

Zheda Mai

✉: mai.145@osu.edu 📞: 614-967-1380 🌐: zheda-mai.github.io

EDUCATION	Ph.D. Computer Science and Engineering, Ohio State University 2022-2027 (Expected) <ul style="list-style-type: none">Research areas: <i>Efficient Robust Interpretable Foundation Model Adaptation, Multimodal LLM, Vision Language Model, Continual Learning</i>Advisor: Professor Wei-Lun Chao.Google Scholar: 1500+
	M.A.Sc. Information Engineering, University of Toronto 2018-2021 <ul style="list-style-type: none">Research areas: Continual Learning, Recommender SystemsAdvisor: Professor Scott Sanner.
	B.A.Sc. Engineering Science, University of Toronto 2012-2017

PUBLICATIONS * denotes equal contributions and co-first authorship.

Conferences

- [CVPR'25] **Zheda Mai**, Ping Zhang, Cheng-Hao Tu, Hong-You Chen, Li Zhang, Wei-Lun Chao. Lessons and Insights from a Unifying Study of Parameter-Efficient Fine-Tuning (PEFT) in Visual Recognition. *CVPR*, 2025 **Highlight, (2.98%)**.
- [CVPR'25] Arpita Chowdhury, Dipanjoy Paul, **Zheda Mai**, Jianyang Gu, Ziheng Zhang, Kazi Sajeed Mehrab, Elizabeth G Campolongo, Daniel Rubenstein, Charles V Stewart, Anuj Karpatne, Tanya Berger-Wolf, Yu Su, Wei-Lun Chao. Prompt-CAM: Making Vision Transformers Interpretable for Fine-Grained Analysis. *CVPR*, 2025.
- [CVPR'25] Ziheng Zhang, Jianyang Gu, Arpita Chowdhury, **Zheda Mai**, David Carlyn, Tanya Berger-Wolf, Yu Su, Wei-Lun Chao. Finer-CAM: Spotting the Difference Reveals Finer Details for Visual Explanation. *CVPR*, 2025.
- [NAACL'25] Zhongwei Wan, Hui Shen, Xin Wang, Che Liu, **Zheda Mai**, Mi Zhang. Attention Entropy-Guided Dynamic Cache Allocation for Efficient Multimodal Long-Context Inference. *NAACL*, 2025.
- [ICASSP'25] Jiageng Zhu, Kehao Li, **Zheda Mai**, Hanchen Xie, Wael AbdAlmageed, Zubin Abraham. Attention-Driven Causal Discovery: From Transformer Matrices to Granger Causal Graphs for Non-Stationary Time-series Data. *ICASSP*, 2025.
- [NeurIPS'24] **Zheda Mai***, Jihyung Kil*, Justin Lee, Zihe Wang, Kerrie Cheng, Lemeng Wang, Ye Liu, Arpita Chowdhury, Wei-Lun Chao. MLLM-CompBench: A Comparative Reasoning Benchmark for Multimodal LLMs. *NeurIPS*, 2024.
- [NeurIPS'24] **Zheda Mai***, Arpita Chowdhury*, Ping Zhang*, Cheng-Hao Tu, Hong-You Chen, Vardaan Pahuja, Tanya Berger-Wolf, Song Gao, Charles Steward, Yu Su, Wei-Lun Chao. Fine-Tuning is Fine, if Calibrated. *NeurIPS*, 2024.
- [NeurIPS'23] Cheng-Hao Tu*, Hong-You Chen*, **Zheda Mai**, Jike Zhong, Vardaan Pahuja, Tanya Berger-Wolf, Song Gao, Charles Steward, Yu Su, Wei-Lun Chao. Holistic Transfer: Towards Non-Disruptive Fine-Tuning with Partial Target Data. *NeurIPS*, 2023.
- [CVPR'23] **Zheda Mai***, Cheng-Hao Tu*, Wei-Lun Chao. Visual Query Tuning: Towards Effective Usage of Intermediate Representations for Parameter and Memory Efficient Transfer Learning. *CVPR*, 2023.
- [WWW'22] **Zheda Mai***, Tianshu Shen*, Ga Wu, Scott Sanner. Distributional Contrastive Embedding for Clarification-based Conversational Critiquing. *WWW*, 2022.
- [SIGIR'22] Zhaolin Gao, Tianshu Shen, **Zheda Mai**, Mohamed Reda Bouadjenek, Scott Sanner. Mitigating the Filter Bubble while Maintaining Relevance: Targeted Diversification with VAE-based Recommender Systems. *SIGIR*, 2022.
- [AAAI'21] **Zheda Mai***, Dongsub Shim*, Jihwan Jeong*, Scott Sanner, Hyunwoo Kim, Jongseong Jang. Online Class-Incremental Continual Learning with Adversarial Shapley Value. *AAAI*, 2021 (**Oral**).

