

# 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, NumPy, TensorFlow, PyTorch, Keras
- **Tools:** Linux/Unix, Kafka, PostgreSQL, REST, GraphQL, Kubernetes, iOS, Android SDK, TCP/IP, TLS/SSL, HTTP, Jenkins, Xcode, Vim, LaTeX

## Work Experience

### Software Engineer

Jun 2021 - Present

*Splunk*

*Toronto, ON*

- 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
- Developed microservices in **Go** and **Kubernetes** for Splunk Cloud Developer Edition such as the web server and downstream health checking cron job with comprehensive unit testing
- Built the testing infrastructure for multiple frontend projects using **Jest**, **React Testing Library**, **Cypress** and **Storybook** and increased unit testing coverage from 0% to over **90%**
- Designed and developed authentication and authorization for web apps using **HTTP-only Cookie** and **JSON Web Tokens** on backend with strong focus on security and implemented frontend authentication layer using **React Context**
- Refactored and optimized frontend code by extracting and writing maintainable and extensible components through **componentization** and **encapsulation**, and reduced build size by over **20%**, and shared the desired coding practices
- Optimized **iOS** data management by implementing a **singleton data repository** and avoided problems of prop drilling, complicated data mutation, network calls and high coupling
- Reviewed merge requests promptly and coached team members on code **maintainability**, **reusability** and **readability**
- Investigated multiple **spikes** and broke complex tasks and features into sprint-sized software deliverables
- 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
- Initiated unit testing for iOS app and Python programs and increased the IoT code coverage from 0% to **38.5%**

### 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
- Integrated UI components with backend API to present data and server configuration through **HTTP requests**
- 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, and thus eliminated the need of repeating code and increased codebase maintainability

### 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**

## Open-source Projects

### Apache Druid

- Built a new unified web console for **Apache Druid** with **React** and **Blueprint.js** by presenting data in the forms of tables and bar charts and setting configuration entry points through integration of API endpoints with UI
- Utilized **object-oriented** design to architect functional objects to streamline and simplify the repeated use of same functions for different components, such as the different tables' column selection handlers

## Education

### University of Waterloo

Sep 2016- Apr 2021

Honours Computer Science and Business Administration Double Degree (Co-op)