Joseph Lee

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Summary of Qualifications

- Highly motivated biomedical engineering graduate with 2+ years of experience in **software development/QA**, **quality systems,** and **FDA operations**.
- 1+ years of experience **developing** and **verifying software** to maximize the quality of **regulated medical devices**, from 16-month internship at Oncoustics.
- Strong knowledge of ISO 13485 principles, having contributed towards the design of a pre-market QMS for Oncoustics.
- Excellent familiarity working in laboratory environments and developing in-vitro diagnostics as Research Assistant at St. Michael's Hospital.

Skills

- **Languages:** Python, C, C++, C#, Java, SQL, MATLAB
- **Technologies:** AWS (S3, QuickSight), GCP, Docker, Flask, NumPy, Pandas, Jira, GitHub, Firebase

Work Experience

Clinical Data Engineer & Operations Intern Sep 2022 - Jan 2024

Oncoustics

- Facilitated software development/QA, data processing, and regulatory affairs to maximize data quality for the world's first ML/DL-based liver screening device.
- Accelerated **digital signal processing (DSP)** runtime by **45%** through regular code reviews, focused on optimizing API calls and parallel processing with Python's **Google Cloud API** and **multiprocessing** library.
- Achieved a **95% reduction** in manual data validation by engineering a **data verification pipeline** with **Python, Clarius API,** and **GCP** to ensure ultrasound scans' metadata adheres to data collection protocols.
- Eased clinical/regulatory operations by **85%** by designing a **document control system** for the company's QMS, consisting of data quality manuals, FDA 510(k) Pre-market Notification documents, and IRB contracts.

Research Assistant Sep 2021 - Sep 2022

St. Michael's Hospital - Institute for Biomedical Engineering, Science, and Technology (iBEST)

- Identified **3+ biphasic solutions** for biomarker partitioning from blood samples, leading to more cost-effective and in-vitro approaches to detecting early-stage lung disease.
- Ensured laboratory safety by implementing continuous improvements in **3+ SOPs** related to lab instrument operation, bacterial sample transportation, and decontamination procedures.
- Accelerated cross-functional team productivity by **85%** by acting as the key liaison between a multidisciplinary group of **6+** engineers and clinicians.

Projects

Engineering Capstone Project: Virtual Tailor Project Report

Toronto Metropolitan University

- Designed the **back-end** and **data processing algorithm** for a software solution which converts photos of a hand into a **tailored, 3D-printable wrist brace**.
- Deployed the back-end pipeline onto a **cloud-based web server** using **Python, Flask, Docker,** and **Google Cloud Run**, enabling users to submit an **HTTPS request** and retrieve a custom STL in **2-3 minutes.**
- Nominated for **Best Capstone Project** of the 2023/24 academic term.

Education

Toronto Metropolitan University (Formerly Ryerson) Sep 2019 - Apr 2024

Bachelor of Engineering (B. Eng.) - Biomedical Engineering (Co-op)