kuo emphasized the significant impact of memory performance on neural network computations. During the Q&A session that followed, he provided valuable insights in response to questions from the audience. I am very grateful for the opportunity to learn from the invaluable research experience imparted by Professor Tei-Wei Kuo from National Taiwan University.

University of Waterloo Pascal Poupart 教授演講：
Inverse Constraint Learning and Risk Averse Reinforcement Learning for Safe AI

文／連云暄　資訊科學與工程研究所博士生

講者 Pascal Poupart 教授係加拿大 University of Waterloo David R. Cheriton 計算機科學學院的教授。他同時是加拿大 CIFAR AI 教授，在 Vector 研究院任職，並是 University of Waterloo AI 研究院的成員。他自 2022 年起擔任 Georgia Tech 的 NSF AI 優化進步研究院顧問委員會成員。他曾在加拿大皇家銀行的 Waterloo Borealis AI Research Lab 研究實驗室擔任研究主任和首席研究科學家（2018-2020 年）。他的研究重點是開發應用於自然語言處理和材料發現的機器學習算法。他在強化學習算法開發方面的貢獻尤為著名。他的研究團隊目前正在進行的重要項目包括逆向限制學習、平均場強化學習、強化學習基礎模型、貝葉斯聯邦學習、不確定性量化、機率深度學習、對話代理、轉寫錯誤糾正、體育分析、適應滿足性以及用於二氧化碳回收的材料發現。

在其演講中，Poupart 教授強調了強化學習（RL）和控制系統在實際應用中必須考慮現實生活限制的重要性，並提出了可行的演算法。這些限制條件有助於確保實施的可行性、安全性或關鍵性能指標的閾值。然而，某些限制條件難以具體定義，特別是在如自動駕駛這類複雜應用中，設定目標獎勵函數相對容易，但要明確定義專家駕駛員在確保安全、平穩及舒適駕駛中所遵循的隱性限制則更為困難。

Poupart 教授介紹了逆向限制學習（Inverse Constraint Learning, ICL）的概念。傳統上逆向強化學習（Inverse Reinforcement Learning, IRL）用於學習解釋專家行為的獎勵函數，但在許多實際應用場景中，僅知道獎勵函數並不足夠，還需要理解行為背後的限制條件。這些限制往往能提供比獎勵函數更直觀的行為解釋，例如在安全關鍵的應用中尤為重要。透過逆向工程反求限制條件，可以更深入地了解專家行為背後的隱性邏輯，從而設計出更符合人類行為模式的自動駕駛策略。

教授還探討了如何從專家軌跡中學習 soft constraints，這種方法假設已知獎勵函數並通過專家軌跡學習 soft constraints。在機器學習和強化學習的實際應用中，面對帶有噪聲的感測資料或不完美的專家示範是普遍存在的問題，這要求在資料的信賴度和模型的效能之間找到平衡。soft constraints 與傳統的 hard constraints（如能量使用上限）不同，可允許模型違反限制條件，在獎勵函數與限制條件中取得平衡，因此能使模型有更靈活的應對策略。

此外，Poupart 教授還介紹了一種基於吉尼偏差（Gini deviation）的風險規避強化學習方法。在現實生活中，我們有許多需要避免風險的場合，例如在自動駕駛中避免碰撞，在投資組合管理中則試圖避免巨大的財務損失。傳統的強化學習關注於最大化預期回報，而風險回避強化學習則同時考慮風險控制。吉尼偏差是對傳統基於變異數方法的一個替代方案，能更有效地評估策略執行過程中可能的風險，特別是在高風險的決策環境下。

本演講不僅提供多種新的研究工具，也對於如何在實際應用中實現安全人工智能提出了實用的見解，有助於提升未來應用於開發能自動適應複雜環境和嚴格安全要求的智能系統的可行性。這些見解和方法為機器學習和強化學習領域提供了寶貴的指導，特別是在處理不確定性和風險管理方面的應用，使這些技術更加貼近現實世界的需求和挑戰。

Speech by Dr. Pascal Poupart from the University of Waterloo:
Inverse Constraint Learning and Risk Averse Reinforcement Learning for Safe AI

Dr. Pascal Poupart is a professor at the David R. Cheriton School of Computer Science at the University of Waterloo in Canada. He also serves as a CIFAR AI Chair at the Vector Institute and is a member of the AI Institute at Waterloo. Since 2022, he has been part of the advisory board for the NSF AI Research Institute at Georgia Tech. Previously, from 2018 to 2020, he held the roles of Research Director and Chief Research Scientist at the Waterloo Borealis AI Research Lab at the Royal Bank of Canada. His research primarily focuses on developing machine learning algorithms for natural language processing and materials discovery, with a particular emphasis on reinforcement learning. His team is currently engaged in several notable projects, including Inverse Constraint Learning, Mean-Field Reinforcement Learning, Foundational Models for Reinforcement Learning, Bayesian Federated Learning, Uncertainty Quantification and Calibration, Probabilistic Deep Learning, Conversational Agents, Transcription Error Correction, Sports Analytics, Adaptive Satisfaction, and materials to facilitate desirable chemical reactions for CO_2 conversion and CO_2 capture.

In his speech, Professor Poupart highlighted the crucial role of real-world constraints in the practical implementation of reinforcement learning (RL) and control systems, and proposed feasible algorithmic solutions. These constraints are essential for ensuring the feasibility of implementation, safety, and adherence to key performance indicators. However, some constraints are challenging to define precisely, particularly in complex applications such as autonomous driving. While establishing target reward functions is relatively straightforward, accurately articulating the implicit constraints that expert drivers adhere to for safe, smooth, and comfortable driving proves to be much more difficult.

Professor Poupart introduced the concept of Inverse Constraint Learning (ICL). While Inverse Reinforcement Learning (IRL) traditionally focuses on determining the reward functions that explain expert behavior, this approach is often insufficient in practical applications. Understanding the constraints underlying behavior is equally important, as these constraints frequently provide a more intuitive rationale for actions than reward functions, which is especially crucial in safety-critical contexts. By reverse-engineering these constraints, we can uncover the implicit logic behind expert behavior, enabling the design of autonomous driving strategies that more closely mimic human behavioral patterns.

He also examined methods for learning soft constraints from expert trajectories. This strategy relies on a known reward function and utilizes expert trajectories to derive soft constraints. In real-world applications of machine learning and reinforcement learning, challenges often arise from noise in sensor data or imperfect expert demonstrations. This necessitates a balance between the data's reliability and the model's performance. Unlike traditional hard constraints (like energy usage limits), soft constraints permit the model to occasionally breach certain restrictions, seeking for a balance between the reward function and constraints. As a result, the model can implement more adaptable strategies in response.

Moreover, Professor Poupart presented a risk-averse reinforcement learning approach that utilizes Gini deviation. In various real-life scenarios, such as avoiding collisions in autonomous driving or minimizing substantial financial losses in portfolio management, risk avoidance is crucial. While traditional reinforcement learning focuses on maximizing expected returns, risk-averse reinforcement learning also considers risk management. Gini deviation offers an alternative to conventional variance-based methods, allowing for a more effective assessment of potential risks during strategy implementation, especially in high-risk decision-making contexts.

This presentation introduces an array of new research tools and offers practical insights into implementing safe artificial intelligence in real-world applications. It enhances the feasibility of developing intelligent systems capable of autonomously adapting to complex environments and meeting rigorous safety standards. The insights and methodologies provide valuable guidance for the fields of machine learning and reinforcement learning, particularly in addressing uncertainty and managing risk. This alignment ensures that these technologies are better suited to meet the demands and challenges of real-world applications.

阿爾伯塔大學 Owen Randall 先生演講：
Efficiently Solving Games with Expected Work Search

文／邱恆毅 資訊科學與工程研究所碩士生

講者 Mr. Owen Randall 來自於阿爾伯塔大學 (University of Alberta)，他在阿爾伯塔大學攻讀了碩士學位並且後來逕行修讀博士學位。目前是 Martin Müller 教授研究團隊當中的一員，研究領域包含強化學習 (reinforcement learning) 及遊戲樹 (game-tree) 相關的研究等。Martin Müller 教授也是 AlphaGo 團隊的領導者 David Silver 的博士指導教授。

本次的演講，講者 Mr. Owen Randall 為我們介紹了他作為第一作者的論文："Expected Work Search: Combining Win Rate and Proof Size Estimation"。提出這個方法的動機在於他們的研究團隊發現若是單單只靠勝率 (win rate) 或是證明數 (proof size) 來評估一個盤面可能是不夠的，這會導致一些問題。

以圍棋為例，若單單只靠勝率來評估盤面，當我們有一個非常好的盤面，各個位置的勝率都接近 100%，agent 便有可能會下在盤面上的任何位置上，但能夠使用最少步數取得勝利的下法可能只有少數幾個（甚至只有一個），下在其他位置上雖然最終仍然能獲得勝利，但會需要花費更多的步數，也就耗費更多的運算資源。因此，在這個層面上，他們希望可以在勝率差不多的條件下，盡可能找出可以最快獲勝的步數（也就是 proof size 最小的）。

另一方面，若僅僅依靠 proof size 來評估盤面，當我們有一個可以吃掉對手棋子的盤面時，因為我們吃掉了對手的棋子，導致我們可以下的位置變多了，因此 branching factor 也就隨之上升，但這樣便導致 proof number search(PNS) 會傾向於不對這個位子做 expansion，也就導致了我們的勝率降低。因此，從這個角度來看，他們希望可以在 proof size 跟勝率之間取得良好的平衡，既可以不要花太多時間證明，又可以有不錯的勝率。

這篇論文提出的方法 — Expected Work Search(EWS)，其中最主要的貢獻在於這個方法提供了一個可以很好地在勝率與 proof size 中取得平衡的方法，它同時考慮了勝率與 proof size 的資訊去對 game tree 上各個 node 的 children 做排序，藉由這個排序，我們就可以選擇 proof size 相對小且勝率又不錯的 child 做 expansion，以此來達到速度快、勝率高的目的，他們的方法相較於傳統的 go-solver 加速了 6 倍以上的速度，這證明了此方法的可行性。此研究已撰寫成論文，並獲得 IJCAI 頂尖會議接受。

最後，在演講結束後，聽眾與講者一同共進午餐，我們非常感激可以有這樣難得的機會可以和來自世界一流大學的講者進行學術上的交流，這是一個令人難忘的經驗。

Speech by Owen Randall from University of Alberta
Efficiently Solving Games with Expected Work Search

Our speaker, Owen Randall, is from the University of Alberta. He completed his Master's degree there and is now pursuing his Ph.D. He is currently part of Professor Martin Müller's research team, focusing on reinforcement learning and game-tree studies. Professor Martin Müller was the Ph.D. advisor to David Silver, the leader of the AlphaGo team.

During the lecture, Mr. Randall introduced a paper titled "Expected Work Search: Combining Win Rate and Proof Size Estimation," where he serves as the lead author. The method was developed in response to his research team's discovery that evaluating a game state based solely on win rate or proof size would be insufficient and lead to various problems.

Taking the game of Go as an example, if we rely solely on win rate to evaluate the game state, we may encounter situations where the win rates for various moves are close to 100%. This might give the impression that any move on the board could be equally good. However, the reality is that only a few specific moves will lead to victory in the shortest number of steps. While other moves could still lead to winning the game, they would require more steps and computational resources. Therefore, the aim in such situations is to identify moves that lead to victory in the shortest number of steps (i.e., with the smallest proof size) under similar win rate conditions.

When evaluating the game state based on proof size, discovering a scenario where we can capture the opponent's pieces to increase the number of possible moves leads to a higher branching factor. However, the increase in options can discourage further expansion of such a position through proof number search (PNS), ultimately reducing our chances of winning. Therefore, it's important to strike a balance between proof size and win rate, so that we don't spend excessive time on proofs while still maintaining a good chance of winning.

In this paper, a new approach called Expected Work Search (EWS) is introduced. EWS strikes a balance between win rate and proof size by leveraging metrics from both aspects to prioritize the nodes in the game tree. This prioritization process allows the method to focus on nodes with smaller proof sizes and promising win rates for expansion, ultimately aiming for both speed and high win rates. Compared to traditional Go solvers, this method achieves an impressive sixfold speed increase, showcasing its practicality. For more details, the research paper has been accepted at the esteemed IJCAI conference.

