耶魯大學代表團訪問陽明交通大學資訊學院
期待共同建立研究合作機會與夥伴關係

文／杜懿洵

　　美國名校耶魯大學於今年三月份派出多位代表來台進行一系列的參訪，除了前往台積電與聯發科拜會與觀摩之外，也在 3 月 15 日蒞臨陽明交通大學。此次參訪除了由本院陳志成院長親自接待美國耶魯大學代表團之外，也有數位陽明交通大學學生一起加入交流，另外，也邀請到在耶魯大學做訪問研究員的前立法委員許毓仁先生一起參與。許毓仁先生專注在半導體／科技、地緣政治與法律之間關係的研究，也為這場交流提供了不同的視野與討論角度。

　　雖然代表團訪問的時間不長，但對於現下最熱門的人工智慧、資料科學等議題仍舊進行了深度且具有洞察力的討論，收穫非常豐富，而代表團對於台灣在晶片與 AI 的研發實力也非常佩服。趁著交流期間，陽明交通大學也與耶魯大學一同探索未來研究的合作機會與建立夥伴關係，請大家持續關注後續動態，並期許一起與優秀的國際人才追求知識和創新卓越！

Yale Delegation Visits the College of Computer Science, NYCU Exploring Research Avenues and Future Collaboration

In March 2024, Yale University organized a delegation trip to Taiwan. During the trip, the delegation engaged with leaders from prominent Taiwanese tech firms such as Taiwan Semiconductor Manufacturing Company (TSMC) and MediaTek. On March 15th, the delegation also visited National Yang Ming Chiao Tung University. Dr. Jyh-Cheng Chen, the Dean of the College of Computer Science, warmly welcomed the visiting delegation. Discussions at NYCU involved active participation from several of its students. Notably, Jason Hsu, a former legislator and currently a visiting researcher at Yale, was also present. Hsu's research focuses on the complex relationship between semiconductors/technology, geopolitics, and law, providing diverse perspectives and enriching the exchange of ideas.

During their short visit, the delegation engaged in in-depth discussions on trending topics such as artificial intelligence and data science, leading to numerous valuable insights. The delegation also expressed great admiration for Taiwan's prowess in semiconductors and AI. Throughout the discussions, National Yang Ming Chiao Tung University and Yale University discussed potential opportunities for future collaboration and partnerships. Please stay tuned for further updates as we work together to pursue knowledge and innovation excellence with exceptional international talents!

國際會議讓學生放眼全球

文稿整理／鍾乙君

　　2023 年，本院學生們參加了機器人學習大會、AAAI 人工智能研討會、國際計算機視覺大會以及 IROS 等頂尖國際會議，進入一個充滿創新和知識交流的世界。這些會議提供了學術研究的平台，讓學生們能夠與來自世界各地的專家和同行互動，分享他們的研究成果並探討未來的發展方向。這些活動不僅是知識的源泉，也是啟發青年學者的機會，讓他們在科學和技術的領域中不斷成長和進步。以下邀請幾位參與國際頂尖會議的同學分享心得：

發表論文：SCONE: A Food Scooping Robot Learning Framework with Active Perception

作者：Yen-Ling Tai, Yu Chien Chiu, Yu-Wei Chao, Yi-Ting Chen

指導教授：陳奕廷老師

國際會議名稱：Conference on Robot Learning 2023 (CoRL 2023)

該會議重要性： 機器人學習大會 (CoRL) 是一個年度國際型研討會，專注於機器人與機器學習的交集，旨在發展這兩個領域之間新的技術。此研討會被譽為機器人與機器學習領域的重要頂級研討會，並得到來自全球頂尖公司的贊助，截至今年為止已經收錄了多篇跨領域的研究論文，展現了機器人在導航、自動駕駛、飛行與操作等場域的能力以及未來發展的潛力，是對於人類科技的發展相當具有影響力的會議。

