

Philippe Nadon

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2020 graduate with degrees in Computer Science, Mathematics, and Physics and a passion for web apps, low-level programming, and contributing to open-source projects. Experience includes multiple projects using diverse tools and languages, open source work, professional work on a software tool adopted by two major Canadian cities, and leadership roles within university organizations. Seeking positions involving backend web development or systems-level programming.

EXPERIENCE

Rimbey FCSS - Alberta, CA

May 2020 - Aug 2020

Rimbey FCSS is a nonprofit that provides services to the Alberta community.

Software Engineer

Selected to the University of Alberta's Pathways Program designed to provide students with opportunities to apply their skills within small rural or indigenous communities.

- Extracted, cleaned, and modeled unstructured data used to visualize program impacts and costs, leveraging Pandas, Python's scientific stack, Seaborn, and PDFMiner.
- Automated and digitized a manual shift management process that initially used an office whiteboard by building a web app using Firebase Auth, GraphQL, React, and Airtable's API to enable staff to sign in and manage shifts online, resulting in reduced error from user input and improved access to request processing.

University of Alberta - Alberta

May 2019 - Aug 2020

Undergraduate Researcher (Summers 2019 & 2020)

- Simulated a toy model of a Polymer Electrolyte Membrane by creating a self-consistent model which describes the swelling of the throats within the membrane, and the proton and water flux through the same throats.
- Work was presented as part of Peter Berg's presentation "Energy conversion in electrokinetic flow through soft nanofluidic channels" at the Field Institute, Stewart Library at the University of Toronto, August 22, 2019.

First Year Seminar Tutor Practicum (unpaid) (Aug 2019 - Sept 2019)

- Paired with a professor to teach first year students on the ethics and applications of Robotics.

ETA Team - Alberta

2019 - 2020

ETA Team is a group of students who developed the [ETA Tool](#) commute time estimation application.

Lead Researcher (Oct 2019 - Mar 2020)

Lead Researcher for development of the ETA Tool for contract engagements with the Cities of Edmonton (Oct 2019 - Mar 2020) and Calgary (Jan 2019 - Dec 2019).

- Created a tool for the Cities that generates several estimated times of arrival for any chosen route based on multiple data sources and scenarios.
- Researched and developed the tools, frameworks, and services used to build, host, and deploy the tool.
- Cleaned and optimized the database to ensure correct and efficient delivery of information.
- Contributed to development of the algorithm used to load relevant road segments and scenarios, and perform the calculation used to estimate the change in time of arrival.
- Optimized tool to reduce resource usage and removed excess content to enable embedding on Edmonton's website.

EDUCATION

BSc in Computing Science and Math/Physics, University of Alberta (2020)

- **Project Head, [The Cryptography Challenge](#)** (Spring 2020) This was the first cross-campus event between campuses at the University of Alberta where students competed on encryption challenges. Developed event's story and format (point system, quantity, difficulty, release dates), organized tasks, and hosted and deployed event website.
- **President, insIDE Club** (May 2019 – May 2020) Managed university club dedicated to designing software solutions for real world problems.

PROJECTS

- **[Miri](#)** - Made multiple contributions to Rust's open source experimental interpreter in rust-lang/miri and rust-lang/rust repos. (Links [1](#), [2](#), [3](#))
- **[Modified Nodal Analysis Tool](#)** Created an algorithm which takes a text-based circuit description and computes the voltage at every node. Created a circuit generator which allowed users to test the algorithm's efficiency for various sizes and density of circuits. The algorithm was tested both on a multi-core CPU and a GPU. Report [here](#)
- **[Discord Bot](#)** (weather) Created a Discord bot that queries specific messages requesting weather information for a local area using the OpenWeatherMap API.
- **[Discord Bot](#)** (scheduler) Wrote a Discord bot for scheduling using Rust.
- **[Bookstore Custom Order App](#)** Made a [cross-platform Desktop app](#) for custom hoodie ordering designed to allow users to submit data (name, email, etc) and customize hoodies by filling in text boxes and selecting from dropdown menus. Data is stored in Google Sheets and the app features a live price counter and printable summary of the order.
- **[Bighorn Dam](#)** Created an interactive map showing changes to the area after Bighorn Dam was created in Alberta, which led to the creation of Abraham Lake. Project link [here](#).
- **[Hackathon 2018 Submission](#)** Participated in [2018 Calgary Hackathon](#) dedicated to improving pedestrian comfort in Calgary. This submission resulted in a contract with the city and grew into a [full-fledged web-app](#).

SKILLS

Concepts: Agile, Concurrent / Parallel Computing, Scientific Computing (Simulation, Analysis), Web App Development, Android App Development, Linux / Server Deployment & Management

Programming: Python, Julia, Matlab, C, C++, Java, JavaScript, Go, Rust

Language: Bilingual French/English