After the lecture, Mr. Randall and the audience enjoyed lunch together. We are truly grateful for the unique opportunity to participate in academic discussions with esteemed speakers from leading universities around the world. This experience has left a lasting impression on all of us.

頒授日本電信業巨擘千本倖生名譽博士，資工系腦傷生家屬到場致謝

文／秘書處公共關係組

林奇宏校長 (左)頒授千本倖生名譽博士 (中)學位證書。右為資訊學院陳志成院長。

本校今日 (5/28) 頒發名譽博士學位予日本電信業巨擘千本倖生先生，表彰其在業界及對社會帶來的重要貢獻。現場本校一名因入學前發生意外的資工系劉同學家屬也特別到場獻花向千本倖生博士表達感謝。現場也播放一段與劉同學共同錄製的一段感謝影片。影片中的劉同學進入資工系就讀前，在一次運動時發生意外，突發心律不整導致心跳暫停 30 分鐘。雖經搶救救回生命，但因腦部缺氧造成損傷，經四年治療復健，他不放棄希望於今年二月回到校園繼續就學。目前尚有語言障礙的他，也在影片中也用手寫文字表達他對千本倖生先生的萬分感激及敬意。

日本最成功連續創業家 電信巨擘千本倖生事蹟

在日本電信行業擁有超過 30 年經驗的傑出企業家千本倖生，1966 年進入全日本最大的電信公司 - 電信電話公司（NTT）服務。1984 年，他毅然離開服務了 18 年之久的電信電話公司，共同創辦了日本第一家私人電信公司 - 第二電電（DDI），1993 年，已合併成為 KDDI 的該公司成功上市，現今已成為市值 850 億美元、市場佔有率在日本第二大的電信公司。

在成功帶領第二電電上市後，千本倖生先生毅然於 1996 年轉向學術界，成為慶應大學的創業學教授。此外，1999 年創立了一家開創性的互聯網接入技術公司 eAccess，迅速占據了日本 ADSL 市場，並成為全球第二。2004 年，

eAccess 成功上市，隨後他又創立了日本第四大移動網路運營商 EMOBILE。他所創立的 eAccess 和 EMOBILE 兩家公司，於 2013 年被軟銀集團（SoftBank）收購，為日本電信業帶來了新的格局。

除了在商業領域的卓越成就外，千本倖生先生還致力於慈善和教育事業。2017 年成立 Frances & Sachio Semmoto 基金會，支持來自亞太地區的優秀學生。2023 年創立了與孩子們攜手同行基金會 (Walking Together Hand-in-Hand with Children Foundation)，專注於幫助受虐兒童，為社會弱勢群體帶來希望。

千本倖生目前擔任日本領先的可再生能源公司 RENOVA Inc. 名譽董事長。除了在商界的成就外，他還擔任多家國際公司的董事職位，包括 NetApp 和路透社股份公司，也是瑞典皇家工程科學院（IVA）、IEEE 和 IEICE 等多個全球學術組織的成員，展現了其學術影響力和領導力。

Don't take risks, nothing happens

千本倖生博士的事蹟不僅體現了他在電信行業的卓越貢獻，更展現了他對教育和社會公益的不懈追求。名譽博士頒授典禮過後，千本倖生博士也與本校同學及現場貴賓進行對談。身為日本最成功連續創業家，千本倖生博士勸誡不要窩在小小的手機前，鼓勵大家要到全世界旅行。此外，還要不怕冒險，最後他說「don't take risks, nothing happens」。

Japanese Telecom Tycoon Sachio Semmoto Awarded Honorary Doctorate by NYCU; Family of Brain–Injured Student Expresses Gratitude for Educational Support

On May 28th, National Yang Ming Chiao Tung University (NYCU) conferred an honorary doctorate upon Japanese telecommunications magnate Mr. Sachio Semmoto for his outstanding achievements in the telecommunications industry and significant contributions to society.

On the day of the ceremony, a family member of the computer science student who had been struggling due to an accident attended and publicly expressed gratitude. They thanked Mr. Semmoto for his donation, which helped the student and their family navigate challenging times. Additionally, a profoundly moving gratitude video was played featuring Classmate Liu, a student who suffered a brain injury in an accident, expressing his admiration and appreciation for Mr. Semmoto through handwritten words.

Sachio Semmoto: Japan's Most Successful Serial Entrepreneur and Telecommunications Industry Legend

Sachio Semmoto an outstanding entrepreneur with over 30 years of experience in the Japanese telecommunications industry. He joined Japan's largest telecommunications company, Nippon Telegraph and Telephone Corporation (NTT), in 1966, and in 1984, he co-founded Japan's first private telecommunications company, Daini Denden (DDI), with partners. Subsequently, he successfully took the company public, becoming the second-largest telecommunications company in Japan with a market value of 85 billion USD.

In 1996, Sachio Semmoto transitioned into academia, becoming a professor of entrepreneurship at Keio University. However, his success in the business world did not stop there. In 1999, he founded eAccess, quickly becoming a leader in the Japanese ADSL market and ranking second globally. In 2004, eAccess went public, after which he founded Japan's fourth-largest mobile network operator, EMOBILE. The company was acquired by SoftBank Group in 2013, bringing about a new era in the Japanese telecommunications industry.

Classmate Liu, who received assistance from Honorary Doctorate Sachio Semmoto, his father attended the event to present flowers as an expression of gratitude.

激發教學創新，提升教育質量——
資訊學院教學座談會聚焦多元教學經驗分享

文／鍾乙君

在資訊學院的教學座談會上，教授們齊聚一堂，深入探討了當前高等教育中面臨的諸多教學挑戰與機會。這場座談會不僅是教師們分享教學經驗的平台，更是提升教學質量、加強教師間合作的重要契機。面對新科技的融入、多元化教學工具的運用、學生參與度的提升，以及公平評分等問題，教授們分享了寶貴的見解與實踐經驗，為未來教學方式的改進提出了可行的建議。

此次座談會的目的是促進教學者之間的交流，鼓勵教師們反思和分享各自的教學方式，以共同提高整體教學水平。在座的教授們來自不同的教學背景與專業，為座談會注入了多樣化的觀點與實踐案例。透過此次討論，教師們對於如何在瞬息萬變的教育環境中持續改進教學質量，有了更深入的認識。

黃世強教授：教學獎的激勵與多樣化教學工具的應用

黃世強教授開場提到，教學獎項的設立對於教師來說不僅僅是個榮譽，更是推動教師提升教學水平的有力動力。他認為，這類獎項能夠激勵教師在教學過程中不斷創新，並努力改善課堂效果。黃教授表示，這樣的獎項既能促進教師的專業發展，也對學生的學習質量有直接影響。

他分享了自己在教學中的具體經驗，特別強調了多樣化教學工具的重要性。他指出，現代教學中，單一的教學方式已不足以滿足學生的多元需求，因此應該善用各種工具來輔助教學，特別是動畫和圖像等視覺化的輔助教具能有效增強學生對複雜概念的理解。黃教授強調，這不僅可以讓課堂內容更生動，也能幫助學生更快地掌握學習重點。

此外，黃教授還提到，在評分標準上應當保持一致和透明，並避免不必要的分數調整。他認為，公平的評分系統不僅是對學生的一種尊重，也能激勵學生更加努力，維持其學習的動力。

葉宗泰教授：平衡課程難度與豐富性，助教管理的重要性

葉宗泰教授則從課程設計的角度分享了如何平衡課程內容的豐富性與難度。他指出，雖然教授們常常希望學生能夠學到更多的知識，因此設計出非常豐富的課程內容，但過多的材料並不總是有助於學生的學習。有時候，學生會因為無法跟上課程節奏而感到挫折，甚至可能影響他們對學習的興趣。葉教授提醒教師們應當根據學生的實際情況調整課程，確保學生能夠在課程中獲得充分的學習成果，而不會因為課程過於艱深而喪失信心。

他進一步指出，助教的選擇在教學質量的提升中扮演著關鍵角色。葉教授分享了自己在助教管理上的經驗，特別強調了選擇具備責任心和教學能力的助教對課堂運作的重要性。適當的助教不僅能有效輔助教師進行教學，也能在學生需要時提供即時的協助，減少學生的挫折感，從而提升整體學習效率。

李奇育教授：英語授課的挑戰與策略

李奇育教授則聚焦於英語授課這一主題，探討了外語教學中的挑戰與應對策略。他提到，許多學生的英語水平參差不齊，這對英語授課的教師來說是一大挑戰。李教授強調，雖然全面英語授課是提高學生外語能力的有效途徑，但在現實中，完全依賴英語授課可能會影響學生對專業內容的理解。因此，他建議教師可以採取翻譯輔助、多角度講解等策略來幫助學生更好地吸收知識。

此外，李教授還強調了技術工具在教學中的應用。自疫情以來，他開始錄製教學影片，讓學生在課後能夠重複觀看課堂內容。這種方式不僅能幫助學生複習，還能彌補課堂中可能出現的理解障礙。他提到，許多學生反映這些影片對於考試前的複習非常有幫助，甚至能提高學生的學習信心。

謝續平教授：互動式教學與全球學生的挑戰

謝續平教授的分享聚焦於大班教學中如何提升學生參與度，並面對多元文化背景下的教學挑戰。他首先提到，自己通常教授的課程班級規模較大，經常超過 100 名學生，且來自不同國家與地區，包含歐洲、東南亞等地。因此，課堂上既有國際學生，也有本國學生，這對於全英文授課提出了新的挑戰。謝教授指出，部分台灣本地學生在面對全英文授課時可能會有理解上的困難，因此他偶爾會用中文解釋某些概念，但同時也必須向國際學生道歉，確保他們理解課堂內容。

他進一步強調，針對不同背景的學生，他會在學期初進行背景調查，了解學生的先修課程和學習經驗，以便更好地設計教學內容。此外，為了提高學生的專注度和參與感，謝教授採用了「隨機提問」的方式，特別是針對坐在教室後排的學生，確保他們積極參與課堂討論。他還設計了小測驗和即時反饋機制，藉此了解學生的學習狀況，並即時調整教學內容。

謝教授也提到，在教學過程中結合了最新的網路安全事件作為實例，讓學生更直觀地了解課程內容與實際應用的關聯。他認為，真實案例的引入不僅增加了課堂的趣味性，也讓學生能夠將學術理論與現實生活中的問題相連結，有效提升學習成效。

杜宏章教授：國際視野下的教學思考與互動

杜宏章教在交流時間從國際化的角度，分享了他在教學中的觀察與反思。他指出，隨著全球化的加速發展，許多來自不同國家和文化背景的學生進入課堂，這要求教師們具備更多元的教學技巧。杜教授特別提到，學生的參與度是影響教學效果的重要因素，而過度依賴投影片教學可能會降低學生的注意力與參與感。

他建議教師們在適當時候回歸到傳統的黑板教學，這種方式能讓學生更專注於課程內容。此外，他還提到錄影教學的雙刃劍效應，雖然技術讓學生能夠方便地回顧課堂，但同時也降低了學生到課的意願，這在一定程度上削弱了即時互動的效果。

杜教授也提到，國際學生在不同文化背景下的學習方式各異，這要求教師在設計課程時能夠靈活應對，確保課堂內容適應不同學生的需求。他認為，透過多樣化的教學方法與靈活的評分機制，可以最大化提高教學效果，讓學生真正受益。

持續創新，提升教學質量

此次座談會提供了一個難得的平臺，讓資訊學院的教師們能夠彼此分享教學經驗、討論教學創新。無論是如何運用多樣化教學工具、平衡課程難度，還是如何應對英語授課的挑戰，每位教授的分享都帶來了新的啟發，並為未來教學質量的提升提供了寶貴的建議。

座談會的最後，主持人再次鼓勵教師們積極參與未來的教學座談與培訓計畫，強調這類交流能夠促進教學反思，幫助教師不斷更新教學方法，應對不斷變化的教育需求。隨著教育科技的進步與學生需求的多樣化，教師們需要持續創新，以保持教學質量的卓越，並為學生提供更加有效和全面的學習體驗。

透過此次座談會的分享與討論，資訊學院的教師們展示了在教學中不斷追求卓越的決心，也為未來的教學改革與創新奠定了堅實的基礎。

Fostering Teaching Innovation and Enhancing Educational Quality: Insig hts from a CCS Seminar on Diverse Teaching Experiences

At the teaching seminar hosted by the College of Computer Science, professors came together to engage in a thorough discussion of the key challenges and opportunities shaping higher education today. The seminar served not only as a platform for teachers to exchange teaching experiences but also as a vital opportunity to improve teaching quality and foster greater collaboration among faculty. Addressing topics such as the integration of new technologies, the adoption of diverse teaching tools, enhancing student engagement, and ensuring fair grading practices, the professors shared insightful perspectives and practical solutions, offering actionable recommendations for refining future teaching methods.

