René M. Levesque

604-445-9190 | rene.m.levesque@gmail.com | linkedin.com/in/reneml | github.com/ReneEML | renelevesque.com

Education

University of Waterloo Waterloo, Canada
Bachelor of Applied Science in Honours Computer Engineering *Sept. 2019 – Apr. 2024*

- 3.9 GPA (90%), 3x Deans list recipient
- Courses: Operating Systems-93%, Compilers-93%, Computer Architecture-92%, Digital Signal Processing-92%
- President of UW Strength Club and Powerlifting Executive (2023 - 2024)

Experience

Gecko Robotics *Software Engineer* *Jan. 2023 – Apr. 2023*

- Pioneered an **ETL pipeline** to build textures for 3D rendering from ultrasonic inspection data using **Airflow**, **Python**, **Flask**, and **Pandas**. Leading to a 100% decrease in the time it takes to display a 3D scan
- Developed an application for 3D visualization of asset inspections to display millions of collected data points using **React**, **ThreeJS**, and **shaders (GLSL)** to assist the US Air Force and Navy protect their critical infrastructure
- Implemented **statistical analysis** at a bin level using **SQL** and **BigQuery** for our data binning pipeline, leading to more accurate and actionable insights
- Created a **Typescript** library to generate custom color maps based off the ColorCET perceptually uniform color maps, allowing developers to easily integrate color maps into their data visualizations in React applications

Capital One *Software Engineer* *Jan. 2022 – Apr. 2022*

- Built an internal **A/B test** framework using **React** and **TypeScript**, uniquely identified users with FingerprintJS and captured data with Snowplow analytics, which reduced operational costs by **$50,000**.
- Upgraded responsiveness of capitalone.ca through building mobile-friendly front-end components, ensuring the quality of the component library by writing unit, integration, and e2e tests using **Jest** and **Cypress**

XE.com *Full Stack Developer* *May 2021 — Aug. 2021*

- Reduced manual labor by **10+ hours** per month by implementing a microservice to scrape and update currency metadata using **Java**, **AWS Lambda**, **DynamoDB**, and **API Gateway**
- Enhanced available rate data by **10%** by writing a Python script to automatically backfill missing currency rates
- Increased test coverage of currency data API by **15%** accomplished by writing **JUnit tests**

Sleep Country Canada *Web Developer* *Sept. 2020 — Dec. 2020*

- Calculated commissions for over **300,000** transactions per pay period by building **SQL** integration between the sales and payroll systems on Oracle Integration Cloud
- Refactored an internal reporting tool, improving response time by **20%** using **C#** and **MSSQL**

Projects

Ray Tracer | *C++*

- Created a ray tracer using **C++** that is capable of generating photo-realistic images of 3D scenes
- Implemented material models including Lambertian and Fresnel equations to simulate surface types and scattering
- Developed camera features such as adjustable field of view and camera positioning

RISC-V Processor | *Verilog, Python, RISC-V Assembly*

- Implemented a pipelined 5 stage RISC-V processor in **Verilog** with W/X, M/X, and W/M forwarding
- Wrote a test suite in **Python** to validate the implementation of all instructions and to run basic programs

Twitter Stock Sentiment Classifier | *Go, React, TypeScript*

- Implemented **Go** backend to retrieve tweets from Twitter API and classify them using Cohere NLP API, then calculate an average sentiment score for a ticker each day and store the results in a **MySQL** database
- Utilized **Goroutines** to compute a week's worth of sentiment data concurrently
- Developed a React app allowing users to search stock tickers and plot the sentiment vs stock price data on a graph

Technical Skills

Languages: Python, C++, C, Java, SQL (Postgres), TypeScript, Verilog, GLSL, HTML/CSS
Frameworks: React, Node.js, Flask, Spring Boot, JUnit, Jest, pytest, Google Test
Developer Tools: Git, Docker, Google Cloud Platform, AWS, Airflow, Valgrind
Libraries: pandas, NumPy, Matplotlib, scikit-learn, ThreeJS