Fan Pu Zeng

SYSTEMS AND INFRASTRUCTURE ENGINEER

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Summary

I have industry experience working on both full-stack web applications and infrastructure at scale. I have deep UNIX knowledge and love playing cyber-security Capture-The-Flag competitions. I enjoy learning new things and I am interested to work on challenging problems in systems, cybersecurity, and infrastructure.

Education

Carnegie Mellon University   *Pittsburgh, PA, USA*

B.S. IN COMPUTER SCIENCE WITH CONCENTRATION IN COMPUTER SYSTEMS AND CONCENTRATION IN ALGORITHMS & COMPLEXITY   *Aug. 2018 - Expected May. 2022*

- Cumulative GPA: 4.0, Dean's List (all semesters)
- I play for the Plaid Parliament of Pwning (PPP), CMU's competitive hacking team. I specialise in binary exploitation and reverse engineering.
- Selected courses:
- Cloud Computing (Skills: AWS, Azure, GCP, Terraform, Docker, Kubernetes, MySQL, MongoDB, HBase, Neo4j, Hadoop MapReduce, Spark, Kafka, Samza)

- Operating System Design and Implementation	- Algorithm Design and Analysis	- Foundation of Programming Languages
- Compiler Design	- Undergraduate Complexity Theory	- Principles of Functional Programming
- Database Systems	- Parallel Data Structures and Algorithms	- Probability and Computing
- Introduction to Computer Security	- Great Theoretical Ideas in Computer Science	- Electronics

Work Experience

Facebook   *Menlo Park, CA, USA*

PRODUCTION ENGINEER INTERN (TUPPERWARE SCHEDULER TEAM)   *May 2020 - Aug 2020*

- Improved infrastructure stability by designing and building a performance testing tool from scratch for Tupperware, Facebook's deployment system for backend services. The Tupperware Scheduler, which is in charge of allocations, healthchecks, and migrations on millions of servers daily, is targeted.
- Performance testing is achieved by replaying requests against a test Tupperware scheduler to benchmark performance
- Enhanced tool to record production requests by shadowing requests for Service Router, Facebook's internal fault-tolerant routing framework
- Queried metrics like CPU, memory usage, latency, errors, from the Operational Data Store (ODS) in order to detect regressions in scheduler performance
- Bundled tool with Facebook's internal packaging system fbpkg and configured it to run daily in production with Chronos

Asana   *San Francisco, CA, USA*

SOFTWARE ENGINEERING INTERN (INFRASTRUCTURE MANAGEMENT)   *May 2019 - Aug 2019*

- Achieved better infrastructure modularity and significant cost savings by improving in-house Kubernetes deployment framework on AWS to allow worker clusters to share EKS control planes. Used Python, Boto3, CloudFormation extensively.
- Served twice as Infrastructure Management On-Call to investigate, triage, and fix infrastructure failures on Linux-based systems including infrastructure breakages due to bad commits by other developers, CI/CD pipeline failures, Kubernetes deployment failures, AMI build failures, AWS rate-limiting problems, Datadog alerts
- Created testing framework for Pylint lint rules to be run during the Bazel build process

Autolab   *Pittsburgh, PA, USA*

OPEN SOURCE PROJECT LEAD   *Nov. 2018 - Current*

- Lead development and maintenance of Autolab, an open-source auto-grading platform for programming assignments used by 5000 students in CMU and 20+ universities worldwide. Used Rails, Javascript, Python, Redis, and MySQL.
- Improved adoption by simplifying Autolab setup flow by using Docker Compose to automate provisioning of frontend and backend grading servers

Saleswhale (YC S16)   *Singapore, Singapore*

JR. SOFTWARE ENGINEER   *Nov. 2017 - Aug. 2018*

- Regularly delivered core product features and bug fixes for the Saleswhale app with Rails, Ember.js, RSpec, Redis, Sidekiq.
- Enabled enterprise account management and onboarding by building an internal tool from scratch with Rails, Ember.js, Rspec, SemanticUI, Gulp.
- Drastically reduced product testing times by building a testing micro-service with Rails, AWS SQS, Docker, Fabric from scratch

Honors & Awards

2020	**Second Place**, DEF CON 28 Capture-The-Flag Competition	*Las Vegas, NV, USA*
2019	**Third Place**, CSAW Capture-The-Flag Competition	*NYC, NY, USA*
2019	**Second Place**, CSAW Security Quiz Bowl	*NYC, NY, USA*
2018	**First Place**, Home Invasion IoT Capture-The-Flag Competition	*Singapore*
2018	**Winner, People's Choice**, NUS Hack&Roll	*Singapore*
2015	**Silver Award**, National Olympiad in Informatics	*Singapore*