The seminar aimed to promote meaningful communication among faculty, encouraging them to reflect on and exchange their teaching strategies to collectively enhance overall teaching quality. The professors in attendance, representing diverse educational backgrounds and areas of expertise, contributed diverse perspectives and real-world examples to the discussion. Through this collaborative dialogue, the professors gained valuable insights into how to adapt and continually improve teaching practices in an increasingly dynamic educational environment.

Professor Sai-Keung Wong: Incentives from Teaching Awards and the Application of Diverse Teaching Tools

Professor Sai-Keung Wong opened by emphasizing that teaching awards are not only an honor for teachers but also a powerful catalyst for advancing their teaching practices. He stressed that such awards motivate teachers to innovate continuously in their methods and work toward enhancing classroom outcomes. Professor Wong further noted that these awards not only foster professional development among teachers but also have a direct and lasting impact on the quality of student learning.

Drawing on his own teaching experiences, Professor Wong highlighted the essential role of diverse instructional tools. He noted that in today's educational landscape, relying on a single teaching method is no longer sufficient to meet the diverse needs of students. As a result, it is crucial to incorporate a range of tools to enrich teaching, with visual aids such as animations and images proving especially effective in helping students grasp complex concepts. Professor Wong emphasized that this approach not only makes lessons more engaging but also strengthens students' ability to understand and retain key learning objectives.

Additionally, Professor Wong emphasized the importance of maintaining consistent and transparent grading standards, while avoiding unnecessary grade adjustments. He believes that a fair grading system not only shows respect for students but also motivates them to put in greater effort, helping to sustain their drive to learn.

Professor Tsung-Tai Yeh: Balancing Course Content for Optimal Difficulty and Detail While Emphasizing the Importance of Teaching Assistant Management

Professor Tsung-Tai Yeh shared valuable insights on how to balance the richness and complexity of course content from a course design perspective. He emphasized that while instructors often aim to provide students with a wealth of knowledge through comprehensive materials, too much content can hinder learning outcomes. Students may become frustrated if they struggle to keep up with the pace of a course, leading to reduced engagement and enthusiasm for learning. Professor Yeh encouraged teachers to tailor their courses to meet the actual needs and abilities of their students, ensuring they can achieve meaningful learning outcomes without feeling overwhelmed or losing confidence due to excessive difficulty.

He further highlighted that selecting teaching assistants is crucial for enhancing teaching quality. Professor Yeh shared his insights on managing teaching assistants, stressing the importance of choosing individuals who are both responsible and capable of teaching. Such teaching assistants are essential for ensuring a smoothly running classroom. The right assistant can offer valuable support to the instructor and provide immediate help to students when needed, alleviating frustration and significantly boosting overall learning efficiency.

Professor Chi-Yu Li: The Challenges and Strategies of Teaching in English

Professor Li focused on the challenges and strategies associated with teaching in English, particularly the use of a foreign language to teach academic subjects. He pointed out that the diverse range of English proficiency levels among students presents a major challenge for instructors delivering lessons in English. While Professor Li acknowledged that full English immersion is an effective method for enhancing students' language skills, he cautioned that relying exclusively on English may impede students' comprehension of subject-specific content. To address this, he recommended that instructors employ strategies such as providing translation support and offering explanations from multiple perspectives

to facilitate better understanding and knowledge retention.

Additionally, Professor Li highlighted the importance of integrating technology into teaching. Since the onset of the COVID-19 pandemic, he has begun recording instructional videos, enabling students to revisit the class material at their own pace after class. This approach not only aids in revision but also helps overcome any comprehension challenges that might arise during the class. He shared that many students have found these videos particularly useful for exam preparation, with some even reporting that the videos have significantly boosted their confidence in learning.

Professor Shiuhpyng Shieh: Interactive Teaching and the challenges of a multicultural classroom

Professor Shiuhpyng Hsieh's presentation focused on strategies for enhancing student engagement in large classrooms and addressing the challenges of teaching in a multicultural environment. He began by noting that the classes he typically teaches are quite large, often consisting of over 100 students from various regions, including Europe and Southeast Asia. As a result, the classroom comprises both international and local students, creating new challenges for teaching in English. Professor Hsieh pointed out that some local students may struggle to fully grasp lessons taught in English. To tackle this challenge, he occasionally switches to Mandarin to clarify certain concepts. He ensures that he apologizes to the international students during these moments, making sure they also fully understand the material being presented.

Professor Hsieh highlighted the importance of understanding students' diverse backgrounds and conducts a background survey at the start of each semester to gather information on their prior coursework and learning experiences, enabling him to tailor the course content more effectively. In addition, to improve student concentration and participation, he employs a "random questioning" strategy, specifically engaging students in the back rows to ensure they actively contribute to class discussions. He also incorporates quizzes and real-time feedback to monitor students' progress and promptly adjust the teaching material as needed.

Professor Hsieh also noted that he integrates recent cybersecurity incidents into his lessons as real-world case studies, helping students grasp the practical relevance of the course material. He believes that incorporating such real-life examples not only makes the class more engaging but also enables students to connect academic theories with real-world challenges, thereby significantly improving their learning outcomes.

Professor David Hung-Chang Du: Teaching Reflections and Interaction from an International Perspective

During the discussion session, Professor Du shared his insights and reflections on teaching through

an international perspective. He observed that, as globalization accelerates, classrooms are becoming increasingly diverse, with students from various countries and cultural backgrounds. This shift, he emphasized, requires teachers to adopt a broad array of teaching strategies. Professor Du specifically highlighted the importance of student engagement as a key factor in effective teaching. He also warned that an overreliance on PowerPoint presentations could undermine students' attention and diminish their sense of participation in the class.

He recommended that teachers occasionally revert to traditional blackboard teaching, as this method helps students focus more on the course material. He also discussed the double-edged nature of recorded lessons. While technology allows students to easily revisit course content, it can reduce their motivation to attend class in person, thus diminishing the effectiveness of live interaction.

Professor Du also highlighted that international students bring diverse learning styles shaped by their cultural backgrounds, which requires teachers to be flexible in course design to ensure that the content meets the needs of all students. He believes that by incorporating a range of teaching methods and adaptable assessment strategies, teachers can enhance the overall effectiveness of their instruction, thereby enabling students to gain the most from the learning experience.

Driving Continuous Innovation to Enhance Teaching Quality

This seminar offered a unique platform for the faculty of the College of Computer Science to exchange teaching experiences and explore innovative approaches to education. From leveraging diverse teaching tools and balancing course difficulty to tackling the challenges of English-medium instruction, each professor's contribution provided fresh perspectives and valuable recommendations for improving teaching quality in the future.

As the seminar concluded, the host urged faculty members to actively engage in future teaching seminars and professional development programs. He emphasized that these opportunities promote teaching reflection and enable teachers to continually refine their methods to adapt to the evolving demands of education. With rapid advancements in educational technology and the increasing diversity of student needs, teachers must embrace ongoing innovation to sustain high-quality teaching and deliver more effective, engaging, and well-rounded learning experiences for their students.

Through the insightful discussions and exchanges during this seminar, the faculty members of the College of Computer Science showcased their steadfast commitment to achieving excellence in teaching and they laid a strong foundation for future teaching reforms and innovations.

國立陽明交通大學與聖洋科技舉行青年講座教授頒獎典禮　打造國際優秀人才

文／林珮雯

為將台灣資訊科技產業持續提升，並讓高等科技教育不斷進步，國立陽明交通大學與聖洋科技於 9 月 16 日舉辦青年講座教授頒獎典禮，期望挹注資源提升大學教師薪資的競爭力，有助延攬國際優秀人才回國任教，為產學界引進更多新血，並且強化產學合作，為大學攬才與傳承創下最佳示範。

聖洋科技從成立以來就不斷投入相關資源，希望台灣的科技教育能持續發展並與國際接軌，讓科技教育在良好的環境中持續進步，帶動產業的永續成長。在聖洋科技董事長邱繼弘支持下，於 2017 年催生交大資工系聖洋科技青年講座教授獎勵計畫，協助大學攬才，吸引優秀年輕學者回台任教。

今年獲選為聖洋科技青年講座教授的顏羽君教授，研究領域包括人機互動、群眾智慧、人智協作。顏羽君博士於 2021 年自美國伊利諾大學香檳分校（UIUC）取得資訊工程博士學位，畢業後更被美國國家科學委員會 (National Science Foundation) 評選為年度創新科技新秀學者 (Computing Innovation Fellow)。顏博士於 2024 年 2 月提前返台擔任陽明交大資訊工程系的專任助理教授，有傑出的研究成果及有良好的國際合作，並具大型跨領域計畫與雙語教學等經驗，是有潛力備受矚目的年輕學者。

NYCU and cacaFly Host Young Chair Professor Award Ceremony to Foster Exceptional International Talent
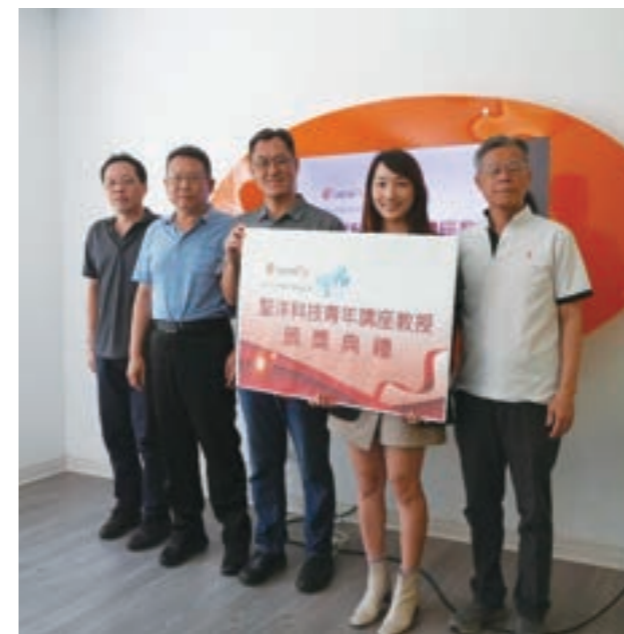
To further enhance Taiwan's information technology industry and promote advancements in higher education, National Yang Ming Chiao Tung University (NYCU) and cacaFly hosted a Young Chair Professor Award Ceremony on September 16. This event aims to allocate resources to boost the competitiveness of college faculty salaries, thereby attracting exceptional international talent back to Taiwan for teaching positions. The initiative seeks to bring in new talent to strengthen industry-academia collaborations and foster partnerships between universities and industries, establishing a model for effective talent acquisition and knowledge transfer.

Since its founding, cacaFly has consistently invested resources to promote the development of technology education in Taiwan and align it with international standards. This commitment is designed to create a supportive environment for technology education, driving sustainable growth within the industry. With the backing of cacaFly's CEO, Nathan Chiu, the cacaFly Young Chair Professor Award Program was launched in 2017 in partnership with the Department of Computer Science at NYCU. This initiative aims to help NYCU attract talented young scholars back to Taiwan for teaching positions.

This year, Professor Yu-Chun Yen was appointed as a cacaFly Young Chair Professor. Her research focuses on Human-Computer Interaction, Collective Intelligence, and Human-AI Collaboration. Dr. Yen earned her Ph.D. in Computer Science from the University of Illinois Urbana-Champaign (UIUC) in 2021. Following her graduation, she was honored as a Computing Innovation Fellow by the National Science Foundation (NSF). In February 2024, Dr. Yen returned to Taiwan to assume a full-time position as an assistant professor in the Department of Computer Science at NYCU. With her impressive research accomplishments and strong international collaborations, she brings experience in large-scale interdisciplinary projects and bilingual teaching, establishing herself as a promising young scholar.

