Cheng-Hao Tu

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Education

The Ohio State University **Ohio, USA**
Doctoral Student in Department of Computer Science and Engineering (on leave), GPA: 3.90/4.00 Aug. 2021–Dec. 2023

- **Advisor:** Dr. Wei-Lun Chao
- **Awards:** University Fellowship in 2021
- Completed 29 credit hours of courses, including Artificial Intelligence, Data Mining, and Real-time Rendering.
- Published 4 research papers at top AI/ML/CV conferences (ICLR, AAAI, CVPR, NeurIPS).

National Taiwan University **Taipei, Taiwan**
M.Sc. in Department of Computer Science and Information Engineering, GPA: 3.97/4.30 Sep. 2015–Jan. 2018

- **Advisor:** Dr. Jane Yung-jen Hsu

National Taiwan University **Taipei, Taiwan**
B.Sc. in Department of Computer Science and Information Engineering, GPA: 4.02/4.30 Sep. 2011–Jun. 2015

- **Awards:** The Presidential Award (5%) in Fall 2012 and Fall 2013

Experience

Senior Machine Learning Scientist **Taipei, Taiwan**
Appier (沛星互動科技股份有限公司) Mar. 2024–Jun. 2025

- Maintained and enhanced an LLM-powered Knowledge Bot that incorporates business domain knowledge and details to provide intelligent customer service.

Graduate Research Assistant **Ohio, USA**
Department of Computer Science and Engineering, The Ohio State University Aug. 2021–Dec. 2023

- Holistic Transfer — A Practical Adaptation Setting with Partial Target Data (NeurIPS23)
- Visual Query Tuning — Parameter and Memory Efficient Fine-tuning for Vision Transformers (CVPR23)
- Synthetic (Fractal) Data Generation and Pre-training (AAAI23, ICLR23)

Research Assistant **Taipei, Taiwan**
AINTU Center, National Taiwan University Jan. 2021–Aug. 2021

- Binary Hash Code Learning for Efficient Image Retrieval (TAI21,TNNLS22)
- Continual Learning for Defect Detection (INDIN21)

Research Assistant **Taipei, Taiwan**
Institute of Information Science, Academia Sinica Apr. 2019–Dec. 2020

- Continual Learning (NeurIPS19), Network Compression (IJCNN20)

Publications

* indicates equal contributions

Conferences

[C12] Z. Mai, P. Zhang, **C.-H. Tu**, H.-Y. Chen, Q.-H. Nguyen, L. Zhang, and W.-L. Chao, "Lessons learned from a unifying empirical study of parameter-efficient fine-tuning (peft) in visual recognition," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025.

[C11] Z. Mai*, A. Chowdhury*, P. Zhang*, **C.-H. Tu**, H.-Y. Chen, V. Pahuja, T. Berger-Wolf, S. Gao, C. Stewart, Y. Su, and W.-L. Chao, "Fine-tuning is fine, if calibrated," in *Advances in Neural Information Processing Systems (NeurIPS)*, 2024, pp. 136 084–136 119.

[C10] H.-Y. Chen, **C.-H. Tu**, Z. Li, H.-W. Shen, and W.-L. Chao, "On the importance and applicability of pre-training for federated learning," in *International Conference on Learning Representations (ICLR)*, 2023.

[C9] **C.-H. Tu***, H.-Y. Chen*, D. Carlyn, and W.-L. Chao, "Learning fractals by gradient descent," in *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*, 2023.

[C8] **C.-H. Tu***, H.-Y. Chen*, Z. Mai, J. Zhong, V. Pahuja, T. Berger-Wolf, S. Gao, C. Stewart, Y. Su, and W.-L. Chao, "Holistic transfer: Towards non-disruptive fine-tuning with partial target data," in *Advances in Neural Information Processing Systems (NeurIPS)*, 2023, pp. 29 149–29 173.

[C7] **C.-H. Tu***, Z. Mai*, and W.-L. Chao, "Visual query tuning: Towards effective usage of intermediate representations for parameter and memory efficient transfer learning," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023, pp. 7725–7735.

[C6] C.-H. Chen, **C.-H. Tu**, J.-D. Li, and C.-S. Chen, "Defect detection using deep lifelong learning," in *2021 IEEE 19th International Conference on Industrial Informatics (INDIN)*, 2021, pp. 1–6.

[C5] **C.-H. Tu**, J.-H. Lee, Y.-M. Chan, and C.-S. Chen, "Pruning depthwise separable convolutions for mobilenet compression," in *IEEE International Joint Conference on Neural Networks (IJCNN)*, 2020, pp. 1–8.

[C4] **C.-H. Tu**, C.-E. Wu, and C.-S. Chen, "Extending conditional convolution structures for enhancing multitasking continual learning," in *Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, 2020, pp. 1605–1610.

[C3] S. C.-Y. Hung, **C.-H. Tu**, C.-E. Wu, C.-H. Chen, Y.-M. Chan, and C.-S. Chen, "Compacting, picking and growing for unforgetting continual learning," in *Advances in Neural Information Processing Systems (NeurIPS)*, 2019, pp. 13 669–13 679.

[C2] **C.-H. Tu**, C.-Y. Yang, and J. Y.-j. Hsu, "Idennet: Identity-aware facial action unit detection," in *IEEE International Conference on Automatic Face & Gesture Recognition (FG)*, 2019, pp. 1–8.

[C1] H.-F. Yang, **C.-H. Tu**, and C.-S. Chen, "Adaptive labeling for hash code learning via neural networks," in *IEEE International Conference on Image Processing (ICIP)*, 2019, pp. 2244–2248.

Journals

[J3] H.-F. Yang, **C.-H. Tu**, and C.-S. Chen, "Learning binary hash codes based on adaptable label representations," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 33, no. 11, pp. 6961–6975, 2022.

[J2] **C.-H. Tu**, H.-F. Yang, S.-M. Yang, M.-C. Yeh, and C.-S. Chen, "Semantichash: Hash coding via semantics-guided label prototype learning," *IEEE Transactions on Artificial Intelligence (TAI)*, vol. 2, no. 1, pp. 42–57, 2021.

[J1] H.-F. Yang, T.-Y. Chen, **C.-H. Tu**, and C.-S. Chen, "Equivalent scanning network of unpadded cnns," *IEEE Signal Processing Letters*, vol. 25, no. 10, pp. 1590–1594, 2018.

Invited Talks

- **Compacting, Picking and Growing for Unforgetting Continual Learning** Dec. 2020
  AI Forum 2020 at Howard Civil Service International House, Taipei, Taiwan

Professional Activities

- **Conference Reviewer:** ICML 2023-2025, NeurIPS 2023-2025
- **Journal Reviewer:** Pattern Recognition 2020

Technical Skills

- **Programming Languages:** C/C++, Python, LaTeX
- **Development Tools:** UNIX, PyTorch, Tensorflow, Scikit-learn, Git