

# Xu Zheng

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🌐 <https://aslanding.github.io/>

🏠 Miami, FL

## SUMMARY STATEMENT

Research Scientist Intern candidate with experience in **LLM Agents, Time-Series Learning, and Graph-based Modeling**. Skilled in **Explainable AI** and **Machine Learning**, committed to developing scalable, efficient, and reliable machine learning systems that advance real-world applications.

## EDUCATION

### Florida International University

*Ph.D. in Computer Science, GPA: 3.97/4.0*

**Miami, FL**

*01/2023 - Present*

### University of Electronic Science and Technology of China

*M.S. in Control Science and Engineering, GPA: 3.23/4.0*

**Chengdu, China**

*09/2018 - 06/2021*

### Chongqing University

*B.S. in Electronic Science and Technology, GPA: 3.59/4.0*

**Chongqing, China**

*09/2014 - 06/2018*

## EXPERIENCE

### DSSS, NEC Laboratories America, Inc

*Research Scientist Intern*

**Princeton, NJ**

*05/2024 - 08/2024*

- Developed an anomaly detection system combining time-series and textual data, cutting false alarms by 50% through improved cross-modal interactions.
- Designed a multi-modal fusion strategy integrating three complementary detection methods, reducing false alarms by 90% on a real-world dataset via majority voting.

### Department of Image Algorithm, ZTE

*Machine Learning Engineer*

**Chengdu, China**

*07/2021 - 01/2023*

- Built an automated data collection pipeline, capturing 2,000+ images for training, and designed deep neural networks for image restoration in Under-Display Camera (UDC) systems.
- Applied pruning and quantization to optimize Raw Image Denoising Networks, improving inference speed by 25% while reducing model size.
- Deployed and validated optimized neural networks on Android devices using TensorFlow Lite and Qualcomm Snapdragon QNN frameworks.

## SELECTED PAPERS

- **Xu Zheng**, Zhuomin Chen, et al., Dongsheng Luo, “Environment Copilot: A Graph-based Framework for Action Error Diagnosis and Decision”, Under Review, 2025.
- **Xu Zheng**, Chaohao Lin, et al., Dongsheng Luo, “SF<sup>2</sup>Bench: Evaluating Data-Driven Models for Compound Flood Forecasting in South Florida”, arXiv Preprint, 2025.
- **Xu Zheng**, et al., Wei Cheng, Dongsheng Luo, “LM<sup>2</sup>OTIFS: An Explainable Framework for Machine-Generated Texts Detection”, arXiv Preprint, 2025.
- **Xu Zheng**, Farhad Shirani, Zhuomin Chen, Chaohao Lin, Wei Cheng, Wenbo Guo, Dongsheng Luo, “F-Fidelity: A Robust Framework for Faithfulness Evaluation of Explainable AI”, **ICLR[Acceptance Rate: 31.73%]**, 2025.
- **Xu Zheng**, Tianchun Wang, Wei Cheng, Aitian Ma, Haifeng Chen, Mo Sha, Dongsheng Luo, “Parametric Augmentation for Time Series Contrastive Learning”, **ICLR[Acceptance Rate: 30.94%]**, 2024, **IJCAI workshop AI4TS (Best Paper Award)**, 2023.
- **Xu Zheng\***, Farhad Shirani\*, Tianchun Wang, Wei Cheng, Zhuomin Chen, Haifeng Chen, Hua Wei, Dongsheng Luo, “Towards Robust Fidelity for Evaluating Explainability of Graph Neural Networks”, **ICLR[Acceptance Rate: 30.94%]**, 2024.
- **Xu Zheng**, et al., Dongsheng Luo, “PAC Learnability under Explanation-Preserving Graph Perturbations”, arXiv Preprint, 2024.
- **Xu Zheng**, Yali Zheng, Shubing Yang, “Generating Multiple Hypotheses for 3D Human Mesh and Pose using Conditional Generative Adversarial Nets”, **ACCV**, 2022.