資工專題競賽　學生大放異彩

　　資訊工程專題是本校資工系重要的必修課程之一，同學們自由報名參加專題競賽，經由同儕間互相觀摩與切磋，展現資工系多元豐富研究成果，同時也強化了資工系同學們的凝聚力。以下是得獎作品介紹：

特優

專題題目：Designing Area-Efficient Ray-Triangle Intersection Hardware Unit in GPU RT-Core
學生姓名：甯宇綸
指導教授：葉宗泰教授
專題介紹：

這個專案專注於 GPU RT 核心中的資源消耗型光線 - 三角形交集單元。我們將 Moller-Trumbore 交集演算法拆解為三個階段。通過篩選式硬體設計，每個階段都排除可能不相交的三角形，以降低後續階段對硬體的需求，從而減少整體面積。我們的方法在 FPGA 合成中實現了面積上的優勢，且性能損失在可接受範圍內。我們還設計了符合 AXI4 協定的交集單元，並將其部分整合進系統，包括 Xilinx 的 AXI4 快取，並使用 Genesis ZU FPGA 平台進行驗證。

優等

專題題目：Research on Predictive Networks Based on Multivariate Short Time Series Inputs and Transformer Architecture
學生姓名：賴怡暄、吳宜靜、楊芊華
指導教授：黃敬群教授
專題介紹：

　　隨著時間序列預測技術的進步，基於 Transformer 的模型在處理長時間序列預測任務中展現了令人印象深刻的性能。然而，這些模型在短期序列預測中的表現仍有待提升。這主要是因為模型架構在有效捕捉短序列特徵方面存在一定限制，從而影響了預測的準確性。為了提高基於 Transformer 的模型在短期序列預測中的表現，我們對最先進的 Crossformer 模型進行了以下優化： 首先，我們引入了 ProbSparse Self-attention，這一改進精煉了原有的 Crossformer 路由器機制。通過在計算 Attention Scores 之前對 Query 矩陣進行初步篩選，我們保留了重要的 Query 值，使模型能夠基於顯著特徵做出更準確的預測。 其次，我們引入了混合專家模型（MoE），以處理輸入數據的多樣化分布和時間序列的不同特徵。MoE 利用不同的前饋網路（FFNs）專家來處理序列中的不同特徵，並適應多變量數據，使信息能夠由多個 FFNs 同時處理，從而提升模型的適應性。 這些改進使得模型能夠更有效地處理短序列中的局部特徵，從而提高了在小型數據集（ILI）和大型數據集（ETTh1）上的預測準確性。

優等

專題題目：Learning Diffusion Models with Occlusion Handling for Facial Landmark Detection
英文姓名：曾家祐、侯博軒
指導教授：林彥宇教授
專題介紹：

　　人臉特徵點偵測（Facial Landmark Detection, FLD）的目的是檢測人臉影像上的特定關鍵點。準確的人臉關鍵點檢測對於許多應用至關重要，包括人臉識別、表情分析和虛擬實境等。在我們的研究中，通過將處理期望的面部關鍵點的擴散模型（diffusion models）進行條件化。我們充分利用擴散模型在處理噪聲樣本方面的優勢，從而恢復正確的關鍵點，同時訓練我們的模型能夠識別從錯誤關鍵點到正確人臉關鍵點位置的反向過程。擴散模型在恢復噪聲樣本方面表現出色。因此，我們提議探索其在處理當前 FLD 方法中因人臉影像遮蔽引起的檢測誤差的可能性。我們的模型具有改進錯誤人臉關鍵點的能力，最終可以作為所有 FLD 方法的精煉器。

佳作

專題題目：Video Change Detection via Transformer-Based Architecture
學生姓名：文玠敦、馬楷翔、莊書杰
指導教授：陳冠文教授
專題介紹：

　　我們的專案探討了使用基於 Transformer 的模型 TransCD 來檢測影片中的變化。與傳統方法需要在時間和空間維度上都進行對齊不同，我們的方法僅對齊時間維度，從而在光線不足和視角極端變化等高難度條件下提升了性能。我們實施了自適應幀搜尋技術，以動態對齊幀，並使用微調技術來調整模型權重以提高準確性。我們的結果顯示，這種方法不僅提高了效率，同時保持了高品質的檢測效果，展示了 Transformer 架構在推進影片分析技術的潛力。

佳作

專題題目：Designing Fixed-Point Transcendental ISAs for Heterogeneous TinyML Acceleration
學生姓名：蔡承翰、范均宏
指導教授：葉宗泰教授
專題介紹：

　　這個專案設計了定點數先驗指令集架構（ISA），旨在提升 RISC-V CPU 上的 TinyML 性能，主要聚焦於 MobileViT 模型。通過將複雜操作分解為基本組件，並實作專門的 ISA 和設計對應的硬體單元，我們實現了顯著的加速。我們使用 CFU-Playground 平台在 NEXYS A7-100T FPGA 板上進行測試，發現在 TensorFlow Lite for Microcontrollers（TFLM）核心中，我們的自定義指令使得 MobileViT 模型推理速度比基準 CPU 快了 1.56 倍。相比於傳統的查找表（LUT）方法，我們的方法提供了更大的靈活性和記憶體效率，支持多種激活函數而無需硬體修改。

佳作

專題題目：Video Deblurring and Interpolation with Motion-Aware Transformer
學生姓名：朱致伶
指導教授：林彥宇教授
專題介紹：

　　我們提出了一個創新的運動感知的 Transformer 模型，用於同時進行視頻去模糊和插幀的雙重任務。該模型通過從多個模糊圖像中恢復高幀率且清晰的視頻，有效解決了運動模糊問題。運動模糊是由於曝光過程中物體的持續運動所造成的。為了解決這個問題，我們的運動感知 Transformer 模型充分利用了時間資訊，通過在視頻中多個連續模糊幀間共享 Intra-Motion 和 Inter-Motion 提示來實現。這些運動提示記錄了像素運動的大小和方向。Intra-Motion 提示捕捉單個模糊幀內的像素運動，而 Inter-Motion 提示則捕捉相鄰模糊幀間的像素運動。我們使用類似 UNet 的運動元素提取器 (motion extractor) 來預測這些運動提示，並將其輸入到視頻去模糊和插幀的 Transformer 中，從而降低了這些任務的複雜性並提升了模型性能。我們的研究表明，所提出的運動元素提取器顯著提升了視頻去模糊和插幀任務的效果。我們將持續改進運動提示在視頻去模糊和插幀 Transformer 模型中的整合與應用。

佳作

專題題目：BEVGaussian: Generate Scene-level 3D Gaussian from BEV image
學生姓名：李杰穎
指導教授：劉育綸教授
專題介紹：

　　在本研究中，我們的目標是從鳥瞰圖（BEV）圖像中生成場景級的 3D 高斯分佈，包括衛星圖像、 高度圖和語義圖。現有的方法僅限於物件等級的生成，無法產生場景級的三維高斯分佈。為了解決這個問題，我們利用現有的物件生成技術，從 BEV 圖像中創建高品質的 3D 高斯分佈，然後將這些物件整合到場景中。我們的方法不需要訓練，並且通過使用 BEV 圖像作為輸入，可以輕鬆地修改三維場景。

Students Excel in Computer Science Project Competition

The Computer Science project is a crucial mandatory course in NYCU's Computer Science Department. Students voluntarily enter project competitions, where they collaborate and observe each other's work, highlighting the department's diverse and substantial research achievements. This experience also fosters greater cohesion among Computer Science students. Below, we introduce the award-winning projects:

Excellence Award

Project Title: Designing Area-Efficient Ray-Triangle Intersection Hardware Unit in GPU RT-Core

Student: Yu-Lun, Ning

Advisor: Dr. Tsung-Tai Yeh

Project Introduction:

This project focuses on the resource-consuming ray-triangle intersection unit within the GPU RT-core. We broken down the Moller-Trumbore intersection algorithm into three stages. Through a sieve-like hardware design, each stage eliminates triangles that may not intersect to reduce the need of hardware in subsequent stages to decrease the overall area. Our method achieves an area advantage in FPGA synthesis, and the performance loss is acceptable. We have also designed the intersection unit to comply with the AXI4 protocol, partially integrating it into system includes Xilinx's AXI4 cache, and verified it using the Genesis ZU FPGA platform.

First-Class Award

Project Title: Research on Predictive Networks Based on Multivariate Short Time Series Inputs and Transformer Architecture

Students: Lai Yi-Xuan, Yang Chien-Hua, Wu Yi-Jing

Advisor: Dr. Ching-Chun Huang

Project Introduction:

With advancements in time series forecasting technology, Transformer-based models have demonstrated impressive performance in predicting tasks involving long time sequences. However, their performance in short-term sequence forecasting still falls short. This may be due to the model architecture's limitations in effectively capturing features of short sequences, thus restricting prediction accuracy. To enhance the performance of Transformer-based models in

short-term sequence forecasting, we optimize the state-of-the-art (SOTA) Crossformer model with the following improvements: Firstly, we introduce ProbSparse Self-attention, which refines the original Crossformer Router mechanism. By performing

preliminary filtering on the Query matrix before calculating the Attention Scores, we retain only the important Query values, enabling the model to make more accurate predictions based on significant features. Secondly, we introduce Mixture of Experts (MoE) to handle the diverse distribution of input data and the varied characteristics of time series. MoE utilizes different Feed Forward Networks (FFNs) experts to process distinct features within the sequence while accommodating multivariate data, allowing information to be processed by multiple FFNs to improve the model's adaptability. These enhancements enable the model to more effectively handle local features in short-term sequences, thereby improving prediction accuracy on both small datasets (ILI) and large datasets (ETTh1).

First-Class Award

Project Title: Learning Diffusion Models with Occlusion Handling for Facial Landmark Detection

Students: Bosyuan Hou, Chiayu Tseng

Advisor: Dr. Yen-Yu Lin

Project Introduction:

Facial landmark detection(FLD), aims to detect specific key points on facial images. The accurate detection of facial landmarks is essential for many applications, including face recognition, expression analysis, and virtual reality.

In our work, we propose to adapt a new approach towards handling the task of FLD, by conditioning diffusion models on the desired facial landmark points. We utilize the strength of diffusion model learning to recover correct key points from noisy samples, and train our model to recognize the backward process from erroneous key points to correct facial landmark locations.

Diffusion models yield a strong performance on recovering noisy samples. Therefore, we propose to explore its potential on dealing with detection error in current FLD methods caused by facial image occlusion. Our model has the ability to refine erroneous facial landmarks, and eventually act as a refiner for all FLD methods.

Merit Award

Project Title: Video Change Detection via Transformer-Based Architecture

Students: Kai-Siang Ma, Shu-Chieh Chuang, Chieh-Dun Wen

Advisor: Dr. Kuan-Wen Chen

Project Introduction:

Our project explores the use of TransCD, a transformer-based model, to detect changes in videos. Unlike traditional methods that require alignment in both temporal and spatial dimensions, our approach aligns only the temporal dimension, enhancing performance under challenging conditions like poor lighting and extreme viewpoint changes. We implemented adaptive frame search to dynamically align frames and fine-tuning techniques to adjust model weights for better accuracy. Our results show that this method not only improves efficiency but also maintains high detection quality, demonstrating the potential of transformer architectures in advancing video analysis technology.

Merit Award

Project Title: Designing Fixed-Point Transcendental ISAs for Heterogeneous TinyML Acceleration

Students: Cheng-Han Tsai, Chun-Hong Fan

Advisor: Dr. Tsung-Tai Yeh

Project Introduction:

This project designs fixed-point transcendental ISAs for enhancing TinyML on RISC-V CPUs, focusing on the MobileViT model. By decomposing complex operations into basic components and implementing specialized ISAs and designing a corresponding hardware unit, we achieve significant acceleration. Using the CFU-Playground platform on NEXYS A7-100T FPGA boards, our custom instructions in TensorFlow Lite for Microcontrollers (TFLM) kernels result in MobileVit model inference a speedup of 1.56X over the baseline CPU. Our approach offers greater flexibility and memory efficiency compared to traditional Lookup Table (LUT) methods, supporting multiple activation functions without hardware modifications.

Merit Award

Project Title: Video Deblurring and Interpolation with Motion-Aware Transformer

Students: Chu Chih Ling

Advisor: Dr. Yen-Yu Lin

Project Introduction:

We propose a novel Motion-Aware Transformer model for the dual task of video deblurring and interpolation. This model addresses motion blur by recovering high-frame-rate, clear videos from multiple blurry images, achieving both video deblurring and frame interpolation simultaneously. Motion blur in images is caused by the continuous movement of objects during exposure. To address this, our Motion-Aware Transformer fully utilizes temporal information through Intra-Motion and Inter-Motion Prompts, shared among multiple consecutive blurry images in videos. The motion prompts store the magnitude and direction of pixel motion. The Intra-Motion Prompt captures pixel motion within a single blurry frame, while the Inter-Motion Prompt captures pixel motion between adjacent blurry frames. By predicting motion prompts with a UNet-like motion extractor and using these prompts as input to the video deblurring and interpolation transformer, we reduce the complexity of these tasks and improve model performance.

