

立足台灣放眼國際 頂尖會議不缺席

文稿整理／翁健棋

一直以來，本校持續以邁向「偉大大學」為目標，期許自身能夠成為積極創新、培養各領域人才，引領產學界發展的指標學府。資訊學院亦遵循此努力方向，鼓勵院內師生參與、投稿頂尖國際會議，透過與全球菁英人才相互切磋砥礪，評鑑、審視自身研究能力與方向，拓展國際視野的同時，即時更新學說理論、洞悉技術發展趨勢，進一步產出更高品質之研究成果，貢獻所學於相關領域。自近期本院碩博士生之研究成果，在 EMSOFT、IJCAI 等國際頂尖學術發表會議的亮眼表現觀察便可發現，陽交大立足台灣、展望國際的願景正在逐步實現，本刊資訊人也特別邀請到同學們簡單分享產製研究的心路歷程：

發表論文：iNVMFS: An Efficient File System for NVRAM-Based Intermittent Computing Devices

作者：Ying-Jan Wu; Ching-Yu Kuo; Li-Pin Chang

指導教授：張立平教授

國際會議：International Conference on Embedded Software (EMSOFT), 2022

該會議重要性：EMSOFT 是權威排名 CSRankings 所認可之嵌入式系統領域頂尖會議，匯集了來自全球學術界、工業界和政府的研究人員，以推進嵌入式軟體開發領域的科學、工程技術。EMSOFT 2022 的接受率約為 23%。

吳瓊燃同學心得分享：碩士研究工作在經過兩輪嚴格審查後，最終被國際 A 級會議 EMSOFT 接受，非常開心！本次研究能獲得如此成就，要感謝張立平教授在過程中的耐心指導、傾囊相授。而實驗室學妹競友也替我分擔了繁重的測試工作，加快整體研究進展，非常感謝。透過這次研究我大量研讀了相關資料，體會到了前人設計的奧妙之處，同時也讓我有機會把過去只在教科書上學的知識實際運用，是個非常難忘又有趣的經驗。

發表論文：Rethinking key-value store for byte-addressable optane persistent memory

作者：Sung-Ming Wu, Li-Pin Chang

指導教授：張立平教授

國際會議：Design Automation Conference (DAC), 2022

該會議重要性：DAC 是系統設計領域中最重要的會議之一，其涵蓋了多元化的主題，如：自動化系統、雲端系統、嵌入式系統與軟體，新型與新興技術以及人工智慧等。在 DAC2022 中約有 970 篇投稿，共 223 篇被接受，接受率約為 23%。

吳崧銘同學心得分享：這是我第一篇被 A 級國際頂尖會議接受的論文，非常感謝老師在論文寫作及研究上的指導與幫忙。這篇論文的投稿過程一開始其實不太順利，最初我們投稿了另一個 B 級國際會議但被拒絕，收到消息的當下非常失落，然而被拒絕可以說是在投稿過程中的必經之路，因此也只能仔細研讀審查委員們給的回饋意見，從中汲取有用的建議並反思哪邊需要修改。經過一番努力，我們改投稿 DAC 並被接受了，這也算是因禍得福。

發表論文：AQT: Adversarial Query Transformers for Domain Adaptive Object Detection

作者：Wei-Jie Huang, Yu-Lin Lu, Shih-Yao Lin, Yusheng Xie and Yen-Yu Lin

指導教授：林彥宇老師

國際會議：International Joint Conference on Artificial Intelligence(IJCAI),2022

該會議重要性：IJCAI 為人工智慧中頂尖的國際會議之一，過去在單數年召開，自 2016 年起每年召開，今年一共有約 4535 篇有效投稿，接受率約為 15%。此會議有多種類型的主题，包含電腦視覺與自然語言處理等。

陸玉霖同學心得分享：這次是我第一次參與國際

會議投稿，在做研究的過程中遇到一些阻礙，雖然也會感到憂心，但最終都將其一一化解；論文審查期間，審查人提出對論文想法與問題，讓我們從不同角度了解該如何更完善這份研究，是個很有趣的經驗。

發表論文：3D-PL: Domain Adaptive Depth Estimation with 3D-aware Pseudo-Labeling

作者：Yu-Ting Yen, Chia-Ni Lu, Wei-Chen Chiu, Yi-Hsuan Tsai

指導教授：邱維辰老師

國際會議：European Conference on Computer Vision(ECCV), 2022

該會議重要性：ECCV 是電腦視覺領域的國際頂尖會議，為國際三大頂尖電腦視覺會議之一，今年共有 5,803 篇論文投稿，其中有 1650 篇論文被接受，接受率約為 28%。

顏妤庭同學心得分享：很榮幸能投稿上這個國際頂尖會議，這對我來說是很大的肯定，代表這段時間的努力都是值得的，也很謝謝我指導教授的教導。在研究的過程中會有很多辛苦的地方，但每當克服不同的難題都能收穫與學習到非常多，也很期待能在十月底去以色列參加會議，介紹我們的成果給大家，同時也期待能和厲害的學者們交流，並且從中可以認識到更多相關領域優秀作品。這也是我第一次參加實體研討會，相信這一定是非常難忘的體驗。

