

# **Xiwen (Christina) Wei**

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## **Education**

<b>PhD in Electrical and Computer Engineering</b> <i>University of Texas at Austin</i>	<b>Austin, TX</b> Aug 2023-Present
GPA: 3.83/4.00 (Cockrell School of Engineering PhD Fellowship)	
<b>BSE in Electrical Engineering</b> <i>University of Michigan, Ann Arbor</i>	<b>Ann Arbor, MI</b> Aug 2021-May 2023
Summa Cum Laude, Dean's List, James B. Angell Scholar (GPA: 4.00/4.00)	
<b>BSE in Electrical and Computer Engineering</b> <i>Shanghai Jiaotong University</i> <b>Shanghai, China</b> Sep 2019-Aug 2023	
Outstanding Graduate of Shanghai Jiaotong University	

## **Professional Experience**

<b>Graduate Research Assistant</b> <i>System Level Design Group</i>	<b>Austin, TX</b> 08/2023 - present
• Working on <b>multimodal continual learning</b> , with a focus of preserving zero-shot generalization of <b>multimodal LLMs</b> [1].	
• Designed an online task-free <b>continual learning</b> algorithm utilizing <b>efficient fine-tuning</b> of <b>foundation vision transformers</b> [2].	
• Analyzed the fairness implications of <b>machine unlearning</b> in <b>diffusion models</b> . Developed a Bayesian optimization method to reduce model bias, balancing <b>privacy</b> preservation and <b>fairness</b> [3].	
<b>PhD Research Associate</b> <i>Advanced Micro Devices, Inc. (AMD)</i>	<b>Austin, TX</b> 05/2025 - 12/2025
• Defined and led a research project on <b>continual fine-tuning of unified multimodal models</b> (UMMs), addressing modality imbalance in interleaved text-image generation.	
• Developed <b>supervised fine-tuning pipelines</b> , scaling training across distributed clusters of AMD GPUs (8×MI300x).	
• Analyzed modality imbalance via gradient tracking and unimodal counterparts comparisons. Proposed a Pareto-based balancing algorithm to improve retention while preserving compute and memory efficiency.	
<b>Research Fellow</b> , <i>University of Michigan Transportation Research Institute</i>	<b>Ann Arbor, MI</b> 01/2022 - 04/2023
• Developed a 3D parametric human model that represents diverse body types, enabling personalized and adaptive safety designs.	
• Developed statistical models for thoracic spine geometry in MATLAB and R using Generalized Procrustes Analysis, Principal component analysis. Developed and analyzed <b>feedforward neural networks</b> to improve the predictive model.	
• Processed medical images using <b>Mimics and HyperMesh</b> to quantify 3D geometries of human skeletons and internal organs.	
<b>Undergraduate Research Assistant</b> , <i>Michigan Integrated Circuits Lab(MICL)</i>	<b>Ann Arbor, MI</b> 05/2022 - 08/2022
• Designed a PID-based control algorithm in C and simulated the timer module in Michigan Micro Mote (M3) miniature sensor chip in MATLAB. Reduced timing error under extreme weather conditions by <b>83%</b> .	
• Developed Python scripts ( <b>PySerial</b> , <b>Pandas</b> , <b>Numpy</b> ) for automated hardware verification.	
<b>Supply Chain Engineer Intern</b> , <i>Soudronic AG</i>	<b>Guangzhou, Guangdong, China</b> 12/2020 - 05/2021
• Enhanced inventory tracking and order processing efficiency by developing an inventory management system using Python ( <b>Pandas</b> , <b>Scikit-learn</b> ) & <b>SQL</b> . Integrated real-time data analytics into the inventory management system for proactive decision-making.	

## **Publication**

- [1] Xiwen Wei, Mustafa Munir, and Radu Marculescu. *Mitigating Intra- and Inter-modal Forgetting in Continual Learning of Unified Multimodal Models*. Accepted by The Thirty-ninth Annual Conference on Neural Information Processing Systems (NeurIPS), 2025.
- [2] Xiwen Wei, Guihong Li, and Radu Marculescu. *Online-LoRA: Task-free Online Continual Learning via Low Rank Adaptation*. Accepted by IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2025.
- [3] Xiwen Wei, Guihong Li, and Radu Marculescu. *Fairness Implications of Machine Unlearning: Bias Risks in Removing NSFW Content from Text-to-Image Models*, NeurIPS 2024 Workshop on Regulatable ML.
- [4] Tianrui Hu, Dimitrios Liakopoulos, Xiwen Wei, Radu Marculescu, Neeraja J Yadwadkar. *Simulating rumor spreading in social networks using llm agents*, WMAC 2025: AAAI 2025 Workshop on Advancing LLM-Based Multi-Agent Collaboration.
- [5] Mustafa Munir, Md Mostafijur Rahman, Xiwen Wei, Yuedong Yang, Radu Marculescu. *SearchViG: Optimal Vision GNNs via Ramanujan Spectral Optimization*. Accepted by The Fourth Learning on Graphs Conference (LOG), 2025.
- [6] Mustafa Munir, Xiwen Wei, Harsh Goel, Minkyu Choi, Kartikeya Bhardwaj, Paul N. Whatmough, Sandeep P. Chinchali, Radu Marculescu. *ObjectAlign: Neuro-Symbolic Object Consistency Verification and Correction*, Under review.
- [7] Yuedong Yang, Xiwen Wei, Mustafa Munir, Radu Marculescu. *Fuel Gauge: Estimating the Length of Chain-of-Thought a priori for Large Multi-modality Models*, Under review.

## **Skills**

- **Machine Learning & AI:** Generative AI, Multimodal Large Language Models (MLLM), Continual Learning, Large Language Models (LLM), LLM-based agents, Time Series Forecasting, Federated Learning, Neural Networks.
- **Deep Learning Frameworks:** PyTorch, TensorFlow, HuggingFace Transformers, PEFT, NumPy, Pandas, TFLite, Keras, Scikit-learn
- **Programming Languages:** Python, C, C++, MATLAB, Assembly, Bash, SQL, SystemVerilog