Our work demonstrates that the proposed motion extractor significantly enhances the performance of video deblurring and interpolation tasks. We are continuing to improve the blending and utilization of motion prompts in the video deblurring and interpolation transformer model.

Merit Award

Project Title: BEVGaussian: Generate Scene-level 3D Gaussian from BEV image

Students: Jie-Ying Lee

Advisor: Dr. Yu-Lun Liu

Project Introduction:

In this work, we aim to generate scene-level 3D Gaussians from bird's-eye view (BEV) images, including satellite images, heightmaps, and semantic maps. Existing methods are limited to object-level generation and cannot produce scene-level 3D Gaussians. To address this, we leverage existing object generation techniques to create high-quality 3D Gaussians from BEV images and then integrate these objects into the scene. Our approach is training-free and allows for easy modification of the 3D scenes by using BEV images as input.

資工系學生 曾士珍：
對資訊與程式設計充滿熱情

文／鍾乙君

本院資工系學生曾士珍的名字，因她參加知名 YouTube 節目「Dcard 調查局」而在大學生群體中引起討論。當時，她在節目中幽默地分享了自己參加國語演講比賽的經歷，憑藉獨特的吐槽風格和冷面幽默，迅速吸引了大量網友的關注。這段有趣的故事成為她踏入大眾視野的契機，然而，在節目之外，曾士珍還是一位對資訊與程式設計充滿熱情的學生。

從資訊社團到程式設計的興趣

談及她對資訊與程式的興趣，曾士珍笑著回憶說：「其實我對資訊的興趣是從爸爸來的，爸爸是那個資訊老師然後他就是有教一些比較基礎的東西，但是沒有教到太難。國中就是認真念書，直到我高中的時候才剛好參加了程式類社團。」當時，她在新竹女中加入了校內的程式設計社，並在其中學習了基礎的程式設計，這為她後來參加 APCS 考試打下了良好的基礎。她表示，這段經歷讓她逐漸愛上了程式設計，也促使她在大學選擇了資工系。

曾士珍特別提到高中時參與了交大與清華合辦的「資訊之芽」計畫，這項針對資訊與演算法的課程不僅讓她獲得了更多實作經驗，也讓她更深入理解了程式語言的邏輯。「我高一時學了 C++ 的基礎語法，高二則選修了演算法的進階課程，這些知識在我後來的學習中幫助很大。」她分享在他的學習過程中，蠻多基礎的資訊知識都是在這個課程學會的，台大也有開這個課程，許多資質優異的選手都是透過這個課程培養出來的，也鼓勵想精進程式設計的同學一同去磨練與學習新知。

大學生活中的多元參與

進入陽明交通大學資工系後，曾士珍的學習與活動並行，她不僅專注於課業，也積極參加系內外的活動。她與同學們一起組織宿營，透過籌辦活動聯絡感情，並在多屆學長姊的傳承經驗下，深刻感受到資工系中前後輩之間的深厚連結。他認為資工系上有許多傳承的活動，讓他感受到大家共同創造的回憶，不僅僅是學習的成果，也是一種屬於資工系的認同感來源。

除了參與系內活動，曾士珍還積極參加了陽明交大與清華大學聯合舉辦的梅竹黑客松。她加入了開發部，負責架設黑客松的報名網頁，將資工系所學的技術實際應用於這場大型競賽中。這次參與不僅讓她有機會拓展人脈，也使她能夠運用專業知識協助專案完成，並在實踐中提升技能。此外，她還學會了如何在團隊中有效合作，並認為這對她未來的發展非常有幫助。

課業與活動的平衡：多元發展的挑戰

除了程式競賽和系內外活動，曾士珍也提到在大學生活中，如何平衡課業與活動是一大挑戰。「資工系的課程其實很繁重，尤其是一些核心必修課像是線性代數這類數學相關的科目，不僅需要花大量時間理解，也需要反覆練習才能掌握。」她透露，自己上學期在修習線性代數時表現出色，還獲得了系上提供的獎學金，該獎學金專門發放給課程成績位於前 5% 的同學。這對她來說，不僅是對學習努力的肯定，也是一種鼓勵她繼續精進的動力。

她表示，雖然課業壓力不小，但透過合理的時間規劃和對每一項活動的投入，她也逐漸找到了適合自己的學習節奏。「課堂上的學習固然重要，但參加活動也能學到很多課本以外的東西，例如溝通能力、團隊合作和組織策劃，這些都是我覺得大學生活裡非常寶貴的經驗。」她坦言，平衡學業與活動雖不容易，但兩者的交織讓她的大學生活更具意義。

展望未來：程式競賽的挑戰與成長

對於未來，曾士珍有著清晰的目標。她計劃參加更多的程式競賽，例如國際性的 ICPC 競賽，來進一步提升自己在實作與團隊合作方面的能力。她認為，大學與高中最大的不同在於，程式競賽多以團隊形式進行，需要共同討論、解決問題，這種合作模式讓她覺得非常有趣。「我很幸運在大學裡找到了一群志同道合的朋友，未來也打算繼續加強訓練，參加更多這類型的競賽。」曾士珍的故事展現了她如何在幽默與專業中找到平衡，從演講比賽到程式競賽，她不僅在大眾面前展現了風趣的一面，更以紮實的實力在學業與活動中取得佳績。她的多元經歷和持續的努力，讓我們看到了這位年輕資工系學生的無限潛力，不僅在課業和活動中平衡自如，也以她的努力和天賦，塑造出了一個全面發展的資工系學生形象。

Meet Shih-Chen Tseng:
A CS Student Passionate about Computer Science and Programming

Shih-Chen Tseng, a student from the Computer Science department, has gained attention from college students after appearing on the popular YouTube show "Dcard Investigation Bureau." In the episode, she humorously recounted her experiences in a Mandarin speech contest, captivating a large online audience with her distinctive humor and deadpan delivery. This entertaining narrative marked her entrance into the public eye. However, beyond her television debut, Tseng remains a dedicated and passionate student committed to computer science and programming.

From Involvement in CS Clubs to a Passion for Programming

Reflecting on her interest in computer science and programming, Tseng smiled as she shared, "My passion for computer science comes from my dad. He's a computer teacher who introduced me to some basic concepts, although nothing too advanced. In middle school, I was primarily focused on my studies, but in high school, I joined a programming club." At Hsinchu Girls' High School, she became an active member of the programming club, where she developed fundamental programming skills that laid a strong foundation for her later participation in the APCS exam. She noted that this experience gradually ignited her love for programming and significantly influenced her decision to major in Computer Science in college.

Tseng highlighted her involvement in the "Sprout" program, jointly organized by National Chiao Tung University and National Tsing Hua University during high school. This program focused on programming syntax and algorithms, providing her with valuable hands-on experience and deepening her understanding of programming logic. "In my first year in high school, I learned the fundamentals of C++. In my second year, I took an advanced course in algorithms. This knowledge has been incredibly beneficial in my subsequent studies," she noted. She emphasized that much of her foundational knowledge in computer science originated from this program. National Taiwan University also offers similar courses, where many talented students have honed their skills. She encourages anyone interested in enhancing their programming abilities to learn and explore new knowledge together.

Engaging in Diverse Activities at University

Upon joining the Computer Science Department at National Yang-Ming Chiao Tung University, Tseng effectively balanced academics and extracurricular pursuits. She dedicated herself not only to her coursework but also to engaging in extracurricular events. Together with her classmates, she organized camping trips, which helped strengthen their connections through collaborative planning. Drawing on experiences shared by senior students, she developed a deep appreciation for the strong relationships between juniors and seniors within the department. Tseng believes that the many traditions in the Computer Science Department foster shared memories, contributing not only to academic success but also to a unique sense of identity among its members.

Tseng actively participated in the Mei-Zhu Hackathon, a collaborative event between National Yang Ming Chiao Tung University and National Tsing Hua University, in addition to her involvement in departmental activities. As a member of the development team, she was responsible for creating the registration website for the hackathon, drawing on the technical skills she gained in the Computer Science Department. This opportunity not only expanded her professional connections but also allowed her to apply her knowledge to successfully complete the project, significantly enhancing her skills through practical experience. Moreover, she refined her collaborative abilities, recognizing their importance for her future career.

Balancing Academics and Activities: Navigating the Challenge of Diverse Growth

Tseng is involved in programming competitions and various extracurricular activities. She mentioned that balancing academics with these commitments can be challenging in university life. She also noted that coursework in the Computer Science Department, especially core subjects like linear algebra, can be demanding, requiring substantial time to understand and practice to master. Last semester, she excelled in linear algebra and received a scholarship from the department for ranking in the top 5% of students. Tseng views this recognition not only as validation of her hard work but also as motivation to continue striving for improvement.

She stated that although the academic workload is considerable, she has gradually found a learning rhythm that works for her through effective time management and her commitment to each activity. " While learning in the classroom is important, participating in activities allows me to gain many skills beyond textbooks, such as communication, teamwork, and organizational planning. These are invaluable experiences in university life." She admitted that balancing academics and extracurriculars is not easy, but the interplay between the two has made her university experience more meaningful.

Challenges and Growth in Programming Contests

Tseng has a clear vision for her future. She aims to participate in more programming competitions and various extracurricular activities. She aims to participate in more programming competitions, including the international ICPC contest, to further develop her skills in implementation and teamwork. She notes that the primary distinction between college and high school is that programming competitions are typically team-based, requiring collaborative discussion and problem-solving, which she finds highly engaging. "I'm fortunate to have connected with a group of like-minded friends at university, and I plan to continue honing my skills and participating in more competitions like these." Tseng's journey highlights her ability to balance humor with professionalism. From speech contests to programming competitions, she has not only showcased her wit in public settings but also achieved impressive results in her academic and extracurricular pursuits through her strong skills. Her diverse experiences and persistent efforts reveal the tremendous potential of this young computer science student, who skillfully navigates both her studies and activities, crafting a well-rounded identity as a future computer science professional.

國際會議激發專業領域的探索熱情

文稿整理／鍾乙君

2024 年，資訊學院的學生們積極參加了多場國際頂尖學術會議，包括國際機器學習大會 (ICML)、SIGGRAPH 2024 以及國際計算機視覺大會（CVPR）。這些活動為學生提供了展示科學研究成果並與全球頂尖學者交流的寶貴平台，同時也激發了他們在專業領域的探索熱情。

在這些會議中，學生們針對機器學習、強化學習、計算機視覺、虛擬實境等前沿科技議題發表了創新研究，並藉由面對面的深入交流，吸收了來自不同領域的見解和建議。這些參與經歷讓他們不僅在知識層面有所提升，更使他們對學術研究有了更為全面的理解與規劃。以下幾位同學將分享他們在國際會議上的收穫與感想，展示這段成長經歷如何深化他們的研究視野並推動他們持續進步。

發表論文：Accelerated Policy Gradient: On the Convergence Rates of the Nesterov Momentum for Reinforcement Learning

作者：Yen-Ju Chen, Nai-Chieh Huang, Ching-Pei Lee, Ping-Chun Hsieh

指導教授：謝秉均老師

國際會議名稱：International Conference on Machine Learning (ICML 2024)

該會議重要性： International Conference on

Machine Learning (ICML) 是人工智慧領域中最具影響力的學術會議之一。ICML 聚集了來自全球的研究人員和專家，展示最新的機器學習理論、技術和應用，其子領域包含深度學習、強化學習、自然語言處理等，並為學界與業界提供了一個交流和合作的平台。ICML 的研究發表往往代表著人工智慧發展的前沿，對推動技術突破、創新應用以及塑造未來發展方向有著深遠影響。ICML 2024 一共審核了 9473 篇人工智慧相關研究，其中 2609 篇被接受，接受率為 27.5%。