發表論文：An MIL-Derived Transformer for Weakly Supervised Point Cloud Segmentation

作者：Cheng-Kun Yang, Ji-Jia Wu, Kai-Syun Chen, Yung-Yu Chuang, Yen-Yu Lin

指導教授：林彥宇老師

國際會議：Computer Vision and Pattern Recognition Conference(CVPR),2022

該會議重要性：CVPR 為電腦視覺領域中最頂尖的會議。今年一共有 6656 篇有效投稿，其中有 1470 篇被接受，接受率為 22% 左右。近年來深度學習與人工智慧非常熱門，而電腦視覺也被認為是該領域中很重要的發展方向，因此 CVPR 也被公認為是 AI 領域中的頂尖會議之一。

吳季嘉同學心得分享：這是我第一次成功投稿國際會議的論文，無論是在研究的過程中教授給予我們的指導，以及在論文審查時審查人員給予的建議都讓我學到很多事物。很榮幸我們的論文能夠被世界頂級的會議接受，可惜因為疫情無法到現場參加會議，但在線上會議中看各個研究團隊錄製的論文介紹影片依然讓我了解到其他領域的研究課題，在會議中聽各個學者們對彼此的論文提出問題並一同思考也讓我大開眼界。

發表論文：Point MixSwap: Attentional Point Cloud Mixing via Swapping Matched Structural Divisions

作者：Ardian Umam, Cheng-Kun Yang, Yung-Yu Chuang, Jen-Hui Chuang, and Yen-Yu Lin

指導教授：林彥宇老師

國際會議：European Conference on Computer Vision(ECCV),2022

該會議重要性：ECCV 是兩年一次的電腦視覺研究會議，與 CVPR、ICCV 並列電腦視覺領域的三大頂級會議。每年的論文接受率為 25-30% 左右，每次會議在全球範圍會收錄論文 300 篇左右，收錄論文的主要來源來自於歐美等頂級實驗室及研究所。

Ardian Umam 同學心得分享：很高興這篇以我為第一作者的博士論文能被頂尖的 ECCV 會議接受！在這個博士級的會議論文中，我學到最多的是如何提出一個創新的想法，並在考量到可行的前提下，突破現有技術的困境，也就是說設計一個最先進的方法去解決相關問題。本研究提出用 3D data augmentation 來執行 3D point cloud downstream tasks，包含分類、形狀檢索等等，在執行過程中，探討如何降低數據標記的成本及提高模型的概括性。可以很驕傲地說說我們在此研究建立了一個新的技術，並預計在 2022 年的 10 月下旬至特拉維夫發表，我也預計參與此研討會。我很開心能夠有機會接觸到本領域的新趨勢，及認識世界各地優秀的研究人才。雖然距離研討會還有一些時間，但我已經事先在線上認識也將在本年度參與 ECCV 的新朋友，並期待在研討會與他們相遇！

NYCU Students Gaining International Recognition at Top International Conferences

It is our goal that National Yang Ming Chiao Tung University will become “the Great University”, which is an innovative institution to cultivate talents in different domains, and as well to lead the development of the industry and academia. The college of Computer Science, one of the key colleges at NYCU also pursues these goals by encouraging faculty and students to participate in top international conferences. By interacting with the talents across the world, research capacities and directions can be evaluated and reviewed to expand researchers’ horizons in theories. In addition, conference participants can be more aware of the trend of technological development for better research results in the study of Computer Science. Recently, outstanding research results have been shown by our graduate and doctoral students through top academic conferences such as EMOSFT and IJCAI, which suggests that the international recognition and outlook has been realized by NYCU students. The following are the reflections given by those outstanding students after giving presentations at international conferences.

Title: iNVMFS: An Efficient File System for NVRAM-Based Intermittent Computing Devices

Authors: Ying-Jan Wu; Ching-Yu Kuo; Li-Pin Chang

Advisor: Dr. Li-Pin Chang

Conference: International Conference on Embedded Software (EMSOFT), 2022

Background information of EMSOFT:

EMSOFT is a top conference in the field of technology of embedded systems recognized by CSRankings, bringing together researchers from academia, industry and government worldwide to advance science and engineering in the field of embedded software development. It has an acceptance rate of about 23%.

Ying-Jan Wu's Reflection:

After two rounds of rigorous review, our work was finally accepted by EMSOFT, a top international conference, and I was so happy to hear the news. I'd like to thank Prof. Li-Pin Chang for his patient guidance during the research process. I am also grateful to my lab members for handling the testing work for me, which speeded up the overall progress of the research. During this process, I have studied a lot of relevant data and experienced the design and framework proposed by other researchers. At the same time, it was a very interesting experience

to apply the knowledge from what I learned from textbooks

Title: Rethinking key-value store for byte-addressable optane persistent memory

Authors: Sung-Ming Wu, Li-Pin Chang

Advisor: Li-Pin Chang

Conference: Design Automation Conference (DAC), 2022

Background information of DAC:

DAC is one of the most important conferences in the field of system design, which covers a wide range of topics such as: automated systems, cloud systems, embedded systems, and artificial intelligence. There were 223 accepted papers out of around 970 submissions, in which the acceptance rate is about 23%.

