

Huancheng Chen

PhD Candidate

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Education

- 2020–2025 **Ph.D. in Electrical and Computer Engineering**, *University of Texas at Austin*
GPA: 3.97/4.0 Advisor: Haris Vikalo
- 2020–2023 **M.S. in Electrical and Computer Engineering**, *University of Texas at Austin*
GPA: 3.97/4.0 Advisor: Haris Vikalo
- 2015–2019 **B.Eng. in Electrical Engineering**, *South China University of Technology (SCUT)*
GPA: 3.90/4.0

Research Interests

Federated Learning, Trustworthy AI, Continual Learning, Generative Models

Publications

- [1] **Huancheng Chen**, Jingtao Li, Nidham Gazagnadou, Weiming Zhuang, Chen Chen, Lingjuan Lyu. [Dual Low-Rank Adaptation for Continual Learning Aided by Dynamic Memory](#). Submitted to NeurIPS, 2024
- [2] **Huancheng Chen**, Haris Vikalo. [Recovering Labels from Local Updates in Federated Learning](#). The International Conference on Machine Learning (ICML), 2024
- [3] **Huancheng Chen**, Haris Vikalo. [Mixed-Precision Quantization for Federated Learning on Resource-Constrained Heterogeneous Devices](#). The IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR), 2024
- [4] **Huancheng Chen**, Haris Vikalo. [Accelerating Non-IID Federated Learning via Heterogeneity-Guided Client Sampling](#). arXiv, 2023
- [5] **Huancheng Chen**, Haris Vikalo. [Federated Learning in Non-IID Settings Aided by Differentially Private Synthetic Data](#). Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops **Oral**, 2023
- [6] **Huancheng Chen**, Johnny Wang, Haris Vikalo. [The Best of Both Worlds Accurate Global and Personalized Models through Federated Learning with Data-Free Hyper-Knowledge Distillation](#). The International Conference on Learning Representations (ICLR), 2023
- [7] Abdullah Mohamed*, **Huancheng Chen***, Zhangyang Wang, Christian Claudel. [Skeleton-Graph: Long-Term 3D Motion Prediction From 2D Observations Using Deep Spatio-Temporal Graph CNNs](#). The International Conference on Computer Vision (ICCV), 2021

Professional Experience

- May – **Research Intern, SonyAI, Tokyo, Japan**
August. 2024 **Project: Enhancing Backward Guidance in Layout-To-Image Generation**
○ Proposed a novel Layout-To-Images scheme that enables Diffusion models controlling spatial semantics of objects in the generated images without fine-tuning additional modules.
- Feb – May. **Research Intern, SonyAI, Austin, Texas**
2024 **Project: Forgetting-Resilient Low-Rank Adaptation on Large Pretrained Models**
○ Proposed a novel continual learning scheme based on low-rank adaptation (LoRA) that enables foundation models fine-tuning on a sequence of downstream tasks avoid of challenge of cataphoric forgetting. One paper has been submitted to NeurIPS2024.
- May – Aug. **Research Intern, Toyota, Mountain View, CA**
2022 **Project: Data-Free Knowledge Distillation in Non-IID Federated Learning**
○ Investigated Knowledge Distillation technique in Federated Learning and proposed a data-free KD-based FL algorithm and published a paper in ICLR2023.
- Jan. – May. **Research Intern, Nokia Bell Lab, Murray Hill, NJ**
2022 **Project: Robust Anomaly Detection on Low-Quality Images**
○ Developed an end-to-end background removal of equipment's images framework based on **U-2-Net**.
○ Constructed a highly accurate (90%+) and robust deep network for detecting flaws on images of communication devices.

Teaching Experience

- EE351M **Digital Signal Processing, Teaching Assistant, 2022 Fall**
CS395T **Convex Optimization, Teaching Assistant, 2022 Spring**
EE380L **Data Mining, Teaching Assistant, 2021 Fall**
EE422C **Software Design and Implementation II (Java), Teaching Assistant, 2021 Summer**
EE381K **Statistical Machine Learning, Teaching Assistant, 2021 Spring, 2024 Spring**
CS395T **Foundation of Predictive Machine Learning, Teaching Assistant, 2020 Fall**

Honors

- Sept. 2015 **National Encouragement scholarship, South China University of Technology**
Sept. 2016 **The First Prize scholarship, South China University of Technology**

Skills

- Languages English (fluent), Mandarin (native), Cantonese (native), Hakka (native)
Programming Python, Java, C/C++, Bash, SQL, Matlab, \LaTeX
Tools Tensorflow, Pytorch, Git, Pandas