

Qi Shu

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Skills

- **Languages:** Python, C++/C, Go, TypeScript/JavaScript, Swift, Java, JSX, HTML, CSS, Scheme, Bash, SQL, VBA
- **Library/Framework:** Django, Flask, React, Redux, Express, Backbone, JavaFX, jQuery, d3.js, SQLAlchemy, Next.js
- **Tools:** Linux/Unix, Kubernetes, Terraform, PostgreSQL, REST, GraphQL, Kafka, iOS, TCP/IP, TLS/SSL, HTTP, Jenkins, Xcode, Vim, LaTeX

Work Experience

Software Engineer

Jun 2021 - Present

Splunk

Toronto, ON

- Engineering lead for the full-stack development of App Review Portal(UI) and AppInspect API(Backend), which serve as the critical microservice applications in Splunk's application vetting process for a secure and robust developer ecosystem. The platforms help vetting hundreds of applications each week and drive automation rate from 50% to over **95%**. Technology stack includes **Python, Flask, SQLAlchemy, PostgreSQL, Pulsar, TypeScript, React, and SWR**
- Managed and deployed services using **Kubernetes** and **Terraform** to ensure efficient and scalable software
- Completed database migrations in **PostgreSQL** and **SQLAlchemy** to change database schema for **2x** performance
- Reduced API latency by over **10 times** by redesigning and aggregating API usage with a single **S3 bucket** download and database read within AppInspect API
- Led full-stack development for Splunk Edge Hub in **Python** for multi-process linux system services, **Flask** and **Apollo GraphQL** for API server, **Kivy** for embedded device UI and **React** for advanced configuration Web UI
- Designed and developed the full-stack authentication and authorization mechanism for multiple Splunk projects using Splunk ITS identity, **Okta, HTTP-only Cookie** and **JSON Web Tokens** in **Python** and **TypeScript**
- **Customized** SQLAlchemy **source code** to support read-write separation to balance the workload for scalability by overwriting multiple class constructors and injecting desired database binds to redirect connection
- Designed and developed microservices and cron jobs in **Go** for Splunk Cloud Developer Edition such as the web server and downstream service health monitoring with comprehensive unit testing
- Built the testing infrastructure for multiple frontend projects including App Review Portal and Dev Edition using **Jest, React Testing Library, Cypress** and **Storybook** and increased unit testing coverage from 0% to over **90%**
- Refactored frontend code by **extracting, encapsulating** and writing maintainable and extensible components and reduced build size by over **20%**, and shared the desired coding practices through dedicated demos and code reviews
- Optimized **iOS** data management by implementing a **singleton data repository** in **Swift**. Resolved problems of prop drilling, complicated data mutation, network calls, and high coupling of components and GraphQL subscribers
- Reviewed merge requests promptly and coached team members on code **maintainability, reusability** and **readability**
- Evaluated candidates in hiring process, and mentored interns with weekly 1:1 for knowledge transfer & feedback sharing

Software Engineer Intern

Sep 2020 - Dec 2020

Splunk - IoT

Toronto, ON

- Developed the **iOS** app in **Swift** with a focus on optimizing the IoT device registration flow & data synchronization
- Constructed network calls and API endpoints in **REST** and **GraphQL** through **Combine, AppSync Pub/Sub & Flask**
- Built **Python** programs such as software update rollback, WiFi scanning and remote update control for IoT devices
- Developed the IoT device UI in **Python** and **Kivy** and integrated the UI with background services running sensor reading

Software Engineer Intern

Jan 2020 - Apr 2020

Splunk - Phantom

San Francisco Bay Area, CA

- Developed **REST API** endpoints in **Django**; designed and wrote the corresponding **Python** unit tests
- Managed and designed Django data models and wrote **SQL/ORM** queries to retrieve data from the database
- Integrated the backend changes into the corresponding UI components in **React** and **Backbone.js**
- Designed the architecture of new UI and data models for refactoring and integrating with Splunk internal tools

Software Engineer Intern

Jan 2019 - Apr 2019

Imply Data

San Francisco Bay Area, CA

- Developed highly abstract and extensible **React** components with **Blueprint.js from scratch** for Apache Druid console
- Visualized responsive and interactive data representation of Druid server resource usage through **d3.js**
- Wrote **Bash** and **Node.js** scripts to automatically generate JSON objects for web services by parsing Markdown files

Web Developer

Jan 2018 - Apr 2018

Ontario Investment Office

Toronto, ON

- Visualized relevant data and designed web-based 2D and 3D graphics in an interactive way using **d3.js** and **Three.js**

Education

University of Waterloo and Wilfrid Laurier University

Sep 2016- Apr 2021

Honours Computer Science and Business Administration Double Degree (Co-op) - Dean's Honours and High Distinction