

Joseph Lee

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TECHNICAL SKILLS

- **Development:** Python, SQL, Java, C, C++, JavaScript, Git, VS Code, Linux, Google Cloud Platform (GCP)
- **Documentation & Visualization:** MS Office Suite, Google Suite, Looker, AWS QuickSight, Tableau

RELEVANT EXPERIENCE

Medventions Fellow, Interventional Cardiology – Sunnybrook Hospital Sep 2024 — Present

- Performed **150+ hours** of clinical observations in pre-operative, intra-operative, and post-operative patient care to identify **over 100** unmet clinical needs in interventional cardiology.
- Assessed the technical, clinical, IP, and regulatory feasibility and risk of addressing unmet needs with a commercial medtech device by conducting market and patent research, as well as literature reviews.
- Translated clinical needs into actionable user requirements and technical design inputs by conducting extensive consultations and interviews with **8+** key clinician stakeholders.
- Implemented the technical design specifications of an outpatient temporary pacemaker to reduce hospital length of stay and unnecessary permanent pacemaker implantations.

Clinical R&D Engineering Associate – Oncoustics Jun 2024 — Sep 2024

- Led the design and implementation of tools for automating data processing and analysis, supporting FDA clinical trials and R&D for an ML-driven liver screening device.
- Built a novel ultrasound artifact quantification algorithm that reduces manual data validation time by **75%** and measures acoustic shadowing in liver ultrasound images with **85% accuracy**, using **Python** and **OpenCV**.
- Developed a cloud-based data processing pipeline to calculate scan quality metrics using raw ultrasound data, saving **8 hours** of weekly manual work using **Python**, **Numpy**, and **Google Cloud API**.
- Facilitated 510(k) submissions by performing linear regression analysis on tissue characterization datasets to establish statistical equivalence between the company's device and its predicate using **Scipy** and **Seaborn**.

Clinical & Data Operations Intern – Oncoustics Sep 2022 — Jan 2024

- Established data collection partnerships with **5** healthcare providers across North America, scaling FDA clinical trial operations by **200%** to enable wider participant access and enriched data acquisition.
- Streamlined FDA compliance processes by drafting and proofreading 510(k) pre-submissions, device descriptions, and data collection protocols, accelerating approval timelines for the company's medical device.
- Implemented an interactive data visualization dashboard for real-time tracking of 25+ data collection KPIs to ensure alignment with clinical study objectives using SQL and Looker.

EDUCATION

Toronto Metropolitan University (Formerly Ryerson University) Sep 2019 — Jun 2024

Biomedical Engineering – Bachelor of Engineering (3.91 CGPA)

- **Relevant Courses:** Biomedical Instrumentation, Biomedical Systems Modelling, Human-Computer Interaction
- **Community:** VP Marketing at Biomedical Engineering Course Union, Research Assistant at iBEST & SickKids

PROJECTS

Engineering Capstone (GitHub) Sep 2023 — Jun 2024

- Implemented the image-processing algorithm for an image-guided software that generates tailored, 3D-printable wrist braces using phone captures of the hand, using Python, OpenCV, and Blender API.
- Integrated software with hardware systems, including an image-capturing arm and 3D printing machine, ensuring alignment with project requirements and technical system specifications.