

Zong-Xian (Andy) Shen

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SUMMARY

Graduate student at CMU with expertise in distributed system and cloud computing seeking **fulltime SDE/infrastructure** roles. 3-year experience in scalable **e-Commerce backends**, high-performance **data pipelines**, and large-scale **cloud orchestration**. Open-source developer contributing to various projects, including **Mozilla's JavaScript Just-in-Time compiler**.

EDUCATION

- Carnegie Mellon University** Mountain View, CA
M.S. in Software Engineering; GPA: 3.74/4 Aug. 2019 – Dec. 2020
- National Chiao Tung University** Hsinchu, Taiwan
M.S./B.S. in Computer Science; GPA: 4/4 (M.S.), 3.14/4 (B.S.) Sep. 2007 – July. 2013

EXPERIENCE

- Amazon** Seattle, WA
Security Engineer Intern, Vulnerability Research Program May. 2020 - Aug. 2020
 - Enhanced the **cyberthreat analytics** platform by co-building a new service with **Java Spring** running on **ECS**, a new data pipeline with **CloudWatch**, **Lambda**, and **DynamoDB**, and a new metrics dashboard with **QuickSight** and **Redshift**
 - Researched threat incident reports regarding **XSS** and **CSRF** attacks against **amazon.com** and the subsidiaries
- Appier Inc.** Taipei, Taiwan
System Engineer, Realtime Bidding & Ads Infrastructure Nov. 2016 – Jun. 2019
Worked as a Scrum team of 9 to build scalable realtime bidding system with **1K+** servers to serve **1M+** QPS
 - Boosted the QPS by **20X** and doubled the business revenue by constructing the new bidding system at the global scale with **C++ 14/17** and **Nginx** running on **AWS** and **GCP**
 - Reduced orchestration and alert response time of the bidding system by **30X** through constructing a money flow tracking and server performance monitoring system with **Ansible**, **Kafka**, **Cassandra**, and **Grafana**
- Trend Micro Inc.** Taipei, Taiwan
Software Engineer, Core Malware Detection Engine Sep. 2013 – Nov. 2016
Worked in a global engineering group to develop scan engine and detection signatures to protect **250M+** endpoints
 - Boosted the throughput of engine and signature verification platform by **24X** using **Docker** and **Kubernetes** to simplify and balance the workload of test units running on **VMWare's vSphere**
 - Create an ML-powered malware classifier using **XGBoost** and bytecode n-gram for .NET malware detection, yielding **98%** detection rate for **5M+** banked malware samples and **0.1%** false alarm rate for **5M+** normal files

OPEN SOURCE CONTRIBUTION

- Mozilla**, Compiler Developer | Contribution Profile: <https://mzl.la/2fO3bJQ>
Optimized the **Just-in-Time compiler** of **SpiderMonkey JavaScript engine** via control and data flow analysis to eliminate redundant bytecode and expressions, contributing to features deployed in Firefox 35 to boost web browsing experience
- GitHub**, Open Source Contributor | **2K+** Stars, All Projects Combined: <https://github.com/ZSShen>
Created various programming utilities and profiling tools including a dynamic instrumentation kit to analyze Android malware, a **malware classifier** for signature generation, and a **cross-platform C data structure library** with **93% unit test coverage**

SELECTED ACADEMIC PROJECTS

- Code Snippet Recommendation Service** Distributed System, CMU
High Performance Full-text Search Engine on GCP Spring 2020
Led a team of 3 to build the engine supporting exact and fuzzy code snippet search with 500GB raw data set, achieving **13K+** QPS with **ElasticSearch** and **Memcached** hybrid backend running on 5 E2-standard-2 (2 CPU/8G RAM) nodes
- Emergency Social Network** Foundations of Software Engineering, CMU
Chat Room-based Web Application Fall 2019
Work as a team of 4 to build the social network app with 88% test coverage using **Bootstrap**, **Express.js**, **MongoDB**, and **Axios**

SKILLS

- Language/Development: **C++**, **C**, **Python**, **Java**, **JavaScript** / **CMake**, **GDB**, **Docker**
- Frameworks/Operation/Storage: **Java Spring**, **AWS**, **Node.js**, **Kafka**, / **Ansible**, **Jenkins** / **MySQL**, **Cassandra**, **Prometheus**