戴嬿玲同學心得分享： 這是我第一次以第一作者的身分參加實體研討會，主要參與了海報展出，與來自世界各地的學者們分享研究內容，在與指導教授和實驗室成員的合作下，我們成功克服了準備海報和口頭報告所需的種種挑戰。這次經歷不僅豐富了我的學術知識，也加強了我在團隊合作和溝通方面的能力。非常感謝陳奕廷教授的指導，以及學校、教育部與國科會支持學生發表論文以及參與會議，收穫良多。

發表論文：PPO-Clip Attains Global Optimality: Towards Deeper Understandings of Clipping

作者：Nai-Chieh Huang, Ping-Chun Hsieh, Kuo-Hao Ho, I-Chen Wu

指導教授：謝秉均老師

國際會議名稱：Association for the Advancement of Artificial Intelligence, (AAAI 2024)

該會議重要性： AAAI 為頂級人工智慧會議，收錄各種人工智慧的最新研究。AAAI 2024 一共審核了 9862 篇人工智慧相關研究，其中 2342 篇被接受，接受率為 23.75%。

黃迺絜同學心得分享： 非常感謝謝秉均教授的細心指導，我們對於強化學習中常見且實驗表現優異的演算法 PPO-Clip 進行了嚴格的理論分析。我們以不同的角度檢視 PPO-Clip 的目標函數並且成為第一篇對 PPO-Clip 在神經網路的參數化下有理論收斂分析的研究。我們運用了 entropic mirror descent 演算法去分離策略優化以及策略逼近的誤差，使我們能夠從理論的角度去控制以及分析演算法的收斂性，並證明了 PPO-Clip 會收斂到全域最佳的策略。很榮幸本研究能夠被 AAAI 接受，也很幸運能夠在 AAAI 聽到國外著名教授的演講，以及認識許多國內國外其他學校厲害的教授以及學生們，這一趟旅程使我受益良多！

發表論文：Learning Continuous Exposure Value Representations for Single-Image HDR Reconstruction

作者：Su-Kai Chen, Hung-Lin Yen, Yu-Lun Liu, Min-Hung Chen, Hou-Ning Hu, Wen-Hsiao Peng, Yen-Yu Lin

指導教授：林彥宇老師

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

該會議重要性：ICCV（國際計算機視覺大會）是計算機視覺領域中最具影響力和重要性的會議之一。該會議定期舉辦，聚集了來自世界各地的頂尖學者、研究人員和工程師，共同探討計算機視覺領域的最新研究成果、技術突破和應用創新。且 ICCV 2023 的 paper 接受率為 26.15%。

陳思愷同學心得分享：真的很開心也很榮幸自己有這個機會在學生時期挑戰國際會議的投稿，特別感謝我的指導教授 林彥宇教授，也相當感謝教授為我們找得優秀學長以及工程師所提供的指導。投稿的過程所學習到的經驗相當難得，首先是作研究所應具備的能力以及態度，教授以及學長們在每次會議中都會與我們分享在研究上應該注意的面向以及能夠改善的方向，認真參與每一次的會議都能夠從中學習到很多。撰寫 Paper 以及後續與 reviewer 的 rebuttal 流程，則是能夠徹底檢視自己對於研究主題的掌控是否足夠透徹，以及對於研究內容的思考、執行是否有疏失。很慶幸自己當初能夠加入彥宇教授的實驗室並且與一群優秀的學者一同進行高效率的研究鑽研，這是我在進入交大以前完全沒有想過會經歷的體驗。未來若還有機會，還是會持續挑戰投稿國際期刊，對於自身的提升和專業知識的累積都相當有幫助！

發表論文：Improving Robustness for Joint Optimization of Camera Poses and Decomposed Low-Rank Tensorial Radiance Fields

作者：Bo-Yu Cheng, Wei-Chen Chiu, Yu-Lun Liu

指導教授：邱維辰老師、劉育綸老師

國際會議名稱： Conference on Artificial Intelligence (AAAI 2024)

該會議重要性：AAAI 人工智能研討會 (AAAI) 是每年舉辦的全球頂尖人工智能學術研討會之一。根據 Google Scholar 的頂級人工智能出版物 H5 指數排名，它位列第四，僅次於 ICLR、NeurIPS 和 ICML。AAAI 2024 入選率為 23.75%

