Xi Xiao

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Birmingham, AL 35205, USA

Education

- **University of Alabama at Birmingham** *01 2024 - Present*
  Ph.D. in Computer Science Birmingham, USA
- **Sichuan University Jincheng College** *09 2019 - 06 2023*
  Bachelor of Engineering in Artificial Intelligence Chengdu, China

Experience

- **Oak Ridge National Laboratory** *05.2025 – Present*
  Research Intern
  - Participated in the development of ORBIT-2, a scalable foundation model for global, hyper-resolution climate downscaling.
  - Participation in U.S Department of Energy (DOE) Laboratory Directed Research and Development (LDRD) AI Initiative Program "Energy-Efficient Training for Large-Scale Vision Transformer Foundation Models"
- **Institute of Disaster Prevention and Mitigation, Southwest Jiaotong University** *11.2022 – 02.2023*
  Algorithm Intern
  - Supported algorithm engineers in the development and testing of models, specifically processing and training high-speed railway data.
  - Deploying algorithms on the NVIDIA Jetson nano development board.
- **JD Technology** *12.2020 - 02.2021*
  Algorithm Intern
  - Conducted data collection using web crawlers, contributing to the development of multi-person inference models.
  - Facilitated API integration within the group to streamline processes.

Patents and Publications

C=Conference, J=Journal, P=Patent, S=In Submission, T=Thesis

[J.1] S. M. Fazle Rabby Labib1, Joyanta Jyoti Mondal, Meem Arafat Manab, Sarfaraz Newaz, **Xi Xiao**. (2024). **Tailoring Adversarial Attacks on Deep Neural Networks for Targeted Class Manipulation Using DeepFool Algorithm**. *Nature Scientific Reports*.

[J.2] Aokun Liang, **Xi Xiao**, Zekun Zhang, Yibing Xiong, Qi Zhang, Huibin Li , Xiangyun Hua, Tao Ke. (2025). **GeoPriorCLIP: A Foundational Remote Sensing Vision-Language Model Enhanced with Cascaded Geographic Information Priors**. *Summitted to International Journal of Applied Earth Observation and Geoinformation*.

[J.3] Zhengji Li, **Xi Xiao**, Yingrui Ji, Jiacheng Xie, Xiao Wang, Swalpa Kumar Roy, Jiansheng Chen, Tianyang Wang. (2025). **Cycle-YOLO: A Efficient and Robust Framework for Pavement Damage Detection**. *Summitted to Remote Sensing*.

[J.4] Lanju Tao, Zhengji Li, **Xi Xiao**, Yingrui Ji, Xinyuan Song, Gaofei Chen, Yunbei Zhang, Ooi Kok Loan, Tianyang Wang. (2025). **RiskLLM: A Cross-Modal Large Language Model Framework for Generalizable Financial Risk Prediction**. *Summitted to Nature Scientific Reports*.

[J.5] Zhengji Li, Fazhan Xiong, Boyun Huang, Meihui Li, **Xi Xiao**, Yingrui Ji, Jiacheng Xie, Aokun Liang, Hao Xu. (2025). **MGD-YOLO: An Enhanced Road Defect Detection Algorithm Based on Multi-Scale Attention Feature Fusion**. *Accepted by CMC-Computers Materials & Continua*.

[C.1] **Xi Xiao**, Zhengji Li, Wentao Wang, Jiacheng Xie, Yuxiao Fan, Houjie Lin, Tianyang Wang, Min Xu. (2024). **TD-RD: A Top-Down Benchmark with Real-Time Framework for Road Damage Detection**. *ICASSP 2025*.

[C.2] **Xi Xiao**, Wentao Wang, Jiacheng Xie, Lijing Zhu, Gaofei Chen, Zhengji Li, Tianyang Wang, Min Xu. (2024). **HGTDTP-DTA: Hybrid Graph-Transformer with Dynamic Prompt for Drug-Target Binding Affinity Prediction**. *ICONIP 2024*.

[C.3] Wentao Wang*, **Xi Xiao***, Mingjie L iu, Tian Qing, Xuanyao Huang, Qizhen Lan, Swalpa Kumar Roy, Tianyang Wang. (2024). **Multi-dimension Transformer with Attention-based Filtering for Medical Image Segmentation**. *ICTAI 2024.* (* equal contribution).

[C.4] Zhengji Li, Yuhong Xie, **Xi Xiao**, Lanju Tao, Jinyuan Liu, Ke Wang. (2022). **An Image Data Augmentation Algorithm Based on YOLOv5s-DA for Pavement Distress Detection**. *IEEE 2022 the 5th International Conference on Pattern Recognition and Artificial Intelligence*.