黃迺絜同學心得： 感謝謝秉均教授的指導，這篇論文我們回答了一個在強化學習中很有趣的理論問題：Nesterov momentum 可否在強化學習中加速 policy gradient (PG) 呢？我們的結果對於這個問題是肯定的。我們發現目標函數在最佳策略的附近時會幾乎是凹的性質，這在最佳化領域中是非常好的性質，使我們能夠證明 Nesterov momentum 是可以顯著地加速 PG 的。很榮幸這份研究能夠被 ICML 接受。參與會議使我受益良多，不只能夠看到各式各樣的頂尖研究，更能面對面與各種領域大佬交流討論，實在非常享受！

發表論文：Enhancing Value Function Estimation through First-Order State-Action Dynamics in Offline Reinforcement Learning

作者：Yun-Hsuan Lien, Ping-Chun Hsieh, Tzu-Mao Li, Yu-Shuen Wang

指導教授：王昱舜老師、謝秉均老師

國際會議名稱：國際機器學習大會 (International Conference on Machine Learning, ICML)

該會議重要性： ICML 係頂級人工智慧會議，ICML 2024 共收到 9653 份投稿，其中 2609 份被接收，接收率約為 27.03%。

連云暄同學心得： 本次參加 2024 年 ICML 會議發表之論文係解決了離線強化學習中價值函數估計的關鍵問題，利用 Hamilton-Jacobi-Bellman（HJB）方程和一階一致性來改進值函數估計，創新性地結合了連續時間與離散時間的強化學習方法，顯著提高了模型表現。透過本次研究發表，我們有機會在會議上與許多研究學者討論，會議結束回台，將後延續會議中的討論，著手新的國際合作計畫，持續深耕強化學習研究領域。

發表論文：BoostMVSNeRFs: Boosting MVS-based NeRFs to Generalizable View Synthesis in Large-scale Scenes

作者：Chih-Hai Su, Chih-Yao Hu, Shr-Ruei Tsai, Jie-Ying Lee, Chin-Yang Lin, Yu-Lun Liu

指導教授：劉育綸老師

國際會議名稱：Special Interest Group on Computer Graphics and Interactive Techniques, (SIGGRAPH 2024)

該會議重要性： SIGGRAPH 是計算機圖形學和互動技術領域的國際頂尖會議。研討會涵蓋了計算機圖形學、虛擬現實、動畫、視覺特效、3D 建模等前沿技術領域。作為全球計算機圖形學領域頂尖研究者、藝術家和工程師匯聚的重要平台，通過學術交流、技術展示和創新競賽，推動了圖形學技術的創新與應用，並促進了這些技術在娛樂、設計、醫療和教育等行業的廣泛商業化應用。

蘇智海同學心得： 感謝劉育綸老師的悉心指導

與其他同學的共同努力，以及女朋友在我專心研究期間的諒解。我很榮幸在大學期間能夠投稿並參加 SIGGRAPH。我們研究了 Neural Radiance Fields (NeRFs) 的立體場景重建，改進現有方法，並幸運地被會議接受為口頭發表。這次研究與會議經歷使我受益於豐富的學術資源和實驗室設備，並結識了來自世界各地的學者，拓展了人際網絡。我希望以此為起點，未來能再次登上國際舞台，為學術界作出更多貢獻。

發表論文：MCPNet: An Interpretable Classifier via Multi-Level Concept Prototypes

作者： Bor-Shiun Wang, Chien-Yi Wang, Wei-Chen Chiu

指導教授：邱維辰老師、王建諭老師

國際會議名稱：IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR), 2024

該會議重要性： CVPR(Computer Vision and Pattern Recognition) 是計算機視覺領域最具影響力的國際會議之一，因其在學界和工業界的高度認可而具有重要性。它不僅是頂尖研究人員展示最新研究成果的平台，還推動了許多關鍵技術的發展，如圖像分類、物體檢測、深度學習等。

今年 CVPR 收到了 11532 篇投稿，並最後接受了 2719 篇，僅有 23.6% 的接受率，為電腦視覺領域中最頂尖的會議之一。

王柏勛同學心得： 我十分榮幸能夠讓我的研究被 CVPR 接受，這對我的學術旅程來說是一個重要的里程碑。首先，我想表達對邱維辰老師和王建諭老師的深深感謝，正是他們的悉心指導與支持，才讓我有機會站上這樣的國際舞台。在會議中，我有幸接觸到來自不同領域的前沿研究，無論是主題演講還是專題研討，都是一次次激發思維的寶貴學習機會。最令人滿足的是，我能順利展示我的研究成果，並與參觀的學者進行深入交流，從中獲得了許多具有啟發性的建議和反饋。

International Conference Ignites Passion for Exploration in Professional Fields

In 2024, students from the College of Computer Science actively engaged in several prestigious international conferences, such as the International Conference on Machine Learning (ICML), SIGGRAPH 2024, and the Computer Vision and Pattern Recognition Conference (CVPR). These events offered students invaluable opportunities to present their research, connect with top scholars globally, and fuel their enthusiasm for exploration in their professional fields.

At these conferences, students showcased groundbreaking research on advanced topics such as machine learning, reinforcement learning, computer vision, and virtual reality. Engaging in face-to-face, in-depth discussions with leading experts, they gained valuable insights and constructive feedback from diverse academic fields. These experiences deepened their knowledge and enriched their understanding of research, helping them develop a more strategic and holistic perspective. The students below share their key takeaways and reflections from these international conferences, illustrating how this transformative experience has expanded their research horizons and fueled their future academic growth.

Title: Accelerated Policy Gradient: On the Convergence Rates of the Nesterov Momentum for Reinforcement Learning

Authors: Yen-Ju Chen, Nai-Chieh Huang, Ching-Pei Lee, Ping-Chun Hsieh

Advisor: Professor Ping-Chun Hsieh

International Conference: International Conference on Machine Learning (ICML 2024)

The Significance of the Conference: The International Conference on Machine Learning (ICML) is one of the most influential academic conferences in the field of artificial intelligence. ICML brings together researchers and experts from around the world to showcase the latest theories, techniques, and applications in machine learning, covering subfields such as deep learning, reinforcement learning, and natural language processing. It provides a platform for collaboration and exchange between academia and industry. Research presented at ICML often represents the forefront of AI development, playing a crucial role in driving technological breakthroughs, innovative applications, and shaping the future direction of the field. Following a meticulous review process, 2,609 papers were deemed worthy of acceptance, resulting in an overall acceptance rate of 27.5%.

The Experience of Nai-Chieh Huang: I want to express my sincere gratitude to Professor Ping-Chun Hsieh for his invaluable guidance. This paper tackles an intriguing theoretical question in reinforcement learning: Can Nesterov momentum accelerate policy gradient (PG)? Our results provide a definitive affirmative answer. We found that the objective function exhibits near-convexity around the optimal policy, a highly desirable property in optimization. This insight enabled us to demonstrate that Nesterov momentum can significantly accelerate PG. We are honored that ICML accepted our work. Participating in the conference was a great and rewarding experience—it allowed me to explore a wide range of cutting-edge research and provide opportunities to engage in meaningful, face-to-face discussions with leading experts across various fields. It was truly a highly enriching experience!

Title: Enhancing Value Function Estimation through First-Order State-Action Dynamics in Offline Reinforcement Learning

Authors: Yun-Hsuan Lien, Ping-Chun Hsieh, Tzu-Mao Li, Yu-Shuen Wang

Advisor: Professor Yu-Shuen Wang and Professor Ping-Chun Hsieh

International Conference: International Conference on Machine Learning, ICML

The Significance of the Conference: ICML is a top-tier artificial intelligence conference. For ICML 2024, a total of 9653 submissions were received, of which 2609 were accepted, yielding an acceptance rate of approximately 27.03%.

The Experience of Yun-Hsuan Lien: The paper presented at the 2024 ICML conference addressed a critical issue in offline reinforcement learning: the estimation of the value function. It innovatively integrated continuous-time and discrete-time reinforcement learning methods using the Hamilton-Jacobi-Bellman (HJB) equation and first-order consistency to enhance value function estimation, significantly improving model performance. Through this research presentation, we had the opportunity to discuss with many researchers at the conference. After returning to Taiwan, we will continue the discussions from the conference and initiate new international collaboration projects, further advancing our research in the field of reinforcement learning.

Title: BoostMVSNeRFs: Boosting MVS-based NeRFs to Generalizable View Synthesis in Large-scale Scenes

Authors: Chih-Hai Su, Chih-Yao Hu, Shr-Ruei Tsai, Jie-Ying Lee, Chin-Yang Lin, Yu-Lun Liu

Advisor: Professor Yu-Lun Liu

International Conference: Special Interest Group on Computer Graphics and Interactive Techniques, (SIGGRAPH 2024)

The Significance of the Conference: SIGGRAPH is a premier international conference in computer graphics and interactive techniques. It explores cutting-edge topics such as computer graphics, virtual reality, animation, visual effects, and 3D modeling. As a crucial platform for bringing together leading researchers, artists, and engineers from around the globe, SIGGRAPH drives innovation in graphics technologies through academic exchanges, technical demonstrations, and creative competitions. Additionally, it plays a pivotal role in advancing the commercialization of these technologies across diverse industries, including entertainment, design, healthcare, and education.

The Experience of Chih-Hai Su: I want to thank Professor Yu-Lun Liu for his insightful guidance, my classmates for their collaborative efforts, and my girlfriend for her understanding and support during my intensive research period. It is a great honor to have had the opportunity to submit and present at SIGGRAPH during my time at university. Our research focused on improving 3D scene reconstruction using Neural Radiance Fields (NeRFs), and we were fortunate to have our work accepted for an oral presentation at the conference. This experience has granted me access to valuable academic resources, the latest laboratory facilities, and opportunities to connect with scholars from around the globe, thus broadening my professional network. I hope this presentation marks the beginning of my journey, and I look forward to returning to the international stage to make further contributions to the academic community.

Title: MCPNet: An Interpretable Classifier via Multi-Level Concept Prototypes

Authors: Bor-Shiun Wang, Chien-Yi Wang, Wei-Chen Chiu

Advisors: Professors Wei-Chen Chiu and Chien-Yi Wang

International Conference: IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR), 2024

The Significance of the Conference: CVPR (Computer Vision and Pattern Recognition) is one of the most influential international conferences in the field of computer vision, highly regarded by both academia and industry. It serves as a key platform for top researchers to showcase their latest findings, while also driving the development of critical technologies such as image classification, object detection, and deep learning. This year, CVPR received 11,532 submissions and accepted only 2,719 papers, resulting in an acceptance rate of just 23.6%, making it one of the most prestigious conferences in the computer vision domain.

The Experience of Bor-Shiun Wang: I am truly honored that my research has been accepted by CVPR, marking a significant milestone in my academic journey. First and foremost, I want to express my deep gratitude to Professor Wei-Chen Chiu and co-advisor Chien-Yi Wang, whose dedicated guidance and support have given me the opportunity to present on such an international stage. During the conference, I had the privilege of engaging with cutting-edge research from various fields, and both the keynote speeches and specialized workshops provided invaluable opportunities for intellectual stimulation. What brought me the most satisfaction was successfully presenting my research and engaging in in-depth discussions with scholars, receiving many insightful suggestions and feedback.

