Zhouyu Li

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Education

- **North Carolina State University**   **Raleigh, NC**
  Doctor of Philosophy in Computer Science   *2021-Present*

- **Georgia Institute of Technology**   **Atlanta, GA**
  Master of Science in Electrical and Computer Engineering   *2019 – 2020*

- **Central South University**   **Changsha, China**
  Bachelor of Engineering in Electronic Information Engineering   *2015 – 2019*

Selected Publications

Zhouyu Li, Pinxiang Wang, Xiaochun Liang, Xuanhao Luo, Yuchen Liu, Xiaojian Wang, Huayue Gu, Ruozhou Yu. "AdaOrb: Adapting In-Orbit Analytics Models for Location-aware Earth Observation Tasks", *Accepted by IEEE International Conference on Pervasive Computing and Communications (PerCom), 2025*

Huayue Gu, **Zhouyu Li** *(Gu and Li contributed equally to this paper)*, Ruozhou Yu, Xiaojian Wang, Fangtong Zhou, Jianqing Liu, Guoliang Xue. "FENDI: High-Fidelity Entanglement Distribution in the Quantum Internet", *Accepted by IEEE/ACM Transactions on Networking (ToN), 2024.*

Zhouyu Li, Huayue Gu, Xiaojian Wang, Ruozhou Yu. "Dynamic Queuing Analysis and Buffer Management for Entanglement Swapping Buffers with Noise", *Accepted by ACM 1st Workshop on Quantum Networks and Distributed Quantum Computing (QuNet), co-located with ACM SIGCOMM, 2023.*

Zhouyu Li, Ruozhou Yu, Anupam Das, Shaohu Zhang, Huayue Gu, Xiaojian Wang, Fangtong Zhou, Aafaq Sabir, Dilawer Ahmed, Ahsan Zafar. "INSPIRE: Instance-level Privacy-preserving Transformation for Vehicular Camera Videos", *Accepted by IEEE International Conference on Computer Communications and Networks (ICCCN), 2023.*

Experience

Cedana
Winter Research Intern   *Nov 2024 - Jan 2025*

- Designed and implemented a mixed-integer quadratic optimization algorithm with **Google OR-Tools** for host and storage region selection and container migration across cloud providers, achieving a 15% reduction in running costs.
- Profiled CRIU checkpoint processes with **Prometheus** and predicted checkpoint file size with uncertainty-aware models.

Projects

Orbital Edge Model Dynamic Retraining and Updates
Supervised by Prof. Ruozhou Yu   Apr. 2024 - Sep. 2024

- Trained and **pruned UNet** neural networks to reduce the inference time by 17% while maintaining 92% accuracy on 20000 images from the SpaceNet dataset. Deployed on Nvidia Jetson Orin Nano with **ONNX** and **TensorRT**.
- Selected models to be retrained with a **Model Predictive Control** algorithm and outperformed baseline by 83%.
- Employed **active learning** metrics for continuous model training and saved 60% data for converge.

Microservice Profiling with Distributed Tracing and Kubernetes   Mar 2022 - Present
Supervised by Prof. Ruozhou Yu

- Led 12 students to develope a **CI/CD** pipeline and a microservice-based application orchestrated with **Kubernetes**.
- Deployed computer vision models as **Python Flask** web applications with **Gunicorn** and **Docker**.
- Instrumented microservices with **OpenTelemetry** and used a **Kafka**-buffered **Jaeger** collector to gather over 100 concurrent network traces per second. The collected data was published as a microservice resource-latency dataset.
- Built uncertainty-aware data models with **Gaussian Process**, **Bayesian Neural Network**, and **Probabilistic Neural Network** to profile the system and achieve over 95% of prediction coverage.

Services and Skills

Reviewer: USENIX ATC Artifact Evaluation 2024, INFOCOM WKSHPS: PerAI-6G 2022-2024, IEEE/ACM Transactions on Networking 2023-2024, IEEE Transactions on Mobile Computing 2024, IEEE Internet of Things Journal 2023-2024.
Teaching Assistant: CSC 533 - Privacy in the Digital Age, CSC 414 - Foundations of Cryptography, CSC 415 -Software Security, CSC 342 - Applied Web-based Client-Server Computing.
Programming Languages: Python, C++, Javascript, Java, C♯, C, Assembly Language, Shell script
Framework/Tools: Python Flask, PyTorch, Gurobi, Docker, Kubernetes, MATLAB, Jenkins, Android Studio, Git, DevOps