Yizhou Wang

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RESEARCH INTERESTS

AI, LLM, Computer Vision

EDUCATION

Northeastern University (NEU)   **Boston, U.S.**
Ph.D., Computer Engineering, College of Engineering   *Sep 2020 - Apr 2026 (expected)*
Advisor: Prof. Yun Raymond Fu

Northeastern University (NEU)   **Boston, U.S.**
M.S., Electrical and Computer Engineering, College of Engineering   *Sep 2020 - Aug 2023*

Xi'an Jiaotong University (XJTU)   **Xi'an, China**
B.S., National Honors Science Program (Mathematics)   *Aug 2016 - Jun 2020*

Georgia Institute of Technology (GaTech)   **Atlanta, USA**
Georgia Tech School of Mathematics Visiting Honors Student Program   *Jan 2019 - May 2019*

WORKING EXPERIENCE

SMILE Lab, NEU   **Boston, U.S.**
Research Assistant, working on LLM, MLLM and Anomaly Detection   *Sep 2021 - Now*
Advisor: Prof. Yun Raymond Fu

Adobe Photoshop   **Seattle, U.S.**
AI/ML Applied Research Scientist Intern, MLLM for Image Composition & Segmentation   *May 2024 - Now*
Mentors: Dr. Lingzhi Zhang, Dr. Mang tik Chiu, Dr. Xiaohang Zhan, Dr. Connelly Barnes, Dr. Yuqian Zhou, Dr. Qing Liu, Dr. Eli Shechtman, Dr. Zhe Lin, Dr. Zijun Wei, Dr. Holly Huey
Manager: Dr. Sohrab Amirghodsi

Adobe Research   **San Jose, U.S.**
Research Intern, Alignment in Video LLM   *May 2023 - Dec 2023*
Mentors: Dr. Gang Wu, Dr. Ruiyi Zhang, Dr. Haoliang Wang, Dr. Uttaran Bhattacharya
Manager: Dr. Saayan Mitra

Mitsubishi Electric Research Laboratories (MERL)   **Cambridge, U.S.**
Research Intern, Zero-shot 3D Anomaly Localization   *May 2022 - Sep 2022*
Mentor: Dr. Kuan-Chuan Peng

Imagine: Image Intelligence Group, XJTU   **Xi'an, China**
Research Assistant, Deep unfolded iterative algorithm for medical imaging   *Jun 2020 - Aug 2020*
Advisor: Prof. Jian Sun

FLASH Group, GaTech   **Atlanta, USA**
Research Assistant, Theory of Generative Adversarial Imitation Learning   *Jan 2019 - May 2019*
Advisor: Prof. Tuo Zhao

PUBLICATIONS (All my first-authored papers on applied AI are open-sourced except for some of the ones within internship companies, which code can not be released due to company policies. * denotes equal contribution or