Sung-Ming Wu's Reflection:

This is my first paper accepted by a top international conference, and I am very grateful to my professors for his great guidance in research and thesis writing. The submission process did not go very well at the beginning. We initially submitted it to another international conference but it was rejected, and we were very disappointed when we received the news. After a lot of hard work, we were accepted by DAC instead, which was a blessing in disguise.

Title: AQT: Adversarial Query Transformers for Domain Adaptive Object Detection

Authors: Wei-Jie Huang, Yu-Lin Lu, Shih-Yao Lin, Yusheng Xie and Yen-Yu Lin

Advisor: Prof. Yen-Yu Lin

Conference: International Joint Conference on Artificial Intelligence (IJCAI),2022

Background information of IJCAI:

IJCAI is one of the top international conferences on Artificial Intelligence, which used to be held every two years, but it has been held annually since 2016. The conference has a variety of topics, including computer vision and natural language processing.

Yu-Lin Lu's Reflection:

It was my first time to submit a paper to an international conference. I encountered some obstacles in the process while conducting my

research. Although I felt worried, I eventually solved them gradually. While my paper was being reviewed, the reviewers raised some questions and ideas to help us improve the research from different perspectives, which was an interesting experience.

Title: 3D-PL: Domain Adaptive Depth Estimation with 3D-aware Pseudo-Labeling

Authors: Yu-Ting Yen, Chia-Ni Lu, Wei-Chen Chiu, Yi-Hsuan Tsai

Advisor: Dr. Wei-Chen Chiu

Conference: European Conference on Computer Vision (ECCV), 2022

Background information of ECCV:

ECCV is the top international conference on computer vision, which is also one of the top three international conferences on computer vision. 5,803 papers were submitted this year, of which 1,650 were accepted, with an acceptance rate of about 28%.

Yu-Ting Yen's reflection:

It is a great honor to be accepted to this top international conference, which is a great recognition for me and means that all the efforts are worthwhile. I would like to thank my advisor's great support. Although there were a lot of challenges when conducting my research, I also learned a lot when trying to overcome different tasks. I am also looking forward to attending the conference in Israel at the end of October and presenting our results to everyone. In addition, I am also looking forward to interacting with great scholars and getting to know more excellent works in the field. This is also my first time to attend an offline conference, and I believe it will be a very memorable experience.

Title: An MIL-Derived Transformer for Weakly Supervised Point Cloud Segmentation

Authors: Cheng-Kun Yang, Ji-Jia Wu, Kai-Syun Chen, Yung-Yu Chuang, Yen-Yu Lin

Advisor: Yen-Yu Lin

Conference: Computer Vision and Pattern Recognition Conference (CVPR),2022

Background information of CVPR:

CVPR is the top conference in the field of computer vision. This year, there were 6656 submissions, of which 1470 were accepted, with an acceptance rate of about 22%. In recent years, deep learning and artificial intelligence are very popular, and computer vision is also an important development in this field, so CVPR is also recognized as one of the top conferences in the AI field.

Ji-Jia Wu's Reflection:

This is the first time I successfully submitted a paper to an international conference. I learned a lot from the guidance provided by my professor and suggestions given by the reviewers during the research process. I was honored that our paper was accepted by the world's top conference. Unfortunately, I was unable to attend the conference due to the pandemic, but watching the online conference video presentation of each research team still helped me to learn about different research topics. In addition, listening to the scholars' questions and reflections on different papers in the conference was also an eye-opening experience.

Title: Point MixSwap: Attentional Point Cloud Mixing via Swapping Matched Structural Divisions

Authors: Ardian Umam, Cheng-Kun Yang, Yung-Yu Chuang, Jen-Hui Chuang, and Yen-Yu Lin

Advisor: Yen-Yu Lin

Conference: European Conference on Computer Vision (ECCV), 2022

Background information of ECCV:

ECCV is a biennial conference on computer vision research, and is one of the top three conferences in the field of computer vision, along with CVPR and ICCV. The acceptance rate of papers is about 25-30% per year, and about 300 papers are accepted worldwide for each conference, with the main sources of accepted papers coming from top laboratories and research institutes in Europe and the United States.

Ardian Umam's Reflection:

I am very glad that our paper is accepted in one of the premier venues in my field, which is ECCV 2022, especially since this is my first PhD work as the first author. The thing that I learned the most from this first PhD work is about how to identify and propose a new idea that is novel enough and at the same time can push the current limit of the existing methods in the targeted task, i.e., set a new state-of-the-art method. Our work aims at reducing the cost of data labelling and improving model generalization on 3D point cloud downstream tasks, which include classification and shape retrieval, by proposing 3D data augmentation. The work leverages the structural information posed in the 3D data, and successfully sets a new state-of-the-art. This work will be presented in Tel Aviv, in late October 2022. I plan to physically attend the conference and am excited to catch up with new trends as well as to meet other researchers around the world. Although the conference has not happened yet, I already know some strangers that also submit papers to the ECCV and plan to have a meet up there!