

Searan Kuganesan

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4th Year Software Engineering Student

EDUCATION

B.E.Sc. Software Engineering

Western University, London ON

September 2021 - Present

RELEVANT WORK EXPERIENCE

Full Stack Developer & Data Analyst

Mitsubishi Heavy Industries

May 2024 - August 2025

- Developed full-stack component tracking system using **React.js** and **Python/Flask** serving **2,000+ aircraft** across **100+ operators** with interactive **D3.js/Chart.js** visualizations
- Engineered fleet prediction platform processing **400,000+** monthly records from **SQL Server/Oracle** databases using **pandas/NumPy** ETL pipelines with automated error handling
- Implemented machine learning trend analysis with **scikit-learn** for utilization forecasting across **50+ operators** and **6 regional markets** with statistical validation
- Generated automated monthly aircraft utilization forecasts and reliability reports through Python pipelines, reducing manual processing time by **85%**
- Designed **Oracle database** architecture with optimized indexing and built scheduling optimization engine coordinating maintenance workflows across **2,000+** entities

ENGINEERING EXPERIENCE / PROJECTS

Talking Objects App

Talkobj.vercel.app

September 2025 - October 2025

- Developed real-time CV application with **Google Gemini API** and **ElevenLabs** text-to-speech for AI-generated object personalities, animations, and natural voice interactions
- Built **React/Node.js** application with **TensorFlow.js** and **MediaPipe** integration, implementing intelligent caching and mobile-first responsive design.
- Implemented motion detection optimization using **OpenCV.js** and five distinct personality modes to minimize **API calls** and enhance user experience.

Portfolio Risk Dashboard

Side Project

July 2025 - October 2025

- Built full-stack financial analytics application using **React/Vite** and **Flask** for comprehensive Modern Portfolio Theory analysis and Value at Risk calculations with interactive dashboards
- Engineered **Python** backend with **yfinance API** integration and **NumPy/Pandas/SciPy** libraries for real-time market data visualization using **recharts** with data processing
- Implemented statistical portfolio optimization algorithms for efficient frontier analysis and **multi-asset risk metrics** computation across diversified investment portfolios

TECHNICAL SKILLS

Programming Languages

| Java, Python, JavaScript, C, C#, C++, CSS3, HTML5, MATLAB, SQL

Libraries and Frameworks

| React, Angular, jQuery, Flask, JavaFX, OpenCV, Express.js

Other Skills

| MongoDB, Node.js, MS Excel, Figma, Jira, Miro, AWS, Articulate Storyline

EXTRACURRICULAR ACTIVITIES

WE Bots — Western Engineering Robotics Club Software Team

Gained valuable engineering experience to design, program, and construct a humanoid, autonomous robot. Developed experience with applying software to functioning hardware.

September 2022 - Present

Western Formula Racing — Electrical Team

Specialized in the design, integration, and deployment of electrical systems for Formula One racing cars. Worked with a group of engineering students to ensure the car is running optimally and meets all safety requirements.

September 2021 - Present