(2342/9862)。

鄭伯俞同學心得分享： 感謝邱維辰與劉育綸兩位教授的指導和帶領，我感到很幸運，能在碩班期間初略體驗了電腦視覺領域的研究流程，從主題定位的發想，反覆實作驗證，再到整合並呈現結果，接著參與投稿的審查與答辯，以及最後的論文發布與宣傳。回想起來我有遭遇不少挫折，尤其在實驗過程中，不乏緊迫感與無力感，不斷的嘗試與修正下，很慶幸最終能產生出具體的成果。我想這段經歷除了學術上的精進，也讓我的意志力與執行力有所成長。

發表論文：MENTOR: Multilingual tExt detectioN TOward leaRning by analogy

作者： Hsin-Ju Lin, Tsu-Chun Chung, Ching-Chun Hsiao, Pin-Yu Chen, Wei-Chen Chiu, and Ching-Chun Huang

指導教授：黃敬群老師、邱維辰老師

國際會議名稱：IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023

該會議重要性：IROS 是智能機器人和系統領域的頂級國際會議之一，旨在探討智能機器人和智能機器技術領域的科技前沿，強調未來方向以及最新的方法、設計和成果。今年 IROS 的主題為「下一代機器人技術」。本年度共有 2760 篇論文提交。

林欣儒同學心得分享：雖然成為碩士生並不強求必須投稿論文，但我仍然非常感激兩位老師在這段旅程中給予的指導和鼓勵。每當我感到迷惘時，他們總是安慰我不必過於擔心。在他們的支持下，我不僅有幸將我的論文投稿至 IROS，並且被接受，還有機會親自前往美國參加會議。這次的會議經歷讓我深刻體驗到，來自世界各地的優秀學者和研究人員都在為自己的研究付出努力。透過與來自不同國家的參與者交流，我對未來的規劃有了更多的啟發和思考。因此我也想鼓勵學弟妹，如果有機會，也應該嘗試投稿並參加這些國際會議。這不僅是一次學術交流的機會，更是一次寶貴的經歷。

International Conferences Offer Students a Global Perspective

In 2023, students from our college participated in several leading international conferences, including the Conference on Robot Learning 2023 (CoRL 2023), the Association for the Advancement of Artificial Intelligence (AAAI 2024), the International Conference on Computer Vision (ICCV), and the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2023. These conferences provided valuable opportunities for students to engage in scholarly inquiry, interact with global experts, share their research findings, and explore future avenues in their fields. In addition to serving as sources of knowledge, these conferences also served as platforms for igniting the passions of young scholars and fostering their continuous growth and advancement in the fields of science and technology. We invite several students who took part in these prestigious international conferences to share their experiences with us.

Title: SCONE: A Food Scooping Robot Learning Framework with Active Perception

Authors: Yen-Ling Tai, Yu Chien Chiu, Yu-Wei Chao, Yi-Ting Chen

Advisor: Dr. Yi-Ting Chen

International Conference: Conference on Robot Learning 2023 (CoRL 2023)

The Significance of the conference: The Conference on Robot Learning (CoRL 2023) is an annual global gathering focusing on the intersection of robotics and machine learning. The goal of the conference is to drive progress in both fields. It is widely recognized as a premier event in the fields of robotics and machine learning and receives sponsorship from major multinational corporations. The conference has accumulated numerous interdisciplinary research papers demonstrating the capabilities of robots in areas such as navigation, autonomous driving, flight, and manipulation, highlighting their future potential. CoRL is one of the most influential robotics conferences in the development of technology.

The experience of Yen-Ling Tai: It was my first time as the primary author at a physical conference. My responsibilities included presenting posters and exchanging research insights with scholars from around the world. Working with my advisor and fellow lab members, we effectively addressed the various challenges associated with preparing posters and delivering oral presentations. This experience not only expanded my academic knowledge but also improved my skills in collaboration and communication. I would like to express my gratitude to the university, the Ministry of Education, and the National Science and

Technology Council for supporting students in presenting papers and participating in conferences, which has been very rewarding for me.

