系統設計實驗室

系統設計是一門努力的科學，往往需要跨領域/跨層級的知識，進而能整合不同的軟/韌/硬體技術，達到針對不同應用之系統優化。我們實驗室目前主要專注於記憶/儲存系統、有線/無線網路交換系統、嵌入式系統相關之研究議題，從軟/韌體的角度，探討如何配合硬體的發展來進行系統設計、模擬及優化，以及其中結合機器學習的可能性，若你/妳對這樣的研究內容有興趣，也認為自己擁有好奇寶寶的特質，樂於思考，非常歡迎與我約時間聊聊，看看我們實驗室是否會是你/妳喜歡的地方，有緣分的話，再一起探索未來各類系統上之關鍵前瞻技術!

簡要自傳

Yen-Ting Chen earned his B.S. degree in the Department of Electrical Engineering from National Chung Cheng University, Chiayi, Taiwan, in 2014. Driven by a keen interest in system-level designs, particularly in embedded systems, he joined Prof. Wei-Kuan Shih's Real-time System Laboratory (RT LAB) and later completed his M.S. degree in the Department of Computer Science from National Tsing Hua University, Hsinchu, Taiwan, in 2016. At that time, he faced the dilemma of choosing between the academic world and a job in the industry, so he determined to embark on his doctoral studies while simultaneously working at Realtek. After five years of contemplation, he decided to dedicate his life to academic research and education. Therefore, he resigned from Realtek and successfully earned his Ph.D. in the Department of Computer Science from National Tsing Hua University, Hsinchu, Taiwan, in 2021. Following this, he served as a postdoctoral research fellow under the guidance of Dr. Yuan-Hao Chang (IEEE Fellow) at the Institute of Information Science, Academia Sinica, Taiwan, from 2021 to 2023. Currently, he holds the position of an assistant professor in the Department of Engineering Science and Ocean Engineering at National Taiwan University, Hsinchu, Taiwan.

In the past few years, Dr. Chen mainly focused on research into flash-based storage, especially a new type of solid-state drive called key-value solid-state drive (KVSSD). Having close cooperation with Dr. Yuan-Hao Change at Academia Sinica, he is now devoted to research topics in memory/storage systems based on different storage mediums (e.g., Flash Memory and Phase-change Memory), and embedded systems (e.g., intermittent systems and IoT systems). Besides the above research interests, Dr. Chen would also like to keep studying wired/wireless network exchanging systems in the future, continuing his R&D experience at Realtek. So far, he has published 3 top journal papers (i.e., ACM/IEEE TECS, IEEE TCAD, and IEEE TVLSI), 4 top conference papers (i.e., ACM/IEEE ICCAD, ACM/IEEE ISLPED, IEEE RTAS, and ACM/IEEE DAC), and 2 conference papers of an important conference in Asia and South Pacific region (i.e., ASP-DAC). Notably, one of his works received a best paper nomination from the top conference ACM/IEEE ISLPED 2022.

經歷

1. 台灣大學 工程科學及海洋工程學系 助理教授 (2023/08 – 至今)
2. 中央研究院 博士後研究學者 (2021/09 – 2023/07)
3. 瑞昱半導體 (Realtek) 系統設計工程師 (2017/03 – 2021/04)

著作列表

Journal Papers

1. Yi-Han Lien, **Yen-Ting Chen**, Yuan-Hao Chang, Yu-Pei Liang, and Wei-Kuan Shih, "FSIMR: File-system-aware Data Management for Interlaced Magnetic Recording," ACM Transactions on Embedded Computing Systems (TECS), vol. 22, no. 5s, pp. 128:1-128:18, Sep. 2023. (Integrated with ACM/IEEE CODES+ISSS'23).

2. **Yen-Ting Chen**, Ming-Chang Yang, Yuan-Hao Chang, Tseng-Yi Chen, Hsin Wen Wei, and Wei-Kuan Shih, "Co-Optimizing Storage Space Utilization and Performance for Key-Value Solid State Drives," IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 38, no. 1, pp. 29-42, Jan. 2019.