Journals

- [JVCI'23] Ruiwen Li, **Zheda Mai**, Chiheb Trabelsi, Zhibo Zhang, Jongseong Jang, Scott Sanner. TransCAM: Transformer Attention-based CAM Refinement for Weakly Supervised Semantic Segmentation. In *Journal of Visual Communication and Image Representation (JVCI)*, 2023.
- [IPM'23] Tianshu Shen, Jiaru Li, Mohamed Reda Bouadjenek, **Zheda Mai**, Scott Sanner. Unintended Bias in Language Model-driven Conversational Recommendation. In *Information Processing and Management (IPM)*, 2023.
- [Neurocomputing'22] **Zheda Mai**, Ruiwen Li, Jihwan Jeong, David Quispe, Hyunwoo Kim, Scott Sanner. Online Continual Learning in Image Classification: An Empirical Survey. In *Neurocomputing*, 2022.
- [AIJ'22] Vincenzo Lomonaco, ..., **Zheda Mai**, etc. CVPR 2020 Continual Learning in Computer Vision Competition: Approaches, Results, Current Challenges and Future Directions. In *Artificial Intelligence Journal (AIJ)*, 2022.

Workshops

- [CVPR'25] Hanchen Xie, Rose Ma, Jiageng Zhu, **Zheda Mai**, Wael Abd-Almageed, Zubin Abraham. Mitigating Video Content Misalignment on Large Vision Model with Time-Series Data Alignment. *CVPR Workshops*, 2025
- [NeurIPS'23] **Zheda Mai***, Tianle Chen*, Ruiwen Li, Wei-Lun Chao. Segment Anything Model (SAM) Enhanced Pseudo Labels for Weakly Supervised Semantic Segmentation. *NeurIPS Workshops*, 2023.
- [CVPR'21] **Zheda Mai**, Ruiwen Li, Hyunwoo Kim, Scott Sanner. Supervised Contrastive Replay: Revisiting the Nearest Class Mean Classifier in Online Class-Incremental Continual Learning. *CVPR Workshops*, 2021.
- [CVPR'20] **Zheda Mai**, Hyunwoo Kim, Jihwan Jeong, Scott Sanner. Batch-level Experience Replay with Review for Continual Learning. *CVPR Workshops*, 2020.
- [ICDM'20] **Zheda Mai***, Ga Wu*, Kai Luo, Scott Sanner. Attentive Autoencoders for Multifaceted Preference Learning in One-class Collaborative Filtering. *ICDM Workshops*, 2020.

