

Jathushan Kaetheeswaran

BIOMEDICAL ENGINEERING · UNIVERSITY OF WATERLOO

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About Me

Programming Java • C++ • Python • JavaScript/JSX • HTML/CSS • C# • SQL

Web Development Node.js • React • Redux • Django • Express • Feathers • Firebase • PostgreSQL • Flask • Webpack • Socket.io • Material UI

Frameworks/Tools Docker • VS Code • Postman • Xcode • React Native • Jira • 3D Slicer • Spring • Selenium • Git • Jenkins • Bitbucket • Figma

Work Experience

Software Engineer | Sunnybrook Research Institute

Toronto, ON

ULTRASOUND IMAGE RECONSTRUCTION SPECIALIST

Jan. 2022 - Aug. 2022

- Designed and programmed software application using **C++** to generate realistic 3D models of tumorous vascular networks and scientific programming **Python** libraries **OpenCV + scikit-image + NumPy + Matplotlib** for visualization of maximum intensity projections.
- Independently developed containerized application in a **Linux environment** by leveraging **Docker + Python** for deploying ultrasound acquisition simulation software across multiple platforms, **increasing the development team's programming efficiency by 60%**.
- Explored the integration of artificial intelligence for ultrasound angiography in a **Linux environment** using **Jupyter Notebook + TensorFlow** for programming **CNN architecture** with **98% precision, 94% sensitivity, and 96% accuracy** on an independently generated dataset of 10,000 images.

Software Developer | Cyclica

Toronto, ON

SCIENTIFIC PLATFORMS TEAM

May. 2021 - Aug. 2021

- Initiated and deployed scientific pipeline for uploading quantitative and qualitative measurement data by leveraging **Python + Django + React + Redux** to develop **RESTful APIs** and responsive front-end components for real-time validation, **reducing user troubleshooting by 90%**.
- Remodelled notification logic for proteomic jobs with **PostgreSQL + Django** to improve user experience and dynamically create messages.
- Coordinated with research scientists to maintain and improve drug discovery platform in a **Linux environment** by using **Selenium Webdriver** to **increase automated test coverage by 15%** and **refactoring 300+ lines of JavaScript code** to improve code health.

Full Stack Developer | University Health Network

Toronto, ON

PATIENT REPORTED OUTCOME MEASURES (PROM)

Sep. 2020 - Dec. 2020

- Rapidly developed web application used by **31000+ patients** at the Princess Margaret Cancer Centre with **React** for creating responsive survey pages, **Express + Docker** for organizing development servers, and **PostgreSQL** for managing APIs through a **Socket.io** transport.
- Structured client-side application as a **Progressive Web App (PWA)** by adding native app-like functionality such as adding to homescreen and offline caching. Created scripts using **JS + PostgreSQL** for sending push notifications to desktop and mobile clients.
- Independently assembled web app under Dr. Deepali Kumar for COVID-19 research study by using **Feathers + Express + Postman** for designing **RESTful APIs** to email participants. Leveraged **reCAPTCHA + React** for improving site security and integrated **Docker** for containerization.

Full Stack Developer (Augmented Reality) | Placernote

Toronto, ON

WEB DEVELOPMENT TEAM

Jan. 2020 - May. 2020

- Led development of client-side web application, used by **6000+ customers**, focused on data management using **React** for creating new components, integrating APIs with **async programming**, and managing application state with **Firebase Realtime Database** and **Redux**.
- Implemented **RESTful APIs** using **Firebase Cloud Functions** for developer portal, allowing for API key regulation, unique project creation, resource deletion, individual map retrieval, and user validation to modify data.
- Spearheaded development of web application for virtual real estate tours by rapidly designing prototypes, programming an intuitive user interface for 3D data visualization using **JavaScript + Firebase + Three.js**, and **reducing model load time by 20%**.

Software Engineer | PointClickCare

Toronto, ON

QUALITY AUTOMATION TEAM

Apr. 2019 - Aug. 2019

- Developed page objects and automated E2E tests for web application through Test-Driven-Development with **TestNG** and **Selenium WebDriver**.
- Utilized **Spring, Java**, and **SQL** in an Agile team to continuously deliver new data entry features, monitor and improve existing automation tests with **Jenkins**, and resolve client issues for CRM web application used by **1000+ skilled nursing facilities**.
- Improved financial web domain's automation repository by **lowering build failure rate from 20% to 4.75%** from 984 tests.

Education

University of Waterloo

Waterloo, ON

CANDIDATE FOR BASC IN BIOMEDICAL ENGINEERING

Sep. 2018 - Present

- University of Waterloo President's Scholarship of Distinction, Honours Co-op
- Relevant course work:** Image Processing, Pattern Recognition, Medical Imaging, Data Structures & Algorithms, Psychopathology