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
- **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*

- Leading the full-stack development of App Review Portal and App Inspect API in **TypeScript**, **React**, **Python**, **Flask**, **SQLAlchemy** and **PostgreSQL** and initiating discussions on design patterns and code maintainability
- Deploying and managing services using **Kubernetes** and **Terraform** to ensure efficient and scalable software
- Conducting database migrations in **PostgreSQL** and **SQLAlchemy** to change database schema for better performance
- Increased API efficiency by over **10 times** by redesigning and restructuring multiple endpoints to a single API with a single **S3 bucket** download and database read within AppInspect API
- Developed the authentication and authorization mechanism for multiple Splunk projects using Splunk ITS identity, Okta, **HTTP-only Cookie** and **JSON Web Tokens** in **Python** and **TypeScript** on both backend and frontend
- Implemented read-write support in **SQLAlchemy** by customizing its source code to balance the database workload
- Designed and developed microservices and cron jobs in **Go** for Splunk Cloud Developer Edition such as the web server and downstream health checking with comprehensive unit testing
- 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
- 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 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** in **Swift** and avoided 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 deivces
- Developed the IoT deivce 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