


# Lucas Nogueira

3A Computer Engineering, University Of Waterloo

 Inogueir.me  Inogueir  Inogueir  Inogueir  Inogueir@uwaterloo.ca

## Skills

Languages | C/C++, Python, Go, JavaScript/Node.js, HTML/CSS, Java, Bash, Groovy, Assembly

Tech | WebRTC, Git, Docker, Mongo, FFmpeg, AWS, GStreamer, Redis, React, Jenkins, Socket.io, MySQL

## Experience

Ross Video | Software Engineer, SoftGear

January 2021 - Present

- Implemented **WebRTC** client using **pure C++ chromium-based native code** API to publish and process multimedia streams to and from **SDI** ↔ **Ant Media Server**, achieving **ultra-low latency of ~0.6s**.
- Engineered **multithreaded** media pipelines with **hardware acceleration** using a **GPU and libav** to perform H264 encoding/decoding of/to raw NV12-format video efficiently, dropping CPU usage by **over 35%**.

The Weather Network | Software Developer in Test, Infrastructure

May 2020 - August 2020

- Contributed to deprecation of **C++** monolithic forecast engine by developing **loosely coupled Go libraries** to **concurrently** process weather files serving **+4 million unique users**.
- Performed **geospatial queries on MongoDB** to process coordinate messages from **AWS SQS** and **S3** events on **8GB** data sets of granular precision weather data leading to nearly **30% performance upgrade**.
- Used **Jenkins, Docker, and K8s** to standardize the **CI/CD** approach on the company for **all backend teams** by engineering a configurable centralized **deployment pipeline** improving infrastructure maintainability.

Liteboard.io | Founder & Software Engineer | **+300 stars on Github**

April 2020 - October 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.

AGF Investments | Junior Web Developer

September 2019 - December 2019

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

University Of Waterloo | CS138 Teaching Assistant

January 2019 - April 2019

- Conducted lectures and office-hours to teach **Data Structures and Object Oriented Programming in C/C++** for Software Engineering students and developed **Bash/Python** scripts for auto-marking assignments.

## Projects | more on Inogueir.me

Arithmetic Expression Tree Simulator - Side Project  | Demo here    Tech Stack | JavaScript, HTML, CSS

- A web app that, with animation, generates **binary trees** of arithmetic expressions with pure JavaScript by applying **Knuth's layout algorithm** to assign coordinate to nodes without collision of branches.
- Utilized **Dijkstra's Shunting-yard algorithm** to parse expression from infix to its postfix form in order to **asynchronously and recursively** create animated tree structure simulation.

## Education

University of Waterloo | B.Eng Computer | GPA: 3.0

September 2018 - April 2023

\$2000 President's Scholarship Of Distinction

University of Rio de Janeiro (UFRJ) | B.Eng Electrical | GPA: 4.0

February 2018 - August 2018

Placed 6th of all admitted students; Top 5% student - Calculus 1 Award;