

EDUCATION

- **Brown University** Providence, RI
Master's of Science in Computer Science Jan 2019 - May 2020 (expected)
 - **Relevant Coursework:** Distributed Systems, Operating Systems, Data Science
- **National University of Singapore** Singapore
Bachelor of Computing (Honours) in Computer Science; CAP: 4.58/5.00 Aug 2015 - Dec 2018
 - **Relevant Coursework:** Parallel Programming, Computer Security Practice, Web Security, Software Product Engineering (CS3216/17), NUS Overseas Colleges (Singapore)

EXPERIENCE

- **Facebook** Menlo Park, CA
Production Engineer, Intern May 2019 - Present
- **Shopee** Singapore
Software Engineering Intern, Platform Engineering Group May 2018 - Oct 2018
 - **SMTP Gateway:** Rewrote an email gateway backed with Kafka that processes up to 4 million emails a day to support exactly-once semantics, load balanced consumer groups, and high availability of workers.
 - **Runonce:** Developed a cron job container scheduler for Apache Mesos, REST API, and Rundeck plugin.
 - **Bromo:** Designed and developed a service scheduler for Apache Mesos that supports pluggable deployment strategies and node assignment policies, designed to support over 300,000 containers across all datacenters.
 - **Private DNS:** Implemented performance and reliability improvements to Shopee's private DNS server, used by all containers for service discovery.
 - **OAuth2 Proxy:** Implemented role-based access control (RBAC) in Shopee's internal OAuth2 proxy, segregating user permissions by roles and projects for various services and platforms.
 - **Deployment Tools:** Worked on various tooling used by all Shopee engineers, PMs and release managers, such as container `init` entrypoints, internal CLIs, Jenkins, Rundeck, etc.
- **Banff Cyber Technologies** Singapore
Associate Web Security Developer May 2017 - Nov 2017
 - **WebOrion WAF:** Spearheaded the development and architecture of a cloud-based, multi-tenant web application firewall (WAF) service with a high-fidelity rule matching engine, using OpenResty and ModSecurity on AWS.
 - **WARN:** Developed the WAF Research Network, a framework for performing black-box testing of various cloud-based WAFs with Docker and Node.js, along with 250 fully automated tests for the OWASP Top 10.

PROJECTS

- **Weenix (2019):** Implemented core components of a Unix-like operating system, including process scheduling, TTYs, virtual file system, block-level file system and memory management.
- **Puddlestore (2019):** Developed a fault-tolerant distributed file system backed by Tapestry block servers for consistent hashing and Raft for strongly consistent metadata storage.
- **Mesosmock (2018):** Developed an open-source mock Apache Mesos server, useful for testing Mesos frameworks.
- **1our (2016):** Platform for finding and listing paid studies in NUS, currently has over 3600 users and 200 DAU.

SKILLS

- **Languages:** C, Go, Haskell, JavaScript, Java, PHP, Python, Swift
- **Frameworks:** Django, Express, Laravel, React, Vue.js, Electron
- **Systems:** AWS, Docker, NGINX/OpenResty, Apache Mesos, Ansible, Jenkins, Prometheus
- **Databases:** MySQL, Apache ZooKeeper, Apache Kafka, Redis, MongoDB, Elasticsearch