

Lucas Nogueira

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Languages | C++, Python, C, Go, JavaScript, Java, HTML, CSS

Tech | WebRTC, Git, Docker, Node.js, React, MongoDB, AWS, Redis, Flask, nginx, Jenkins, MySQL

Education

University of Waterloo | Bachelor of Computer Engineering

Sep 2018 - Apr 2023

Specialization: Communication Systems and Signal Processing

Relevant courses: Operating Systems, Data Structures & Algorithms, Computer Networks, Compilers

Experience

Software Engineering Intern | Ross Video

Canada (Remote) | Jan 2021 - Present

- Working on the softGear Streaming Gateway to enable WebRTC streams in TV broadcast infrastructures.
- Developed native WebRTC client using C++ chromium-based implementation to stream multimedia content from Serial Digital Interface to media servers, achieving ultra-low latency of ~0.6s.
- Engineered multi-threaded media pipelines with hardware acceleration using C libraries to interact with a GPU and perform H264 video encoding/decoding efficiently, dropping CPU usage by over 35%.

Software Developer in Test, Coop | The Weather Network

Canada (Remote) | May 2020 - Aug 2020

- Dockerized and deployed Go micro-services to concurrently process weather files, contributing to the deprecation of legacy C++ monolithic forecast engine that serves +4 million unique users.
- Performed geospatial queries on MongoDB to process coordinate messages from AWS SQS on ~8GB data sets of granular precision weather data leading to nearly 30% performance upgrade.
- Used Jenkins, Helm, and Kubernetes to standardize CI/CD deployment pipelines across multiple engineering teams, improving infrastructure maintainability.

Junior Web Developer | AGF Investments

Toronto, ON | Sep 2019 - Dec 2019


- Shipped several JSP pages and Java backend server endpoints interacting with SQL database to handle users/staff messaging requests and secure file uploads that impacted over 60 000 users.
- Implemented React into Java Spring to migrate off legacy JSPs and jQuery Plugins which reduced bundle size by approximately 15%.

Teaching Assistant | University Of Waterloo

Waterloo, ON | Jan 2019 - Apr 2019

- Taught and coordinated CS138, a first-year Software Engineering course introducing students to Data Structures and Object Oriented Programming in C++.
- Developed Python scripts to automate tasks such as marking assignment and releasing grades.

Projects

Liteboard.io | Featured | +300 stars on Github 

Apr 2020 - Oct 2020

- Built backend infrastructure, using Janus SFU implementation, capable of supporting multistream conferences with up to 50 participants per room powered by WebRTC, Redis, Node and Express.
- Implemented WebSocket-based chat rooms with support for image/document attachments to enable concurrent messaging system between students and lecturers in the platform.

Arithmetic Expression Tree Simulator | Demo here 

Tech Stack: JavaScript, HTML, CSS

- A web app that generates a tree structure representation of a given arithmetic expression. Used Knuth's layout algorithm to ensure branches will never collide.
- Applied Dijkstra's Shunting-yard algorithm to parse arithmetic expressions to then asynchronously and recursively create tree animation.