112 學年度資工系畢業典禮
畢業生代表林宇柔同學致詞

文／資工系 林宇柔

院長、主任、各位老師、各位來賓以及各位同學，大家好！我是交大資工 113 級畢業生代表林宇柔，首先想感謝主任、系辦、以及 114 級的系學會在百忙之中舉辦了這場小畢典，讓我們在今天和身邊的親友、師長、還有一些你已經三百年沒見的同學們齊聚一堂。請大家給舉辦活動的工作人員們一個掌聲，剛剛的那個掌聲也是送給各位，恭喜大家度過了一段雖然有些歡笑但大部分都是淚水的旅程。

我們是最後一屆進入交通大學而不是陽明交通大學的學生，我們的這四年有一半都是戴著口罩度過的線上課程，別人說大學的三大學分—課業、社團、愛情，大家應該都被當過至少一個。尤其是國立陽明交通大學資訊工程學系的課業，超硬。學期開始我們總是滿懷熱血的填滿自己的課表，加簽看起來超屬害超難的課。三個禮拜後就會開始後悔，我為什麼不退選算了，我為什麼不休學算了。寫完作業得到的獎勵是下一個作業，所有作業寫完得到的獎勵是 Final Project。我們看了無數次日出，感受到人生是如此漫長，因為學期好像完全沒有盡頭，又發現人生是那麼短暫，怎麼今天晚上就是 Deadline 了。最後體會人生總是驚人的相似，你下個學期還是學不會教訓，還是把 SA 放進你的課表。

謝謝一路上各位教授對我們能力的信任，讓我們第一次發現，原來人就算三天不睡覺也不會死。謝謝和我們一起一邊哀號一邊寫作業的同學，還有那些跟你一樣不會寫但是會陪你熬夜後去吃醫院的 Homie。最後，也要謝謝在我們身邊不離不棄的 ChatGPT，沒有你的出現不會有今天順利畢業的我們。

這樣回想起來，這一路上絕對不輕鬆，但也絕對不孤單。謝謝曾經給予我們幫助的所有人，謝謝那些愛我們的人，謝謝那些無腦支持我們的人，謝謝那些儘管忠言逆耳還是告訴我們實話的人。如果他們在現場，想請大家用自己的方式向他們表達感謝。如果他們已經不在我們身邊，希望你今天都能在心中想起他們。世界上最偉大的詩人泰勒絲薇夫特曾經說過：「We are never ever getting back together Like ever」在今天過後，我們很有可能根本就不會再見面，從古至今很多人用不同的方式比喻大學生活，我認為大學這四年就像是一個巨大的台北車站。除了複雜的動線，還有一堆不清不楚的標示。第一次來的時候，除了一些電神一到站就看透了整個車站的配置，就是有像我們這種都要離開了還是不知道怎麼從捷運走到高鐵的白痴。不過幸好，我們在這四年遇見好多陪我們一起迷路的白痴，我們搭乘不同的交通工具抵達這個車站，在一個剛好的時間、地點、狀態，遇見了正在等車的彼此，而無論是透過什麼樣的運輸方式，我們都將在各自的人生路途中繼續向前。在一起等車的某一天，開始有人搭上屬於他的那班火車，離開這個轉運站，有人突然把客運的票退掉，說要搭機捷去桃園機場。我們都在那一刻終於發現，要和熟悉的人從此分道揚鑣是多麼容易的事情。我們因此害怕分離，我們因此給予祝福，我們笑著回首發生過的一切，我們學會珍惜還在身邊的人以及和他們相處的每個瞬間。

上大學後的一切變得很自由，要修什麼課，要跟誰交際，要做什麼事都掌控在自己手上。但這份自由或許也讓我們感到迷茫，自己想要什麼，喜歡什麼，未來想做什麼，想過什麼樣的生活。我們寫程式的同時也在幫自己的人生Debug，透過一連串的 Trial and Error，我們才能真正清楚哪些是自己要的。好比說一個人可以為了喜歡的女生在餐桌上伏地挺身，可以同時跟三個女生約會，回高雄都去夜店，也可以浪子回頭幸福肥到 95 公斤。在這一個找尋自己的過程中，有些人很幸運地找到了，有些人還在找，就算還沒找到也沒關係。每個人都在自己的時區努力著，發生過的一切都不會是徒勞，但也不要被過去與既定的價值限制，只要心裡有目標也願意付出與改變。相信我們都能夠成為自己理想中的樣子，祝我們都能在各自的時區保持熱情、保持善良，畢業快樂，謝謝大家。

2024 CS Graduation Ceremony
Graduate Yu-Rou Lin Delivers a Graduation Speech

Ladies and gentlemen, esteemed Chair, faculty members, and fellow classmates, my name is Yu-Rou Lin, and I am representing the Class of 113 from the Computer Science Department at National Chiao Tung University. I want to express my sincere gratitude to the Chair, the administration office, and the CS Student Association for organizing this heartfelt graduation ceremony. Despite their busy schedules, their hard work has made it possible for us to gather here today with our families, mentors, and old friends. Let's give a round of applause to the organizers of this event. May this applause also reflect our appreciation for everyone present. Congratulations on persevering through a journey that, though marked by a few moments of laughter, was largely filled with challenges and tears.

We are the last cohort to have entered National Chiao Tung University, before it became National Yang Ming Chiao Tung University. During half of our four years, we attended online classes while wearing masks. As they say, the three main aspects of university life— academic studies, student clubs, and romance— have likely posed challenges for everyone. The courses at the Computer Science department of NYCU are particularly rigorous. At the start of each semester, we eagerly fill our schedules and attempt to enroll in challenging courses. However, three weeks later, regrets begin to surface: why didn't I drop that class, why didn't I take a break instead? Completing one assignment only leads to the next; finishing all assignments rewards us with the final project. We've watched countless sunrises, feeling like the semester would never end, only to realize its brevity when a deadline suddenly looms tonight. In the end, we've come to understand that life often repeats itself— next semester, we'll likely ignore the lessons learned and somehow still find time to squeeze SA into our schedules.

We extend our heartfelt gratitude to all the professors who believed in our potential, encouraging us to push our limits and discover that humans can indeed survive three days without sleep. We also want to thank our classmates who groan alongside us while tackling homework, as well as those who, despite struggling to complete their assignments, are always willing to stay up late with us for a late-night snack. Finally, we owe a special thanks to ChatGPT, whose unwavering support has been crucial in helping us achieve our successful graduation today.

Looking back on this journey, it has been challenging but never lonely. I want to express my gratitude to everyone who has helped us, shown us love, supported us unconditionally, and given us tough but honest advice. For those here today, I encourage you to find your own way to thank them. For those who are no longer with us, may you keep them close to your hearts. As the great poet Taylor Swift once said, "We are never ever getting back together. Like ever." It's entirely possible that we may never meet again after today. Throughout history, many metaphors have been used to describe university life. To me, these four years at university resemble a sprawling Taipei Main Station. Beyond its complex layout, there are countless confusing signs. When we first arrived, some brilliant minds seemed to navigate the station's maze effortlessly upon stepping off the train, while others, like us who are about to depart, still struggle with finding our way from the MRT to the high-speed rail—we're complete novices in that respect. Fortunately, over these four years, we've encountered many fellow travelers who, like us, were once lost. We took different routes to reach this station and, at the right time, place, and circumstance, we met each other while waiting for our trains. Regardless of the route we took, we will continue on our individual paths. One day, as we waited together, some boarded their trains and left this transit hub, while others unexpectedly changed their plans and took the airport MRT to Taoyuan. In that moment, we all came to understand how easily we can part ways with familiar faces. We faced the fear of separation, extended our blessings, reminisced with laughter about everything that happened, and learned to cherish those still beside us and every fleeting moment spent with them.

Life can be incredibly liberating once we enter college. We gain the autonomy to choose our courses, forge connections, and pursue activities that resonate with us. However, this newfound freedom can also bring uncertainty about our true desires, preferences, future aspirations, and the lifestyles we envision. As we delve into our studies, we are, in a sense, debugging our own lives. Through various trials and errors, we gradually gain clarity about what we genuinely want. For instance, someone might do push-ups at a dinner table to impress the girl he likes, date three girls simultaneously, spend nights partying at clubs upon returning to Kaohsiung, or even embark on a transformative journey and gain "happy fat" to reach a weight of 95 kilograms. In this journey of self-discovery, some individuals are fortunate enough to find what they seek, while others are still on their quest. It's perfectly okay if you haven't yet discovered your path. Each of us is navigating our own timeline, and every experience—whether good or bad— contributes to our growth. Don't let past experiences or societal pressures hold you back. If you have a goal in mind and are prepared to invest the effort and make necessary changes, I truly believe that we can all evolve into our best selves. Let's continue to nurture our passions and kindness as we navigate our individual journeys. Congratulations on your graduation, and thank you all!

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.

歡送莊仁輝教授退休

一、人事動態

◇ 自 113 年 8 月起，嚴力行教授擔任副院長、吳育松教授擔任資安所所長、黃敬群教授擔任國際資訊碩士班主任。

◇ 本院資訊工程學系莊仁輝教授於 113 年 8 月退休，莊老師曾任本院院長，積極推動英語增能計畫，為學院發展奠定良好基礎，請老師常回本系上與我們分享更多智慧。

二、國際交流

◇ 新加坡身兼 AICS 首席科學家和新加坡國立大學副教授 Robby Tan 博士於 2024 年 4 月 17 日至本系演講，講題為：「Deep Learning in Healthcare: Present and Future」。

◇ 美國伊利諾大學厄巴納 - 香檳分校 (University of Illinois at Urbana Champaign)iSchool 副院長 Stephen Downie 教授於 2024 年 4 月 24 日至本院演講，講題為：「Open Access Data for Open Community Development: A TORCHLITE Project Update」。

◇ 美國南加州大學 (University of Southern California)C. -C. Jay Kuo 教授於 2024 年 6 月 11 日至本系演講，講題為：「Workshop on Visual Data Coding, Standards, and Quality Assessment」。

◇ 德國漢諾威大學 (Leibniz University Hannover) Joern Ostermann 教授於 2024 年 6 月 16 日至本系演講，講題為：「MPEG Road Map on Audio, Video, Graphics, Genome, and Systems」。

◇ 德國阿亨工業大學 (RWTH Aachen University) Jens-Rainer Ohm 教授於 2024 年 6 月 16 日至本系演講，講題為：「Overview on JVET exploration activities」。

◇ 德國阿亨工業大學 (RWTH Aachen University) Mathias Wien 博士於 2024 年 6 月 16 日至本系演講，講題為：「MPEG Visual Quality Assessment for Emerging Video Coding Schemes」。

◇ 美國 Zetta AI CTO Sergiy Popovych 博士於 2024 年 6 月 24 日至本系演講，講題為：「A Cross-Cultural Journey: From NCTU to Princeton, and From Academy to AI-NeuroScience Startup」。

◇ 美國萊斯大學 (Rice University) Ashutosh Sabharwal 教授於 2024 年 7 月 2 日至本院演講，講題為：「Multipath Radar Imaging for Next-generation Wireless Networks」。

◇ 日本京都大學 (Kyoto University) Naomi Yamashita 教授於 2024 年 7 月 3 日至本系演講，講題為：「Designing Technologies for Overcoming Language Barriers」。

◇ 美國加利福尼亞大學河濱分校 (University of California, Riverside) K. K. Ramakrishnan 教授於 2024 年 8 月 12 日至本院演講，講題為：「Lessons learned from building Software-Based Networks and Networking for the Cloud」。

◇ 日本連續創業家 Sachio Semmoto 博士於 2024 年 8 月 15 日至本系演講，講題為：「How should we navigate the AI era?」。

◇ 美國印第安那大學 (Indiana University Bloomington) David J Crandall 教授於 2024 年 10 月 8 日及 9 日至本系演講，講題為：「Observing social interactions with egocentric computer vision」、「Human-centered Computer Vision」。

◇ 日本東京大學 (The University of Tokyo) Yukie Nagai 教授於 2024 年 10 月 8 日及 9 日至本系演講，講題為：「Embodied Predictive Processing: Unifying Cognitive Development in Humans and Robots」。

◇ 日本筑波大學 (University of Tsukuba) Taisuke Boku 教授於 2024 年 10 月 16 日至本院演講，講題為：「How the accelerated supercomputing makes the next era of computational sciences?」。

◇ 美國超微 (Supermicro) 技術部高級副總裁 (Senior Vice President of Technology)Tau Leng 博士於 2024 年 10 月 16 日至本院演講，講題為：「How the accelerated supercomputing makes the next era of computational sciences?」。

三 . 教師榮譽

◇ 曾新穆教授榮獲教育部第 68 屆學術獎！

◇ 曾新穆教授榮獲第 22 屆有庠科技論文獎！

◇ 劉育綸教授榮獲 2024 Google Research Scholar Award!

◇ 謝秉均教授榮獲 112 學年度傑出教學教師！

◇ 黃俊穎教授、蔡文錦教授榮獲 112 學年度優良教學教師！

◇ 林彥宇教授、陳奕廷教授、黃敬群教授榮獲 112 學年度績優導師獎！

◇ 莊榮宏教授榮獲 112 學年度特色課程獎 - 課程卓越獎！

◇ 彭文孝教授榮獲聯發科技前瞻研發中心產學合作傑出研究獎！

◇ 林彥宇教授榮獲聯發科技前瞻研發中心產學合作傑出研究獎！

四、學生榮譽

◇ 陳健、李奇育、陳志成教授指導許博勝、張哲睿、張建耀、李茵淇同學榮獲 2024 行動計算研討會最佳學生論文獎！

◇ 魏群樹教授指導張棋閔、王泊善、張硯菡、陳昱喬同學參與【敏求智慧運算學院第二屆智慧運算創新應用專題實作競賽】榮獲健康運算組銀獎！

◇ 黃敬群教授指導資工系孫宜君同學榮獲國家科學及技術委員會「112 年度大專學生研究計畫研究創作獎」！

◇ 林奕成教授指導鄭嘉雯、許振揚、李芷佳同學榮獲 2024 年電腦圖學研討會最佳論文獎！

◇ 詹力韋教授指導王家均、秘子尉同學榮獲台灣人機互動研討會 TAICHI 2024 Best Paper Award!

