

Roy Y. Zeng

412-498-7784

royfzeng@gmail.com

www.linkedin.com/in/roy-zeng/

Education

Carnegie Mellon University, School of Computer Science

M.S. in Information Technology – Privacy Engineering (GPA 3.86/4.00)

Relevant Courses:

17514-Principles of Software System Construction, 17681-Java for Application Programmers, 14828-Browser Security

Dalian University of Technology, School of Software

B.E. in Cyber Engineering – Cyber Security (GPA 3.98/4.00)

Relevant Courses:

Network Attack and Defense, Network Programming in C, Computer Network, Network Security Programming, Network Experiment

Expected Graduation: December 2023

September 2018 – June 2022

Experience

Alstom – Software Engineer (Python, QT, Socket, MS Access, Gitlab, Gerrit)

May 2023 – August 2023

- Designed and implemented new features in Configuration File Generation Tool (CFG Tool), which follows a **MVC model**, for vehicle engineers to generate Configuration Files based on Map Files. Built backend functionalities including loading Map Files, performing CRUD operations, logging, and data validating with **PyQT** and **Microsoft Access**.
- Utilized **QT Designer** to design and build user interfaces, providing visualized file editing, logging, and file previewing.
- Designed and added Save & Load function for SAG Tool and optimized the process with **Pickle** module, facilitating the workflow and improving efficiency generating Configuration Files by **20%**. Optimized the function by writing wrapper functions and classes to prevent exploitation of vulnerable Python Remote Objects invocations.
- Updated user interfaces, databases, and backend functions according to changes within standards for Configuration Files in an **Agile** manner, integrated new features through **Gitlab** and conducted code review with **Gerrit**.
- Leveraged Python UDP sockets to build a Communication Simulator Interface (Postman like product) to simulate Vehicle-to-Vehicle / Facility communication for facility testing and deployment.

Tencent Technology – Software Engineer (Python, Django, MySQL, Vue.js)

July 2021 – August 2021

- Developed a Django-based computing and network resource management platform in collaboration with DevOps Team, and deployed on Tencent Cloud Platform, enabling resources visualization which allows manually customized and/or timed queries. The query **efficiency was improved by 90%** approximately. Deployed the backend on a Tencent Cloud Platform and modularized the frontend using Webpack for deployment.
- Built a resource interface (platform for computing and network service) on the Admin platform by designing and building a database through APIs of CMDB, implemented serializers for data validation and **enhanced query performance by 40%** in general (by implementing serializers and layered structure).
- Indexed resource lists and displayed resources in topology order. Utilized pyecharts to visualize access control, usage history, and occupancy of resources.
- Wrote **unit tests** thoroughly for core APIs in python and conducted **performance tests** for Resource Data Platform. Performed code refactoring to reduce repetitive code, optimize inheritance structure, and lower time complexity, improving sustainability and reusability and resulting in a general **time cost reduction of 20 percent among data queries**.

Neusoft – Backend Engineer (C++, QT, Socket, MySQL)

July 2019 – August 2019

- Designed and developed a Parking Management System with **QT**, providing payment function that **served 100+ users** and achieving communication through socket network programming in **C++**.
- Developed custom logic and classes for lining up and managing parking, created user interfaces for different categories of users, and visualized parking resource management using **QT Designer** and **MySQL**.
- Implemented an Admin interface for efficient management of the system and ensured seamless communication between **Client and Server**, which was intended to be deployed in the future.

Projects

Sports Event Management System (Java, OOP, JDBC)

- Implemented a Sports Event using Java 11 which could be deployed for sports events and athlete management.
- Designed and built database for sports event and athlete as well as corresponding query logic, linked backend with MySQL using JDBC.
- Implemented a Sports Event using Java 11 which could be deployed for sports events and athlete management.

Online Chatroom (Python, C, TCP/IP, Socket, Unix Network Programming)

- Implemented client-and-client communication and client-and-server communication and provided Tkinter UI.
- Designed and handcrafted security scheme by RC4, RSA, and MD5, reproduced packet sniffing by Wireshark.

Skills

- Language/DB: Python, Java, C/C++, Swift, TypeScript, MySQL, SQLite, MongoDB, JavaScript, HTML, CSS.
- Techniques: TCP/IP, Network Stack, Django, Redis, Docker, Gitlab, Linux, Shell, Node.js, Vue.js, Postman, React, REST.
- Hands-on Experience: Wireshark, XSS, CSRF, Session Hijacking, Extension Development, Burp Suite.