Qucheng Jiang

+1 (781) 526 - 8354 | Jiang.qu@northeastern.edu | Boston, MA | Linkedin.com/in/Qu-Jiang

EDUCATION

Northeastern University   **Boston, MA**
PhD in Computer Engineering   ~ Dec 2026
Master of Science in Electrical & Computer Engineering [GPA: 3.919]   - Dec 2023
Courses: High-Performance Computing, Machine Learning & Pattern Recognition, Algorithms in Computer Engineering, High-Level Design Hardware-Software Systems, Computer Architecture, Microprocessor Design, Database Management

Shanghai University of Engineering Science   **Shanghai, China**
Bachelor of Science in Vehicle Engineering in Urban Railway [GPA: 3.7/4.0], Major Rank: 6th/135   - Jun 2020
Relevant Courses: Automatic Control Theory; Electric & Electronic Technique; Urban Railway Traffic Signaling System; Urban Railway Vehicle {Electric Traction / Network Control / Fault Diagnosis} Technique; Engineering Mechanics & Design.
Awards: China National Scholarship; Shanghai Gov. Scholarship; Shanghai Excellent Graduate of 2020; Shanghai Metro Group Scholarship, Kuzan Railway Technology & Innovation Scholarship, Merit Student & Student Scholarship of SUES.

TECHNICAL STACKS

Programming Languages: C/C++, Python, Golang, Ruby, JavaScript, Lua, SQL, SystemC
Libraries & Frameworks: Linux Kernel, OpenMPI, CUDA, Scikit-Learn, NumPy, PyTorch, OpenAI-gym, gRPC, Django, Gin, Qt
Toolkits & Software: Docker, ESXi, IAR, Parasoft C++ Tester, Tencent Scan Code, Altium, Wireshark, ClearCase, ClearQuest, Git

WORK EXPERIENCE

Automatic Train Supervision (ATS) Software Development Engineer   **Shanghai, China**
China Railway Group - Shanghai Fuxin Intelligent Transportation Solution Co., Ltd.   Mar 2020 - Jan 2022
- Participated in 9 railway construction projects of all types, focusing on software robustness, consistency in large-scale projects.
- Developed 4 modules, tested, integrated into ATS: *Timetable Tool* (Python), customed view of time schedule for operators; *ATS-NOCC interface* (C++, Python), provide operation data for traffic optimize; *Frontier Server* (Linux C++), share pressure on main server for communications with other systems; *Remote Vehicle Control interface* (Qt), GUI of driver's screen in control tower.
- Established performance monitoring service for distributed ATS system (Golang, Gin-Vue-EChart in frontend), boosting searching process of performance bottleneck in the national first pioneering cloud-based ATS project (Taiyuan Line#2).
- Improved algorithms for search auth-reserved-path, eliminates (~ 1 PDay/version) human involvement in data process (Ruby).
- Completed server-side code inspect & repair based on MISRA C++ spec (Parasoft & TSC). Built extensible automated scanner for the spec review to upcoming submission. Awarded by the Technical Research Project Achievement Award 2021, Fitsco.

RESEARCH EXPERIENCE

GEMM Accelerator Hardware-Software Co-design on ZYNQ SoC   **Boston, MA**
Individual Study @ Embedded System Lab, NEU   Sep 2022 - now
- Designed and implemented a GEMM accelerator that supports 32bit Int and Float, supports overlapping of execution and transfer.
- Use SystemC-TLM and QEMU for co-simulation, completed the time simulation on Zynq-7000.
- Developed Timestamp-tracer, a time estimation in RTL model, solved the time accuracy of simulating application with QEMU without data transfer through PS-AXI bridge. Modify Darknet framework for application layer adaptation testing.
- Abstract and optimize the hardware accelerator system layer driver, develop the kernel module to complete platform device loading, package the device HAL to provide object-oriented call API, and asynchronous call realized by hardware interrupt.

National Intelligent Automobile Competition   **Shanghai, China**
Student Researcher @ Intelligent Vehicle Innovation Lab #1349, SUES   Oct 2016 - Aug 2018
- Mastered the traditional controlling methods and integrated smart car with new self-control strategies.
- Introduced wireless method in adjusting configuration on chips by self-established protocols to simplify debugging process.
- Adopted the computer simulations through the theoretical research and built up the car model by experiments
- Won 3 NXP Cup National Intelligent Automobile Competition prizes, 1 National Transportation Technology Competition prize, 1 TI Cup Electronic Design prize, SUES "Internet+" Innovation and Entrepreneurship Competition.
- Assisted in recruiting people to the lab, provided technical support, and competition experiences in tutoring new researcher.

Research & Prototyping on Face Recognition Subway Gate & AFC interface integration   **Shanghai, China**
Student Researcher @ Urban Railway Engineering Lab, SUES   Jul 2019 - Dec 2019
- Acquired the concept of Machine Learning with its common algorithms and categories, and image processing methods.
- Maintained the basic structure of TensorFlow, OpenCV, and convolutional neural network.
- Create operational face recognition engineering based on the CNN classification model. (Video in Linkedin)

PUBLICATIONS

Qucheng JIANG, ***Wireless Network based multi-Node Temperature and Humidity Detection System for Urban Railway Carriage***, in *Thesis Collection of Shanghai University of Engineering Science*, 2020.   (Excellent Undergraduate's Paper.)
Changqi CHEN, Pengfei ZHU, Qucheng JIANG, ***Thermal Induced Lateral Photovoltaic Effect of Visible Laser,*** Published in *Journal of Shanghai University of Engineering Science*, 2018, 32(02): 104-106 (available on CNKI)