◇ 詹力韋教授指導秘子尉、薛仲皓、黃懿慈、許銘紘同學榮獲 ACM CHI 2024 Best Paper Award!

◇ 吳毅成教授指導施仲晉同學榮獲 2024 TCGA 電腦對局學會博士論文獎優等！

◇ 林彥宇教授指導學生吳佳豪同學榮獲 IPPR 第十七屆碩士論文佳作獎！

◇ 黃敬群教授指導學生洪湘惠同學榮獲 IPPR 第十七屆碩士論文佳作獎！

◇ 黃敬群教授、帥宏翰教授指導學生施孟成同學榮獲 IPPR 第十七屆碩士論文佳作獎！

◇ 邱維辰教授、劉育綸教授指導學生鄭伯俞同學榮獲 IPPR 第十七屆碩士論文佳作獎！

◇ 邱維辰教授指導學生秦紫頤同學榮獲 IPPR 第十七屆碩士論文佳作獎！

1. Personnel Changes

· Dr. Li-Hsing Yen was named Associate Dean of the College of Computer Science, NYCU, effective August 1st, 2024. Dr. Yu-Sung Wu has been appointed Director of the Institute

of Computer and Communications Security, effective August 1st, 2024. Dr. Ching-Chun Huang has been appointed Director of the International Graduate Program of the College of Computer Science, effective August 1st, 2024.

· Dr. Jen-Hui Chuang, Professor at the College of Computer Science, retired on August 1st, 2024. We thank him for his valuable contributions to promoting the bilingual program during his tenure as Dean of our college. We look forward to Professor Chuang's frequent visits to share his experiences with us.

2. International Collaboration

· Dr. Robby Tan, Chief Scientist at AICS and Associate Professor at the National University of Singapore, gave a lecture at our department on April 17, 2024. The topic was "Deep Learning in Healthcare: Present and Future."

· Professor Stephen Downie, Associate Dean at the School of Information Sciences at the University of Illinois at Urbana Champaign, USA, gave a lecture at our college on April 24, 2024. The topic was "Open Access Data for Open Community Development: A TORCHLITE Project Update."

· Professor C. -C. Jay Kuo from the University of Southern California, USA, gave a lecture at our college on June 11, 2024. The topic was "Workshop on Visual Data Coding, Standards, and Quality Assessment."

· Professor Joern Ostermann from the Leibniz University Hannover, Germany, gave a lecture at our department on June 16, 2024. The topic was "MPEG Road Map on Audio, Video, Graphics, Genome, and Systems."

· Dr. Jens-Rainer Ohm from RWTH Aachen University, Germany, gave a lecture at our department on June 16, 2024. The topic was "Overview on JVET exploration activities."

· Dr. Mathias Wien from RWTH Aachen University, Germany, gave a lecture at our department on June 16, 2024. The topic was "MPEG Visual Quality Assessment for Emerging Video Coding Schemes."

· Dr. Sergiy Popovych, CTO of Zetta AI, USA, gave a lecture at our department on June 24, 2024. The topic was "A Cross-Cultural Journey: From NCTU to Princeton, and From Academy to AI-NeuroScience Startup."

· Professor Ashutosh Sabharwal from Rice University, USA, gave a lecture at our college on July 2, 2024. The topic was "Multipath Radar Imaging for Next-generation Wireless Networks."

· Professor Naomi Yamashita from Kyoto University, Japan, gave a lecture at our department on July 3, 2024. The topic was "Designing Technologies for Overcoming Language Barriers."

· Professor K. K. Ramakrishnan from the University of California, Riverside, USA, gave a lecture at our college on August 12, 2024. The topic was "Lessons learned from building Software-Based Networks and Networking for the Cloud."

· Serial Entrepreneur Dr. Sachio Semmoto gave a lecture at our department on August 15, 2024. The topic was "How should we navigate the AI era?"

· Professor David J Crandall from Indiana University Bloomington, USA, gave lectures at our department on October 8 and October 9, 2024. The topic was "Observing social interactions with egocentric computer vision" and "Human-centered Computer Vision."

· Professor Yukie Nagai from the University of Tokyo, Japan, gave lectures at our department on October 8 and October 9, 2024. The topic was "Embodied Predictive Processing: Unifying Cognitive Development in Humans and Robots."

· Professor Taisuke Boku from the University of Tsukuba, Japan, gave a lecture at our department on October 16, 2024. The topic was "How the accelerated supercomputing makes the next era of computational sciences?"

· Dr. Tau Leng, Senior Vice President of Technology at Supermicro, USA, gave a lecture at our college on October 16, 2024. The topic of the lecture was "How the accelerated supercomputing makes the next era of computational sciences?"

3. Faculty Honors

· Dr. Vincent S. Tseng has been honored with the 68th Ministry of Education Academic Award.

· Dr. Vincent S. Tseng received the 2024 Science Paper Award from the Far Eastern Y.Z. Hsu Foundation.

· Dr. Yu-Lun Liu received the 2024 Google Research Scholar Award.

· Dr. Ping-Chun Hsieh received the Outstanding Teaching Excellence Award for the 112th academic year.

· Dr. Chun-Ying Huang and Dr. W. J. Tsai received the Teaching Excellence Award for the 112th academic year.

· Dr. Yen-Yu Lin, Dr. Yi-Ting Chen, and Dr. Ching-Chun Huang Received the Mentor of Merit Award for the 112th academic year.

· Dr. Jung-Hong Chuang received the Award for Excellence in Curriculum Design for the 112th academic year.

· Dr. Wen-Hsiao Peng received the Academia-Industry Collaboration Excellent Research Award from the MediaTek Advanced Research Center (MARC) 2024.

· Dr. Yen-Yu Lin received the Academia-Industry Collaboration Excellent Research Award from the MediaTek Advanced Research Center (MARC) 2024.

4. Student Honors

· Po-Sheng Hsu, Che Jui Chang, Chien-Yao Chang, and Yin-Chi Li, guided by Professors Chien Chen, Chi-Yu Li, and Jyh-Cheng Chen, received the Best Student Paper Award at the 2024 Mobile Computing Workshop (MC 2024).

· Chi-Min Chang, Bo-Shan Wang, Yan-Han Chang, and Yu Chiao Chen, guided by Professor Chun-Shu Wei, participated in the second "The Grand Challenge: Cross-Disciplinary Innovative Applications" project competition, organized by the Miin Wu School of Computing of National Cheng Kung University (NCKU), and won the silver Award in Health Computing category.

· Yi-Jyun Sun, guided by Professor Ching-Chun Huang, received the 2023 College Student Research Creativity Award from the National Science and Technology Council.

· Chia Wen Cheng, Jhen Yung Hsu, and Chih-Chia Li, guided by Professor I-Chen Lin, have won the Best Paper award at Computer Graphics Workshop 2024.

· Jia-Jun Wang and Tzu-Wei Mi, guided by Professor Liwei Chan, have won the TAICHI 2024 Best Paper Award.

· Tzu-Wei Mi, Zung-Hao Hsueh, Yi-Ci Huang, and Ming-Yun Hsu, guided by Professor Liwei Chan, have won the ACM CHI 2024 Best Paper Award.

· Shih Chung Chin, guided by Professors I-Chen Wu, received the 2024 best Ph.D. dissertation award from the TCGA association.

· Jia-Hao Wu, guided by Professor Yen-Yu Lin, received the 17th IPPR Master Thesis Award.

· Hsiang-Hui Hung, guided by Professor Ching-Chun Huang, received the 17th IPPR Master Thesis Award.

· Meng-Cheng Shih, guided by Professors Ching-Chun Huang and Hong-Han Shual, received the 17th IPPR Master Thesis Award.

· Bo Yu Cheng, guided by Professors Wei-Chen Chiu and Yu-Lun Liu, received the 17th IPPR Master Thesis Award.

· Zhi Yi Chin, guided by Professor Wei-Chen Chiu, received the 17th IPPR Master Thesis Award.

院長的一封信

親愛的朋友：

本院結合陽明交通大學最完整的優秀師資，為全國最具規模與研究能量之資訊科系，致力於培育具前瞻視野的資訊產業人才。為朝永續經營前進，本院歡迎校友、家長與企業捐款贊助，也期盼關心本系、資訊教育的各界友人能夠響應，有您的齊力參與，是本院邁向卓越的關鍵力。期許未來有更多捐款做為學院向上提升的動力。敬祝大家平安健康，萬事如意。

國立陽明交通大學 資訊學院院長

陳志成 敬上

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 青年講座教授獎勵金

資通訊產業是台灣高科技產業的主軸之一，人才是帶動產業升級創新的重要動力，電機資訊等熱門領域，在延攬人才的薪資缺乏競爭力，再加上目前台灣有三分之一的大學專任教師陸續退休，大批教授退休有斷層的隱憂。為爭取好的青年教授回台，本院啟動青年講座教授獎勵金計畫，捐款贊助新進年輕教授加薪，鼓勵優秀人才回台，同時也留住好的教授。

捐款帳號

· 戶名：國立陽明交通大學
· 匯款銀行：玉山商業銀行新竹分行(代號 "808")
· 帳號：9550-016-0500-551

指定用途

· 資心專案／出國交換獎學金 Q540068
· 資工系學務發展：青年講座教授獎勵金 Q5200178

信用卡線上捐款

資心(Q540068)

學務(Q540178)

捐款芳名錄

捐贈日期	捐贈人	捐款計畫	捐贈
113/09/16	尊博科技股份有限公司	Q540178 資工系學務發展 - 梅竹黑客松	新台幣 20,000 元
113/09/10	街口電子支付股份有限公司	Q540178 資工系學務發展 - 梅竹黑客松	新台幣 60,000 元
113/09/04	見臻科技股份有限公司	Q540178 資工系學務發展 - 梅竹黑客松	新台幣 40,000 元
113/08/26	輔信科技股份有限公司	Q540178 資工系學務發展 - 梅竹黑客松	新台幣 110,000 元
113/08/24	吳銘雄	矽谷系友會活動	高級紅酒一打
113/08/20	黃鈺惠	Q540178 資工系學務發展	新台幣 400 元
113/08/16	中國信託商業銀行	Q540178 資工系學務發展 - 梅竹黑客松	新台幣 15,000 元
113/08/16	奧義智慧科技股份有限公司	Q540178 資工系學務發展 - 梅竹黑客松	新台幣 40,000 元
113/08/13	聯發科技股份有限公司	Q540178 資工系學務發展 -ICME24 聯發科 AI 平台國際競賽	新台幣 247,555 元
113/07/23	黃鈺惠	Q540178 資工系學務發展	新台幣 400 元
113/07/09	尊博科技股份有限公司	Q540178 資工系學務發展	新台幣 90,000 元
113/06/27	北美熱心校友	Q540178 資工系學務發展	新台幣 3,149,053 元
113/06/24	黃鈺惠	Q540178 資工系學務發展	新台幣 400 元
113/06/04	聖洋科技股份有限公司	Q520015 資工系系務發展	新台幣 50,000 元
113/05/30	Sachiko Semmoto	Q540178 資工系學務發展	新台幣 11,710 元
113/05/23	黃鈺惠	Q540178 資工系學務發展	新台幣 400 元
113/05/15	徐宏民	Q540178 資工系學務發展	新台幣 100,000 元
113/05/02	群聯電子股份有限公司	Q540178 資工系學務發展	新台幣 8,000 元
113/09/11	陳尚仁	機房電力系統排插設備	價值新台幣 1,123,416 元

捐款意願書

西元　　　年　　月　　日

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　□資工系系務發展：相關行政、教學等支出（Q520015）
　□資工系學務發展：贊助學生所舉辦之社團活動、獎助學金、急難救助、興建館舍、講座教授酬
　　金、整建計算機中心機房、更新網路與設備以及整修教室館舍(Q540178)</td></tr>
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