Accepted Papers

Conference Papers

- **D-CoDe: Scaling Image-Pretrained VLMs to Video via Dynamic Compression and Question Decomposition**
  Yiyang Huang, **Yizhou Wang** and Yun Fu
  Conference on Empirical Methods in Natural Language Processing (*EMNLP*), 2025 [Paper][Code]
- **Emergent Representation Convergence in Foundation Models: A Survey**
  Jianglin Lu, Hailing Wang, Yi Xu, **Yizhou Wang**, Kuo Yang and Yun Fu
  Conference on Empirical Methods in Natural Language Processing (*EMNLP*), 2025 [Paper][Code]
- **Cautious Next Token Prediction**
  Yizhou Wang, Lingzhi Zhang, Yue Bai, Mang Tik Chiu, Zhengmian Hu, Mingyuan Zhang, Qihua Dong, Yu Yin, Sohrab Amirghodsi and Yun Fu
  Annual Meeting of the Association for Computational Linguistics (*ACL*), 2025 [Paper][Code]
- **Towards Zero-shot 3D Anomaly Localization**
  Yizhou Wang, Kuan-Chuan Peng and Yun Fu
  IEEE/CVF Winter Conference on Applications of Computer Vision (*WACV*), 2025, Oral (top 8%) [Paper][Website]
- **Through the Theory of Mind's Eye: Reading Minds with Multimodal Video Large Language Models**
  Zhanwen Chen, Tianchun Wang, **Yizhou Wang**, Michal Kosinski, Xiang Zhang, Yun Fu and Sheng Li
  International Joint Conference on Neural Networks (*IJCNN*), 2025 [arXiv]
- **Rewrite the stars**
  Xu Ma, Xiyang Hu, Yue Bai, **Yizhou Wang**, Yun Fu
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (*CVPR*), 2024 [Paper][Code]
- **Don't Judge by the Look: A Motion Coherent Augmentation for Video Recognition**
  Yitian Zhang, Yue Bai, Huan Wang, **Yizhou Wang** and Yun Fu
  International Conference on Learning Representations (*ICLR*), 2024 [Paper][Code]
- **Momentum is All You Need for Data-Driven Adaptive Optimization**
  Yizhou Wang*, Yue Kang*, Can Qin, Huan Wang, Yi Xu, Yulun Zhang and Yun Fu
  IEEE International Conference on Data Mining (*ICDM*), 2023 [Paper][Code]
- **Concentric Ring Loss for Face Forgery Detection**
  Yu Yin, Yue Bai, **Yizhou Wang** and Yun Fu
  IEEE International Conference on Data Mining (*ICDM*), 2023 [Paper]
- **Making Reconstruction-based Method Great Again for Video Anomaly Detection**
  Yizhou Wang, Can Qin, Yue Bai, Yi Xu, Xu Ma and Yun Fu
  IEEE International Conference on Data Mining (*ICDM*), 2022 [arXiv][Code]
- **Self-supervision Meets Adversarial Perturbation: A Novel Framework for Anomaly Detection**
  Yizhou Wang, Can Qin, Rongzhe Wei, Yi Xu, Yue Bai and Yun Fu
  ACM International Conference on Information and Knowledge Management (*CIKM*), 2022 [Paper][Code]
- **Robust Semi-supervised Domain Adaptation against Noisy Labels**
  Can Qin, **Yizhou Wang** and Yun Fu
  ACM International Conference on Information and Knowledge Management (*CIKM*), 2022 [Paper]
- **MemREIN: Rein the Domain Shift for Cross-Domain Few-Shot Learning**
  Yi Xu, Lichen Wang, **Yizhou Wang**, Can and Yun Fu
  International Joint Conferences on Artificial Intelligence (*IJCAI*), 2022 [Paper]
- **Adaptive Trajectory Prediction via Transferable GNN**
  Yi Xu, Lichen Wang, **Yizhou Wang** and Yun Fu
  IEEE/CVF Conference on Computer Vision and Pattern Recognition (*CVPR*), 2022 [arXiv]
- **On Computation and Generalization of Generative Adversarial Imitation Learning**
  Minshuo Chen, **Yizhou Wang**, Tianyi Liu, Zhuoran Yang, Xingguo Li, Zhaoran Wang and Tuo Zhao
  International Conference on Learning Representations (*ICLR*), 2020 [arXiv]
  NeurIPS 2019 Optimization Foundations for Reinforcement Learning Workshop (Spotlight)

Journal Papers

- **SLA^{2}P: Self-supervised Anomaly Detection with Adversarial Perturbation**
  Yizhou Wang, Can Qin, Rongzhe Wei, Yi Xu, Yue Bai and Yun Fu
  IEEE Transactions on Knowledge and Data Engineering (*TKDE*), 2024 [arXiv][Paper][Code]
- **An unrolled Implicit Regularization Network for Joint Image and Sensitivity Estimation in Parallel MR Imaging with Convergence Guarantee**
  Yan Yang*, **Yizhou Wang***, Jiazhen Wang, Jian Sun and Zongben Xu
  SIAM Journal on Imaging Sciences (*SIIMS*), 2023. [Paper]
- **Self-Directed Online Machine Learning for Topology Optimization**
  Changyu Deng, **Yizhou Wang**, Can Qin, Yun Fu and Wei Lu
  Nature Communications (*NC*), 2022. [arXiv][Paper] [Code] [Tech Xplore News]