[C.5] Jiacheng Xie, Yingrui Ji, Linghuan Zeng, **Xi Xiao**, Gaofei Chen, Lijing Zhu, Joyanta Jyoti Mondal, Jiansheng Chen. (2025). **E2CB2former: Effecitve and Explainable Transformer for CB2 Receptor Ligand Activity Prediction**. *IJCNN 2025*.

[C.6] **Xi Xiao**, Xingjian Li, Guosheng Hu, Tianyang Wang, Min Xu. (2025). **Prompting Vision Foundation Models with Cascaded Semantics**. *Summitted to NeurIPS 2025.*

[C.7] **Xi Xiao**, Yunbei Zhang, Xingjian Li, Tianyang Wang, Yuxiang Wei, Xiao Wang, Jihun Hamm, Min Xu. (2025). **Visual Instance-aware Prompt Tuning**. *Summitted to ACM MM 2025.*

[C.8] **Xi Xiao**, Yunbei Zhang, Janet Wang, Xinyuan Song, Hengjia Li, Gaofei Chen, Yuxiang Wei, Yanshu Li, Xiao Wang, Swalpa Kumar Roy, Hao Xu, Tianyang Wang. (2025). **RoadDiseasePrior: A Vision-Language Foundation Model and Benchmark for Road Damage Understanding**. *Summitted to ACM MM 2025.*

[C.9] **Xi Xiao**, Yunbei Zhang, Xingjian Li, Tianyang Wang, Jihun Hamm, Xiao Wang, Min Xu. (2025). **Visual Variational Autoencoder Prompt Tuning**. *CVPR Workshop 2025.*

[C.10] **Xi Xiao**, Xingjian Li, Yunbei Zhang, Tianming Liu, Tianyang Wang, Xiao Wang, Min Xu. (2025). **Visual Darts Prompt Tuning**. *Summitted to NeurIPS 2025.*

[C.11] Mingqiao Mo, **Xi Xiao**, Yunbei Zhang, Hao Zhang, Pinxin Liu, Eric Hanchen Jiang, YUXIANG WEI, Tianyang Wang, Chenrui Ma, Hao Xu. (2025). **The Rank You Need, Not the Rank You Have: Layer-wise Adaptation for Vision Transformers**. *Summitted to NeurIPS 2025.*

[C.12] Mingqiao Mo, **Xi Xiao**, Yunbei Zhang, Pinxin Liu, Hao Zhang, Eric Hanchen Jiang, Hengjia Li, Yingrui Ji, Tianyang Wang, Hao Xu. (2025). **CaTeR: Structured Prompting and Temporal Distillation for Causal Video Reasoning with Frozen CLIP**. *Summitted to NeurIPS 2025.*

[C.13] Hengjia Li*, Lifan Jiang*, **Xi Xiao***, Tianyang Wang, Hongwei Yi, Boxi Wu, Deng Cai. (2025). **MagicID: Hybrid Preference Optimization for ID-Consistent and Dynamic-Preserved Video Customization**. *Summitted to ICCV 2025.* (* equal contribution).

[C.14] Chenrui Ma, Rongchang Zhao, **Xi Xiao**, Hongyang Xie, Tianyang Wang, Xiao Wang, Hao Zhang, Yanning Shen. (2025). **CAD-VAE: Leveraging Correlation-Aware Latents for Comprehensive Fair Disentanglement**. *Summitted to ICCV 2025.*

[C.15] Yuxiang Wei, Yanteng Zhang, **Xi Xiao**, Tianyang Wang, Xiao Wang, Vince Calhoun. (2025). **4D Multimodal Co-attention Fusion Network with Latent Contrastive Alignment for Alzheimer's Diagnosis**. *Summitted to ACM MM 2025.*

[C.16] Yanshu Li, Yi Cao, **Xi Xiao**, Tianyang Wang. (2025). **M²IV: Towards Efficient and Fine-grained Multimodal In-Context Learning in Large Vision-Language Models**. *ACL Workshop 2025.*

[C.17] Yingrui Ji, **Xi Xiao**, Gaofei Chen, Hao Xu, Chenrui Ma, Lijing Zhu, Aokun Liang, Jiansheng Chen. (2025). **CIBR: Cross-modal Information Bottleneck Regularization for Robust CLIP Generalization**. *ICANN 2025*.