Title: PPO-Clip Attains Global Optimality: Towards Deeper Understandings of Clipping

Authors: Nai-Chieh Huang, Ping-Chun Hsieh, Kuo-Hao Ho, I-Chen Wu

Advisor: Dr. Ping-Chun Hsieh, Dr. I-Chen Wu

International Conference: Association for the Advancement of Artificial Intelligence, (AAAI 2024)

The Significance of the conference: AAAI conference stands as a premier event in the field of artificial intelligence, showcasing a plethora of cutting-edge research in the domain. In AAAI 2024, there were 12,100 submissions received, with 9,862 undergoing rigorous review. Following a meticulous review process, 2,342 papers were deemed worthy of acceptance, resulting in an overall acceptance rate of 23.75%.

The experience of Nai-Chieh Huang: I am very grateful to Professor Ping-Chun Hsieh and Professor I-Chen Wu for his meticulous guidance. We conducted a rigorous theoretical analysis of the PPO-Clip algorithm, which is widely used and demonstrates exceptional performance in reinforcement learning experiments. We explored the objective function of PPO-Clip from multiple angles and presented the first theoretical convergence analysis of PPO-Clip under neural network parameterization. By applying the entropic mirror descent algorithm, we were able to separate policy optimization from approximation errors, allowing us to theoretically control and analyze the algorithm's convergence. We demonstrated that PPO-Clip converges to the globally optimal policy. It was an honor for our research to be accepted by AAAI, and I was fortunate to attend the conference, listen to lectures by renowned international scholars, and meet many exceptional scholars and students from various institutions worldwide. This journey has been immensely rewarding for me!

Title: Learning Continuous Exposure Value Representations for Single-Image HDR Reconstruction

Authors: Su-Kai Chen, Hung-Lin Yen, Yu-Lun Liu, Min-Hung Chen, Hou-Ning Hu, Wen-Hsiao Peng, Yen-Yu Lin

Advisor: Dr. Yen-Yu Lin

International Conference: International Conference on Computer Vision (ICCV)

The Significance of the conference: The International Conference on Computer Vision (ICCV) is one of the most influential and important conferences in the field of computer vision. Held biennially, it brings together leading scholars, researchers, and engineers from around the world to discuss the latest research findings, technological advancements, and innovative applications in computer vision. For ICCV 2023, the paper acceptance rate is 26.15%.

The experience of Su-Kai Chen: I am extremely happy and honored to have had the opportunity to challenge myself with submissions to international conferences during my time as a student. I am especially grateful to my advisor, Professor Yen-Yu Lin, and to the outstanding seniors and engineers he found to provide us with guidance. The experience I gained from the submission process has been invaluable. It taught me the essential skills and mindset needed for research. In every meeting, Professor Lin and the seniors would share with us the areas to pay attention to in our research, as well as the directions for improvement in our studies. Actively participating in each meeting allowed me to learn a great deal. Writing the paper and going through the rebuttal process with reviewers enabled me to thoroughly assess my understanding of the research topic and evaluate whether there were any oversights in my thinking and execution. I feel very fortunate to have joined Professor Lin's lab and to have conducted efficient research with a group of outstanding scholars, which was an experience I never imagined before entering NYCU. If given the chance in the future, I will continue to challenge myself with submissions to international journals, as it is immensely beneficial for my personal growth and the accumulation of professional knowledge.

Title: Improving Robustness for Joint Optimization of Camera Poses and Decomposed Low-Rank Tensorial Radiance Fields

Authors: Bo-Yu Cheng, Wei-Chen Chiu, Yu-Lun Liu

Advisors: Dr. Wei-Chen Chiu, Dr. Yu-Lun Liu

International Conference: Conference on Artificial Intelligence (AAAI 2024)

The Significance of the conference: The AAAI Conference on Artificial Intelligence (AAAI) is one of the leading international academic conferences in artificial intelligence held annually. It ranks 4th in terms of H5 Index in Google Scholar's list of top AI publications, after ICLR, NeurIPS, and ICML. The acceptance rate of AAAI 2024 is 23.75% (2342/9862).