Preprints

- **VaQuitA: Enhancing Alignment in LLM-Assisted Video Understanding**
  Yizhou Wang, Ruiyi Zhang, Haoliang Wang, Uttaran Bhattacharya, Yun Fu and Gang Wu
  Under review [arXiv]
- **Unveiling the Unseen: A Comprehensive Survey on Explainable Anomaly Detection in Images and Videos**
  Yizhou Wang*, Dongliang Guo*, Sheng Li, Octavia Campus and Yun Fu
  Major Revision at *TPAMI* [arXiv][Code]
- **Rethinking Adam: A Twofold Exponential Moving Average Approach**
  Yizhou Wang, Yue Kang, Can Qin, Yi Xu, Huan Wang, Yulun Zhang and Yun Fu
  New England Computer Vision Workshop (**NECV**), 2022 (Oral) [arXiv] [Code]
- **Trajectory Prediction Meets Large Language Models: A Survey**
  Yi Xu, Ruining Yang, Yitian Zhang, **Yizhou Wang**, Jianglin Lu, Mingyuan Zhang, Lili Su, Yun Fu
  Under review [arXiv][Code]
- **Boosting Large Language Models with Mask Fine-Tuning**
  Mingyuan Zhang*, Yue Bai*, Huan Wang, **Yizhou Wang**, Qihua Dong and Yun Fu
  Under review [arXiv][Code]
- **Efficient Reasoning with Hidden Thinking**
  Xuan Shen, **Yizhou Wang**, Xiangxi Shi, Yanzhi Wang, Pu Zhao and Jiuxiang Gu
  Under review [arXiv][Code]

Book

- **Human Activity Recognition and Anomaly Detection**
  Kuan-Chuan Peng, **Yizhou Wang**, Ziyue Li, Zhenghua Chen, Jianfei Yang, Sungho Suh, Min Wu
  Part of the book series: **Communications in Computer and Information Science** (**CCIS, volume 2201**)[Link]

SELECTED PRESENTATIONS

- Oral report at CAS SIAM, Online   *2023*
- Oral report at AI2healthcare ([Talk] [Video]), Online   *2023*
- Oral presentation at New England Computer Vision Workshop, MIT, Boston, MA   *2022*

SERVICES

Conference Session Chair

- SIAM International Conference on Data Mining (SDM), 2024: Session 10 (Text, Web, Social Media)

Workshop Organization

- the Workshop on Anomaly Detection with Foundation Models in conjunction with IJCAI 2024

Conference Reviewer

ICML 2022, 2023, 2024, 2025; ICML 2025 Position Paper Track; NeurIPS 2021, 2022, 2023, 2024; NeurIPS 2025 Datasets and Benchmarks Track; ICLR 2022, 2024, 2025, 2026; CVPR 2022, 2023, 2024, 2025; ICCV 2023, 2025; ECCV 2022, 2024; WACV 2026; AISTATS 2025; KDD 2023; AAAI 2023; IJCAI 2023, 2024; SDM 2024; ACM MM 2025; ACM

MM 2025 Datasets Track; ACM MM Asia 2025; PAKDD 2023; ICME 2022; ACCV 2024; CVPR Workshop on Fair, Data-efficient, and Trusted Computer Vision, 2024, 2025; CVPR Workshop on Multimodal Algorithmic Reasoning, 2024; ICCV Workshop on Analysis and Modeling of Faces and Gestures, 2023; ECCV Workshop on Unlearning and Model Editing, 2024; ECCV Workshop on Vision With Biased or Scarce Data, 2022; AAAI Workshop on Artificial Intelligence with Biased or Scarse Data, 2024; AAAI Workshop on Scalable and Efficient Artificial Intelligence Systems, 2025

Journal Reviewer..

IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), International Journal of Computer Vision (**IJCV**), IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), Neural Nerworks, Pattern Recognition (**PR**), ACM Transactions on Knowledge Discovery from Data (**TKDD**), IEEE Internet of Things Journal (**IoT**), Knowledge and Information Systems (**KAIS**), Journal of Big Data, International Journal of Fuzzy Systems (**IJFS**), IEEE Transactions on Intelligent Vehicles (**IEEE Trans. Veh. Technol.**), IEEE Computational Intelligence Magazine (**CIM**)

SELECTED AWARDS

- Best Reviewer Award of AISTAT 2025 (126 recipients worldwide) *2025*
- SDM Doctoral Forum Travel Award *2024*
- IEEE ICDM NSF Student Travel Award *2022*
- SIGIR Student Travel Grant *2022*
- Honorary graduate of Qian Xuesen College, XJTU *2020*
- National Zhufeng 1st Scholarship (Pilot Scheme of Top-notch Talent Cultivation in Basic Disciplines) *2019*
- XJTU Pengkang Scholarship (Top 1.5%) *2018*
- National Endeavor Scholarship (Top 2%) *2017*

Teaching Experience

Teaching Assistant (TA)...

- EECE 7398 ST: Advances in Deep Learning, Fall 2024
- EECE 5642: Data Visualization, Northeastern University, Spring 2023 and Spring 2024
- DS 5230: Unsupervised Machine Learning, Northeastern University, Fall 2023

PROGRAMMING LANGUAGES

Python, MATLAB, C, C++, C#, R