[C.18] Yanshu Li, Hongyang He, Yi Cao, Qisen Cheng, Xiang Fu, **Xi Xiao**, Tianyang Wang, Ruixiang Tang. (2025). **M²IV: Towards Efficient and Fine-grained Multimodal In-Context Learning in Large Vision-Language Models**. *Summitted to COLM 2025.*

[C.19] Mingqiao Mo, Yunlong Tan, Jianjiang Yang, Jin Xiao, **Xi Xiao**, Tingsong Huang, Jiaqing Liang, Tianyang Wang, Hao Xu. (2025). **CompileRover: Revolutionizing Virtual Machine Compiler Optimization with a Tri-Role LLM-Driven Framework**. *Summitted to COLM 2025.*

[C.19] Chenrui Ma, **Xi Xiao**, Tianyang Wang, Yanning Shen. (2025). **Beyond Editing Pairs: Fine-Grained Instructional Image Editing via Multi-Scale Learnable Regions**. *Summitted to NeurIPS 2025.*

[C.19] Runmin Jiang, Wanyue Feng, Yuntian Yang, Shriya Pingulkar, Hong Wang, **Xi Xiao**, Xiaoyu Cao, Genpei Zhang, Yizhou Zhao, Xiao Wang, Tianyang Wang, Xingjian Li, Min Xu. (2025). **Synthesis-driven Equivariant and Noise-robust Representation Learning for Cryo-ET Subtomograms**. *Summitted to NeurIPS 2025.*

[C.19] Yuxiang Wei, Yanteng Zhang, **Xi Xiao**, Tianyang Wang, Xiao Wang, Vince Calhoun. (2025). **MoRE-Brain: Routed Mixture of Experts for Interpretable and Generalizable Cross-Subject fMRI Visual Decoding**. *Summitted to NeurIPS 2025.*

[C.19] Runmin Jiang, Genpei Zhang, Yuntian Yang, Siqi Wu, Yuheng Zhang, Wanyue Feng, Yizhou Zhao, **Xi Xiao**, Xiao Wang, Tianyang Wang, Xingjian Li, Min Xu. (2025). **CryoCCD: Conditional Cycle-consistent Diffusion with Biophysical Modeling for Cryo-EM Synthesis**. *Summitted to NeurIPS 2025.*

[P.1] Li Zhengji, **Xiao Xi**, Li Xinrui. (2023). **Road Surface Defect Detection Model Building Method, Detection Method, Storage Medium and Device**. China Patent No. 202211675037.5. Registration Date: 2022.12.26. (Invention Patent, Accepted).

[P.2] Li Zhengji, **Xiao Xi**, Li Xinrui. (2023). **A Targeted Forest Fire Detection Algorithm for YOLO-ForestFire**. (Patent Pending, Invention Patent).

[P.3] Li Zhengji, **Xiao Xi**, Li Xinrui. (2024). **A Pavement Disease Detection Method Based on CycleGAN and Improved YOLOv5**. (Patent Pending, Invention Patent).

[P.4] Li Zhengji, Li Xinrui, Dai Changyi, **Xiao Xi**. (2022). **Forest Fire Detection Device and Its Collection Module**. China Patent No. 202222756942.5. Granted: 2022.10.19. (Utility Model Patent).

[P.5] Zhou Li, **Xiao Xi**, Ge Yuque. (2022). **A Security Trolley for Hand Trajectory Violence Detection Based on AI Technology**. China Patent No. 20222219620.1. Granted: 2022.05.24. (Utility Model Patent).

Honors and Awards

- **National Merit Award**
  15th Student Innovation and Entrepreneurship Competition and 7th China International "Internet+" Student Innovation and Entrepreneurship Compe
- **First Prize (Ranked Top 1/500)**
  6th Sichuan University Robotics Competition 'Intelligent Waste Sorting Challenge'
- **National Bronze Award**
  8th China International Student "Internet+" Competition
- **Special Prize (Ranked Top 80/22,000+)**
  16th National Student Computer Design Competition in Sichuan Province
- **National Second Prize**
  2023 National Student AI Embedded Design Competition
- **Outstanding Thesis (Ranked Top 10/8,000+)**
  Sichuan University Jincheng College

Academic Services

- **IEEE TCSVT Reviewer**
- **ACM MM 2025 Reviewer**
- **IJCNN 2025 Reviewer**
- **ICANN 2025 Reviewer**
- **ECCV 2024 Reviewer**
- **ICONIP 2024 Reviewer**
- **IEEE PRAI 2022 Area Chair**
- **IEEE PRAI 2022 Reviewer**
- **IEEE Student Member**

Skills

- **Programming Languages:** Python, Java, PHP, SQL (MySQL), JavaScript
- **Frameworks:** Django, TensorFlow, Keras, PyTorch
- **Technical Writing Tool:** LaTeX
- **Developer Tools:** Git, Docker, Amazon Web Services, VS Code, PyCharm, HTML/CSS
- **Python Libraries:** Pandas, NumPy, Matplotlib, OpenCV, Seaborn
- **Software:** Adobe Premiere Pro, Microsoft Office, Adobe Photoshop

- **Operating System:** Linux (Ubuntu), Windows
- **Virtualization and Cloud Computing:** VMware, VirtualBox