Yiyang Lu

Williamsburg, Virginia — ylu21@wm.edu — (757) 775-3296 — yiyanglu.github.io

EDUCATION

William & Mary — Williamsburg,VA,US
Ph.D. in Computer science, co-Advisors: Prof. Jie Ren, Prof. Evgenia Smirni — Sep 2021 — Present
University of Electronic Science and Technology of China — Chengdu, China
Bachelor in Software Engineering — Sep 2016 — Sep 2020
Research Interest: HPC system operation, Reliability, GPUs, Autonomous Vehicle Safety, Fault Correction, Machine Learning, Anomaly Detection, Time Series Analysis, Data Analysis

PUBLICATIONS

Yiyang Lu, Woong Shin, Ahmad Maroof Karimi, Jie Ren, Evgenia Smirni. "Dataset and Benchmark for Learning on Large-Scale HPC Infrastructure." (SUBMITTED)

Yiyang Lu , Jie Ren, Evgenia Smirni. "Unveiling HPC Secrets: A Fundamental ML Model for Telemetry Analysis and Beyond."(SUBMITTED)

Anna Schmedding, Philip Schowitz, Xugui Zhou, **Yiyang Lu**, Lishan Yang, Homa Alemzadeh and Evgenia Smirni. "Strategic Resilience Evaluation of Neural Networks within Autonomous Vehicle Software." In SAFECOMP2024: 43rd International Conference on Computer Safety, Reliability and Security.

Yiyang Lu , Jie Ren, Yasir Alanazi, Ahmed Mohammed, Diana McSpadden, Laura Hild, Mark Jones, Wesley Moore, Malachi Schram, Bryan Hess, Evgenia Smirni. "Investigating Anomalies in Compute Clusters: An Unsupervised Learning Approach." In SC '23 Research Posters: Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis, November 2023.

Bi, Shengjie, **Yiyang Lu**, Nicole Tobias, Ella Ryan, Travis Masterson, Sougata Sen, Ryan Halter, Jacob Sorber, Diane Gilbert-Diamond, and David Kotz. "Measuring Children's Eating Behavior with a Wearable Device." In 2020 IEEE International Conference on Healthcare Informatics (ICHI), 1–11. Oldenburg, Germany: IEEE, 2020.

EXPERIENCE

Oak Ridge National Laboratory (ORNL), Graduate Research Intern — Oak Ridge,TN,US
HPC system operation, Agent — June 2025 - Aug 2025
William & Mary, Research Assistant — Williamsburg,VA,US
HPC system operation, Reliability, Autonomous Vehicle Safety, GPUs — June 2022 - Present
William & Mary, Teaching Assistant — Williamsburg,VA,US
Discrete Structures, Network Systems and Design, Data Structures — Sep 2021 - May 2022
ByteDance, Research & Development Intern — Shenzhen,China
Network Traffic Analysis — Dec 2020 - Jul 2021
Shenzhen Institute of Advanced Technology(SIAT), Research Assistant — Shenzhen,China
Brain-Computer Interface and Neuromorphic Intelligence — May 2020 - Oct 2020
Dartmouth College, Research Assistant — Hanover,NH,US
Auracle – wearable technology for the study of eating behavior — Mar 2019 - Aug 2019

PROJECTS

HPC telemetry Analysis — May 2023 - Now, W&M
As compute clusters continue to grow in scale and complexity, the analysis of HPC telemetry becomes increasingly challenging. This project aims to leverage novel learning methods to understand system dynamics.

- Analyzed a large amount of real-world production telemetry data from OLCF, JLab clusters.
- Proposed a predictive framework that adapts to diverse tasks, including anomaly detection and workload prediction.
- Developed a method to reveal telemetry relationships, offering a holistic view of system behavior.
- Analyzed the change of telemetry relationships relative to workload changes.

Resilience Evaluation of Autonomous Vehicle Models — May 2023 - May 2024, W&M
The technology behind self-driving vehicles has greatly improved in the past decade, mainly due to rapid advances in deep neural networks (DNNs), making it necessary to detect faults in these safety-critical systems that could cause safety hazards or accidents.

- Performed strategic resilience evaluation on an L4 autonomous driving system.
- Examined the effectiveness of mitigation on critical faults in autonomous vehicles.

Network Traffic Analysis — Dec 2020 - Jul 2021, ByteDance

- Optimize the rules and policies for NTA (Network Traffic Analysis).

Brain-Computer Interface   May 2020 - Oct 2020, SIAT

- Setup the 'Neuronpixels' electrodes and implement wired/Bluetooth communication on the MCUs.

Auracle   Mar 2019 - Aug 2019, Dartmouth

- Implement the energy-efficient algorithm for classification task on a wearable device.

PROFESSIONAL SERVICE

Sigmetrics'25: Special Interest Group on Measurement and Evaluation 2025 (subreviewer)
Sigmetrics'24: Special Interest Group on Measurement and Evaluation 2024 (subreviewer)
MSN 2022: The 18th International Conference on Mobility, Sensing and Networking (subreviewer)

SKILLS

- Programming Languages: Scenic (Simulator), Python, Embeded C, Java, Go
- Data analysis: PyTorch, NumPy, Pandas, Pyspark, Tsfresh, Librosa, Optuna, Matplotlib, Plotly, PyG, Networkx
- Simulators: Carla, Apollo, Autoware
- Databases: Spark, Hive, Elasticsearch, ClickHouse