Qiangqiang Liu

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EDUCATION

Duke University **Durham, NC**

Master of ECE, Software Engineering track 08/2021 – 05/2023

University of Liverpool **Liverpool, UK**

Bachelor of Computer Science, GPA: 3.96/4.0 09/2019 – 06/2021

PROFESSIONAL EXPERIENCE

Software Intern, *JUNIPER NETWORKS*, *Sunnyvale CA* 05/2022 – 08/2022

- Implemented a network interface testing tool with **JIT** (Juniper Interface Tester) to verify the integrity of Packet Forwarding Engines on Juniper SRX firewalls.
- Examined this tool on **8** types SRX testbeds and **automated** this process with Python and Expect scripts.

PROJECTS

Mini UPS: *Django, Postgres, Google Protocol Buffer* 04/2022 – 05/2022

- Built a shipping website with **Django** that can deliver packages ordered from **Mini Amazon** of another group.
- Designed protocols using **Google Protocol Buffer** to communicate with Mini Amazon website through sockets.
- Implemented back-end communication with **Java** and emulated at-least-once and at-most-once messaging semantics with **SEQ** and **ACK** number to **avoid message failures**.

Risk Game: *JavaFx, Mockito, CI/CD* 02/2022 – 05/2022

- Built a Risk like board game that supports **multi clients** and **multi game rooms** running concurrently.
- Emulated the **Software Engineering Process** with TA as a customer to propose and change game requirements.
- Created client-side UI with **JavaFX** and **MVC** design pattern to resolve coupling of game logic and view.
- Wrote testcases with **Mockito** to simplify the development process by mocking external/unfinished dependencies.
- Setup GitLab **CI/CD** to **automate** the build, test and deploy process after every push to GitLab.

Http Proxy: *C++* 01/2022 – 02/2022

- Implemented a Daemon Proxy Server in C++ that can forward **HTTP**/**HTTPS** requests on behalf of the client.
- Utilized pre-created threads to **avoid blocking** caused by multiple concurrent requests.
- Designed cached response according to **RFC** standard to avoid duplicate requests and reduce server load.

Monte Carlo Visualization: *JavaScript, JSXGraph* 04/2021 – 06/2021

- Implemented Monte Carlo Algorithm to measure the volume and area of irregular 2D and 3D shapes by random sampling points in the shape.
- Created a **front-end** website with **HTML**, **CSS**, **JavaScript** to visualize the process, implemented interactive geometries with **JSXGraph**, allowing the user to define their own shape.
- Hosted this static service on **GitHub Pages** and blogged with **Jekyll**.

SKILLS

- Programming Languages: Java, JavaScript, Python, C/C++
- Technologies/Tools: Linux, Git, Emacs, MySQL, Postgres, Django, Docker, AWS

AWARDS

Merit Scholarship of University of Liverpool 06/2019

University Academic Excellence Award of XJTLU 06/2018

ACTIVITIES

2nd Place in Juniper Cyber Security Hackathon 07/2022