3. Shuo-Han Chen, **Yen-Ting Chen**, Yuan-Hao Chang, Hsin-Wen Wei, and Wei-Kuan Shih, "A Progressive Performance Boosting Strategy for 3D Charge-trap NAND Flash," IEEE Transactions on VLSI Systems (TVLSI), vol. 26, no. 11, pp. 2322-2334, Nov. 2018.

Conference Papers

1. Kai-Ting Weng, Yun-Shan Hsieh, **Yen-Ting Chen**, Yu-Pei Liang, Yuan-Hao Chang, Po-Chun Huang, and Wei-Kuan Shih, "HF-Dedupe: Hierarchical Fingerprint Scheme for High Efficiency Data Deduplication on Flash-based Storage Systems," ACM/IEEE International Conference on Computer-Aided Design (ICCAD), San Francisco, California, USA, Oct. 29 - Nov. 2, 2023. **(Top Conference)**

2. **Yen-Ting Chen**, Han-Xiang Liu, Yuan-Hao Chang, Yu-Pei Liang, and Wei-Kuan Shih, "SACS: A Self-Adaptive Checkpointing Strategy for Microkernel-Based Intermittent Systems," ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED), Boston, MA, USA, Aug. 1-3, 2022. (**Best Paper Nomination - Top Conference**)

3. Yu-Pei Liang, Yu-Ting Fang, Shuo-Han Chen, **Yen-Ting Chen**, Tseng-Yi Chen, Wei-Lin Wang, Wei-Kuan Shih, and Yuan-Hao Chang, "Brief Industry Paper: An Energy-Reduction On-Chip Memory Management for Intermittent Systems," IEEE Real-time and Embedded Technology and Application Symposium (RTAS), May 2021. **(Top Conference)**

4. **Yen-Ting Chen**, Ming-Chang Yang, Yuan-Hao Chang, and Wei-Kuan Shih, "Parallel-Log-Single-Compaction-Tree: Flash-Friendly Two-Level Key-Value Management in KVSSDs," 2020 25th Asia and South Pacific Design Automation Conference (ASP-DAC), Beijing, China, 2020, pp. 277-282

5. **Yen-Ting Chen**, Ming-Chang Yang, Yuan-Hao Chang, Tseng-Yi Chen, Hsin Wen Wei, and Wei-Kuan Shih, "KVFTL: Optimization of storage space utilization for key-value-specific flash storage devices," 2017 22nd Asia and South Pacific Design Automation Conference (ASP-DAC), Chiba, Japan, 2017, pp. 584-590.

6. Shuo-Han Chen, **Yen-Ting Chen**, Hsin-Wen Wei, and Wei-Kuan Shih, "Boosting the Performance of 3D Charge Trap NAND Flash with Asymmetric Feature Process Size Characteristic," 54th ACM/IEEE Design Automation Conference (DAC), Austin, USA, Jun. 18-22, 2017. **(Top Conference)**

Taiwan Patent

1. Yen-Ting Chen at REALTEK SEMICONDUCTOR CORP., " DEVICE AND METHOD OF PERFORMING RECEPTION AND TRANSMISSION OF WLAN SIGNALS," Patent No.: I779428, Date of Patent: Oct. 01, 2022.

榮譽與得獎

1. 台灣資訊儲存技術協會 (TISA)「博士論文獎」(2023/11)
2. 中央研究院院聘博士後研究人員 (2023/06)
3. 頂尖國際會議 ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED) 2022 「最佳論文提名」(2022/08)
4. IEEE 電腦學會台北支會「博士論文獎」(2022/06)
5. 中華民國資訊學會 (IICM)「博士論文獎」(2021/12)
6. 傑出人才發展基金會補助「優秀學生出國開會」(2017/1)
7. 科技部補助「國內研究生出席國際學術會議」(2016/05)
8. 國立清華大學資工系推薦為「中華民國斐陶斐榮譽學會會員」(2016/06)
9. 國立清華大學博士班「校長獎學金」(2016/05)