The experience of Bo-Yu Cheng: I am grateful to

Professors Wei-Chen Chiu and Yu-Lun Liu for their guidance and leadership. I feel very fortunate that during my master's program, I was able to experience the research process in the field of computer vision, from brainstorming topic ideas to iterative implementation and verification, and then to integration and presentation of results. I also participated in paper submission reviews and defenses, and finally, the publication and promotion of the paper. Looking back, I encountered many setbacks, especially during the method implementation and verification phase, where I often felt a sense of urgency and helplessness. Through continuous attempts and revisions, I was fortunate to ultimately produce concrete results. I believe that this experience has not only advanced my academic knowledge but also strengthened my willpower and execution abilities.

Title: MENTOR: Multilingual tExt detectioN TOward leaRning by analogy

Authors: Hsin-Ju Lin, Tsu-Chun Chung, Ching-Chun Hsiao, Pin-Yu Chen, Wei-Chen Chiu, and Ching-Chun Huang

Advisors: Dr. Ching-Chun Huang, Dr. Wei-Chen Chiu

International Conference: IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023

The Significance of the conference: IROS is one of the top international conferences in the field of intelligent robots and systems, aiming to explore the cutting edge of technology in the field of intelligent robots and smart machines, emphasizing future directions as well as the latest methods, designs, and outcomes. This year's IROS theme is "Next Generation Robotics." A total of 2760 papers were submitted this year.

The experience of Hsin-Ju Lin: Although being a master's student does not necessarily require submitting papers, I am still deeply grateful for the guidance and encouragement provided by my two professors throughout this journey. Whenever I felt lost, they always reassured me that there was no need to worry too much. With their support, I was not only fortunate enough to have my paper accepted by IROS, but I also had the opportunity to attend the conference in the United States in person. This experience profoundly made me realize that outstanding scholars and researchers from all over the world are diligently working on their research. By interacting with participants from different countries, I gained more inspiration and reflection on my future plans. Therefore, I would like to encourage everyone to try submitting their work and attending these international conferences if they have the opportunity. It is not only an opportunity for academic exchange but also a valuable experience.

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.

吳毅成副院長致贈王豐堅老師 (左)感謝狀

一、人事動態

◇ 自 112 年 12 月起，蔡孟勳教授擔任本校資訊技術服務中心副主任。113 年 2 月起，詹力韋教授擔任國際處國際合作組組長。

◇ 本院資訊工程學系王豐堅教授於 113 年 2 月退休，感謝老師對軟體工程的教學與研究貢獻良多，希望老師能常回系上傳承經驗。

二、國際交流

◇ 美國超微 (Supermicro) 技術部高級副總裁 (Senior Vice President of Technology)Tau Leng 博士於 2023 年 10 月 25 日至本院演講，講題為：「Building AI/ML Infrastructures - Challenges, Opportunities, and Emerging Trends」。

◇ 德國亥姆霍茲資訊安全中心 (CISPA Helmholtz Center for Information Security) Mario Fritz 教授於 2023 年 11 月 2 日至本校演講，講題為：「Trustworthy AI and A Cybersecurity Perspective on Large Language Models」。

◇ 日本連續創業家 Sachio Semmoto 博士於 2023 年 11 月 22 日至本系演講，講題為：「The way of life as a serial entrepreneur」。

◇ 中國香港城市大學 (City University of Hong Kong) 方玉光教授於 2023 年 12 月 13 日至本系演講，講題為：「Leverage Vehicles to Build a Multi-dimensional Resource Network for Smart Cities」。

◇ 美國喬治亞理工學院 (Georgia Institute of Technology) 李彥輯博士於 2023 年 12 月 13 日至本系演講，講題為：「生成式 AI 在智慧型手機上的應用大未來」。

◇ 新加坡科技設計大學 (Singapore University of Technology and Design)Tony Q.S. Quek 博士於 2023 年 12 月 14 日至本院演講，講題為：「The Role of Federated Learning in a Wireless World of Foundation Models」。