- Shouwei Gao, **Xu Zheng**, et. al, Dongsheng Luo, Wenqian Dong, “LUMOS: Democratizing SciML Workflows with L0-Regularized Learning for Unified Feature and Parameter Adaptation”, **IPDPS**, 2026.
- Zhuomin Chen, Jingchao Ni, Hojat Allah Salehi, **Xu Zheng**, et al., Dongsheng Luo, “Explanation-Preserving Augmentation for Semi-Supervised Graph Representation Learning”, **AAAI**, 2026.
- Zhuomin Chen, Gabriel Lucchesi, Qingkai Dong, **Xu Zheng**, et al, Dongsheng Luo “From Signals to Semantics: A Survey on Time Series Explainability through a Human-Cognitive Lens”, TechRxiv Preprint, 2026.
- Sipeng Chen, **Xu Zheng**, et al., Dongsheng Luo, “Adaptive Dice Loss for Extremely Imbalanced Segmentation in Wetland Delineation”, **Workshop at ICLR**, 2025.
- Zhuomin Chen, Jingchao Ni, Hojat Allah Salehi, **Xu Zheng**, Dongsheng Luo, “From Binary to Continuous: Stochastic Re-Weighting for Robust Graph Explanation”, arXiv Preprint, 2025.
- Zichuan Liu, Tianchun Wang, Jimeng Shi, **Xu Zheng**, et al., Dongsheng Luo, “TimeX++: Learning Time-Series Explanations with Information Bottleneck”, **ICML[Acceptance Rate: 30.50%]**, 2024.
- Minghao Lin, Minghao Cheng, Yueqi Chen, **Xu Zheng**, Dongsheng Luo, Huajiang Chen, “CLExtract: An End-to-End Tool Decoding Highly Corrupted Satellite Stream from Eavesdropping”, **Black Hat USA Arsenal**, 2023.

## PROJECTS

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### Graph for LLMs & Agents

01/2025 - Present

- Proposed LM<sup>2</sup>otifs, an explainable framework for detecting machine-generated texts by modeling linguistic patterns as graph motifs, achieving a 4% accuracy improvement and providing multi-level explanations to enhance interpretability and robustness in LLM text forensics.
- Introduced Environment Copilot, a graph-based diagnostic framework for LLM agents, which models action trajectories as probabilistic graphs to identify error-prone patterns, achieving a 14.7% average improvement in success rate on long-horizon tasks.
- Investigating graph-enhanced scaling laws for LLM agent inference, aiming to systematically improve efficiency, reliability, and decision-making under complex, multi-step environments.

### Explainable AI for Scientific Discovery

01/2024 - Present

- Compiled and released SF<sup>2</sup>Bench, a large-scale dataset and benchmark for compound flood forecasting in South Florida, spanning 1985–2024 and covering 2,000+ monitoring stations, enabling fair comparison of data-driven models.
- Planned to integrate explainable AI methods with scientific modeling to improve interpretability and trustworthiness in compound flood prediction.
- Aimed to leverage XAI insights to guide scientific discovery, providing an actionable understanding of key factors driving flood risks and enhancing decision-making in climate resilience.

### Robust Evaluation Framework for XAI

09/2023 - 02/2025

- Proposed R-Fidelity, a robust evaluation method for assessing the faithfulness of explanations in Graph Neural Networks (GNNs).
- Developed F-Fidelity, a unified framework for robustly evaluating explanation faithfulness across multiple domains, including images, time series, and NLP.
- Advanced the reliability of XAI evaluation by introducing domain-agnostic metrics and benchmarks, enabling fair comparison of explainability methods in real-world settings.

### 3D Human Mesh Generation

05/2019 - 05/2021

- Investigated human mesh generation from single images using Conditional GANs and optimization-based methods on the SMPL model.
- Explored multi-view constraint techniques to improve human mesh recovery accuracy.
- Estimated 3D human mesh poses by leveraging 2D keypoints and weak depth supervision.