Under Review

- [R1] **Zheda Mai***, Ping Zhang*, Quang-Huy Nguyen, Wei-Lun Chao. Revisiting Semi-Supervised Learning in the Era of Foundation Models, 2025
- [R2] **Zheda Mai***, Arpita Chowdhury*, Zihe Wang, Sooyoung Jeon, Lemeng Wang, Jiacheng Hou, Jihyung Kil, Wei-Lun Chao. AVA-Bench: Atomical Visual Ability Benchmark for Vision Foundation Models, 2025
- [R3] **Zheda Mai***, Justin Lee*, Chongyu Fan, Wei-Lun Chao. An Empirical Exploration of Continual Unlearning for Image Generation, 2025
- [R4] Jianyang Gu, Samuel Stevens, Elizabeth G Campolongo, Matthew J Thompson, Net Zhang, Jiaman Wu, Andrei Kopanav, **Zheda Mai**, Alexander E. White, James Balhoff, Wasla Dahdul, Daniel Rubenstein, Hilmar Lapp, Tanya Berger-Wolf, Wei-Lun Chao, Yu Su. BioCLIP-XL: Emergent Properties from Scaling Hierarchical Contrastive Learning, 2025
- [R5] Qinghua Liu*, Sam Heshmati*, **Zheda Mai***, Zubin Abraham, John Paparrizos, Liu Ren. MLLM4TS: Leveraging Vision and Multimodal Language Models for General Time-Series Analysis, 2025

Technical Reports

- [T1] JinPeng Zhou, Ga Wu, **Zheda Mai**, Scott Sanner. Noise Contrastive Estimation for Autoencoding-based Collaborative Filtering, 2020.

EXPERIENCE	Research Intern, Amazon Lab126 , Sunnyvale	May 2025 - Aug. 2025
	• Research on computer vision and robotics.	
	Research Intern, Bosch Research , Sunnyvale	May 2024 - Aug. 2024
	• Developed a unified multimodal framework for general time series analysis using language and vision foundation models.	

Data Scientist , <i>Optimy AI</i> , Canada	Jan. 2021-Aug. 2022
<ul style="list-style-type: none"> Developed machine learning models for customer engagement and purchase likelihood predictions. 	
Machine Learning Engineer Intern , <i>Pitney Bowes</i> , Canada	May 2019 - Oct. 2019
<ul style="list-style-type: none"> Developed map-style extraction models with CNN and multi-task learning. 	
Software Engineer Intern , <i>AMD</i> , Canada	May 2015 - May 2016
<ul style="list-style-type: none"> Developed design verification tool automation for Verilog. 	

AWARDS	<p>Outstanding Reviewer Award for NeurIPS 2023</p> <p>4th place of the CLVision Continual Learning challenge at CVPR 2021</p> <p>1st place of the CLVision Continual Learning challenge at CVPR 2020</p> <p>NEXT36 Fellow from NEXT Canada, 2018</p>
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PROFESSIONAL SERVICE	<p>I am a conference reviewer for</p> <ul style="list-style-type: none"> NeurIPS: 2023, 2024, 2025 ICML: 2023, 2024 ICLR: 2024, 2025 CVPR: 2024, 2025 IJCAI: 2024 <p>I am a journal reviewer for</p> <ul style="list-style-type: none"> ACM Computing Surveys Artificial Intelligence (AIJ) Frontiers in Artificial Intelligence
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TALKS	<p>Continual Learning in Image Classification. Vector Institute. July 2020</p> <p>Recent Advances in Continual Learning. University of Toronto Jan. 2022</p>
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TEACHING	<p>Teaching Assistant, University of Toronto</p> <ul style="list-style-type: none"> APS1070: Foundations of Data Analytics and Machine Learning (2019, 2020) MIE451: Decision Support Systems (2019, 2020) MIE1628: Big Data Science (2020)
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MENTORING	<p>Justin Lee (OSU B.S; 2024-2025): Model Merge</p> <p>Tianle Chen (OSU B.S -> BU Ph.D.; 2022-2023): Weakly Supervised Semantic Segmentation</p> <p>Tianshu Shen (UToronto M.S. 2021-2022): Recommender System</p> <p>Ruiwen Li (Utoronto M.S. 2020-2022): Weakly Supervised Semantic Segmentation</p>
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VOLUNTEER	<p>Judge and mentor</p> <ul style="list-style-type: none"> OSU Artificial Intelligence Hackathon: 2022, 2023, 2024
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