Zexin Li

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Education

- **University of California, Riverside** — Riverside, California, USA
  Ph.D. student of Electronic Engineering GPA: -/4.00 — *Aug 2020 - Now*
  Courses: *Computational Learning, Stochastic Processing, Advanced Linear Algebra, Advanced Operating Systems, Autonomous Systems*

- **University of Texas at Dallas** — Richardson, Texas, USA
  Ph.D. student of Computer Science; GPA: 3.83/4.00 — *Aug 2020 - Aug 2022*
  Courses: *Real-time Systems, Machine Learning, Computer Algorithms, Computer Vision, Databases, Network Security*

- **Southern University of Science and Technology** — Shenzhen, China
  Bachelor of Computer Science and Technology; GPA: 3.57/4.00 — *July 2016 - July 2020*
  Courses: *Operating Systems, Data Structures, Computer Algorithms, Artificial Intelligence, Machine Learning, Networking, Databases*

Experience

- **University of California, Riverside** — Riverside, CA, USA
  Research Assistant — *Sep 2022 - Now*
  - **Responsibility**: Worked in Dr. Cong Liu's Intelligent Robotics Lab which focuses on inter-disciplinary research including robotic systems, real-time systems, software engineering, and artificial intelligence.
  - **Research**: Research on boosting the performance of energy-efficient real-time systems.

- **University of Texas at Dallas** — Richardson, TX, USA
  Research Assistant — *Jan 2022 - Aug 2022*
  - **Responsibility**: Worked in Dr. Cong Liu's Real-time Systems Lab which focuses on advanced research in cross-cutting research including real-time systems, software engineering, artificial intelligence.
  - **Research**: Research on boosting performance of energy-efficient real-time systems.

- **Tencent** — Shanghai, China
  Research Internship — *May 2021 - Dec 2021*
  - **Responsibility**: Worked in Tencent Youtu Lab which focuses on advanced research on face recognition.
  - **Research**: Research on transferable adversarial attack on face recognition systems.

- **Kwai** — Shenzhen, China
  Research & Development Internship — *Nov 2019 - Jul 2020*
  - **Responsibility**: Worked in Peer Content Delivery Network (PCDN) team which aims to develop and maintain PCDN system, involving technical stack: C++, C and Docker.
  - **Research**: Research on Peer Content Delivery Network (PCDN) optimization, including system-level optimization and application-level optimization.
  - **Engineering**: Updated the internal web protocol framework in PCDN backend to boost overall transmission speed of videos and decrease the retransmission ratio. Wrote tests for the backend service and deploy grey testing for over 10,000 third-party edge devices.

- **Southern University of Science and Technology** — Shenzhen, China
  Research Assistant (Part-time) — *Jun 2018 - May 2021*
  - **Responsibility**: Worked in Dr. Yuqun Zhang's Intelligent Software Engineering Lab which aims to do advanced research on software engineering and artificial intelligence.
  - **Research**: Research on detecting bugs in deep learning models for autonomous embedded systems.
  - **Research**: Research on fast task mapping of heterogeneous platforms by designing efficient algorithms.
  - **Research**: Research on transferable adversarial attacks of deep learning models.

Projects

- **Real-time Systems, Software Engineering**: The main focus of this study consists of a performance optimization scheme for heterogeneous computing systems. The core objective is to optimize the performance of heterogeneous computing systems by optimizing the task scheduling policy between different computing devices. Also, a fine-grain mapping framework is designed for exploring a set of critical factors is needed for heterogeneous embedded systems. This project has been awarded Special Funds for the Cultivation of Guangdong College Students' Scientific and Technological Innovation in 2019. (JSA'21)
- **Artificial Intelligence, Software Engineering, Security**: The core objective of this study is to detect flaws in the deep neural network model-based autonomous driving system by constructing an adversarial attack sample based on the deep neural network model to cause targeted interference to the autonomous driving system. In addition, the research also involves transferring the approach from numerical simulations to real-world scenarios for empirical learning. This project has been awarded Special Funds for the Cultivation of Guangdong College Students' Scientific and Technological Innovation in 2018.

Publications

- **Efficient algorithms for task mapping on heterogeneous CPU/GPU platforms for fast completion time.**: Zexin Li, Yuqun Zhang*, Ao Ding, Husheng Zhou, Cong Liu (JSA'2021)

Honors and Awards

- Dean's Distinguished Fellowship, University of California, Riverside - May, 2022
- Tencent Rhino-BirdElite Talent Training Program, Tencent - May, 2021
- Outstanding Student Scholarship, Southern University of Science and Technology - Nov, 2019
- Special Funds for the Cultivation of Guangdong College Students' Scientific and Technological Innovation - Mar, 2019
- Special Funds for the Cultivation of Guangdong College Students' Scientific and Technological Innovation - Mar, 2018

Skills

- **Programming Languages:**: C/C++, Python, Rust.
- **Machine Learning Frameworks:**: Pytorch, Tensorflow, Caffe.
- **Robotic Frameworks:**: ROS, Autoware.
- **Embedded Platforms:**: NVIDIA Jetson AGX Orin, NVIDIA Jetson AGX Xavier, NVIDIA Jetson TX2, NVIDIA Jetson Nano, Raspberry Pi, Google Coral Edge TPU.

Reference

- **Cong Liu**: Associate Professor of University of California, Riverside (UCR).
- **Yuqun Zhang**: Assistant Professor of Computer Science, Southern University of Science and Technology (SUSTech).