

Qingyu(Adina) Zhu

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EDUCATION

Carnegie Mellon University, Silicon Valley (CMU-SV)

Mountain View, CA

Master of Science in Electrical and Computer Engineering, Major GPA: 3.7/4.0

08/2019 - 12/2020

- Core Courses: Foundations of Computer Systems, Browser Security, How to Write Fast Code

The University of Hong Kong (HKU)

Hong Kong, China

Master of Science in Computer Science, Major GPA: 3.6/4.3

09/2017 - 05/2019

- Core Courses: Data Mining, Visualization & Visual Analytics, Smart Phone Apps Development(iOS, Android)

Nankai University (NKU)

Tianjin, China

Bachelor of Engineering in Software Engineering, Major GPA 3.8/4.0

09/2012 - 06/2016

- Core Courses: Data Structure and Algorithm Design, Database Management Systems, Object-oriented Software Methodology

SELECTED PROJECTS

Web Proxy Server with Caching

11/2019 - 12/2019

- Used **C** to create a web proxy that accepts incoming connections, reads and parses requests from web browser clients, forwards requests to web servers, reads the servers' responses, and forwards the responses to the clients based on **HTTP/1.0**.
- Upgraded the proxy to handle multiple concurrent connections, added a proxy cache with a **double linkedlist** and **LRU** policy.

Linux Tiny Shell

11/2019 - 12/2019

- Built a Linux interactive command-line interpreter that can support job control and **I/O redirection** in **C**.
- Enabled the shell to interpret built-in command & executable files, maintain a job list and reap zombie children processes.
- Implemented **signal handlers** that can catch, block and unblock signals like SIGQUIT, SIGINT, SIGSTP, SIGCHLD.

Parallel K-NN Acceleration Based on OpenMP and CUDA

03/2020 - present

- Optimized K-NN classification utilizing OpenMP and CUDA with **loop unrolling, false sharing elimination, and sequential optimization** in **C** and **Python**. Benchmarked the performance against sequential implementation of K-NN and Python Scikit Learn library function with three UCI's data sets.
- Aimed to obtain a 4x speedup with both OpenMP and CUDA compared to sequential implementation.

Browser Security

02/2020 - present

- Performed **CSS injection** on a self-developed chat room web application. Found victim's vulnerabilities, defined threat models and stole private data(e.g. CSRF tokens, users' passwords) with iFrames and without iFrames.
- Used HTML, CSS and JavaScript to implement a **privacy destroying extension** that can track users' browsing behavior, and exfiltrate personal data from the user to an external server with Docker.

“Stealing” Machine Learning Models: Attack and Defense

09/2019 - 12/2020

- Constructed a simulated Machine Learning-as-a-Service platform in Python. Trained **logistic regression, random forest, naive bayes, KNN** models with 2 data sets. Quantified and compared the robustness of these classifiers with a new index.
- Performed 3 **model extraction attacks** - equation solving, retraining, adaptive retraining. Analyzed the effectiveness of these attacks based on the number of queries. Applied differential privacy to explore defense mechanisms against these attacks.

WORK EXPERIENCE

Online UW Tester

Tianjin, China

Home Credit China

11/2016 - 07/2017

- Worked with 4 data engineers, quantified personal information data with **Python**, monitored loan-default rates in **Oracle SQL**.
- Collaborated with IT development teams in an Agile environment. Applied **Java** to test and deliver 20+ auto-evaluation features for a real-time **loan application system**. Conducted performance qualification tests based on UI and functional requirements.

Intern, Java Software Engineer

Tianjin, China

ChinaSoft International Ltd.

06/2014 - 09/2014

- Established a sport **social networking** website and its Android app that can help people find sports partners and design personalized plans. Implemented front-end in **HTML5, CSS3, JSP**, back-end server with **MySQL, Spring MVC framework in J2EE**.
- Completed 40+ functions including sign-in/up, add/delete/recommend friends, chat online, search information and post blogs.

SKILLS

Programming Languages (Proficient) Python, SQL, Java; (Familiar) C/C++, JavaScript, HTML, CSS

Frameworks & Softwares Docker, Linux, Git; Scikit-Learn, PyTorch; MySQL; Tableau, D3.js; Spring MVC