CHLOÉ BENKO-PRIEUR

Engineering Physics Graduate | Montréal, QC
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EDUCATION

B.A.Sc. Engineering Physics Sept 2019 - Dec 2024
University of British Columbia, Vancouver, BC
Cumulative average: 86.5% | Co-op graduate

SKILLS SUMMARY

Programming concepts & methodologies | OOP | Version control | Unit testing | Data structures | Databases
Programming languages | Python | C++ | SQL | Bash
Tools & Frameworks | Git | Docker | Airflow | Django | Pandas | Scikit-learn | OpenCV
Hardware & Embedded systems | Arduino | ESP32 | MQTT
Electrical & Mechanical | Power management | Servo, DC & Stepper motors | CAD | Power transmission
General | Documentation | Presentations | Project management tools
Languages | English | French (native)

EXPERIENCE

Whale Seeker May - Aug 2024
Software & Data Engineering Intern Montréal, QC

- Built a Python package to **automate outlier detection** in large imagery datasets, reducing manual inspection time and supporting the creation of high-quality training datasets for machine learning.
- Boosted team productivity by **testing & integrating** my package into the company's Django app, optimizing for runtime performance and scalability.
- Fostered **better communication & accelerated project timelines** by providing instant and actionable **data quality insights** to clients using tables, figures and interactive maps.

Python | *Django* | *Docker* | *Pydantic* | *Unit testing* | *Git* | *Argparse* | *Plotly* | *S3*

Sel Saint-Laurent May - Aug 2023
R&D Assistant & Software Engineering Intern Grandes-Bergeronnes, QC

- Programmed a **control algorithm** leveraging sensors, relays & wireless communication between microcontrollers to automate the salt crystallization process, **reducing power consumption & human error**.
- Developed a Docker application for seamless deployment of an MQTT server and time series database, enabling **real-time monitoring** of R&D tests and data-driven decisions aligned with a 70% energy reduction goal.
- Applied my thermodynamics knowledge to **analyze data**, calculate energy losses and select the most energy-efficient heating solution.

Linux | *C++* | *ESP32* | *MQTT* | *Bash* | *Docker* | *Python* | *Time series database* | *Sensors* | *Relays*

Arthur Intelligence May - Dec 2022
Software Developer & Data Analyst Intern Montréal, QC (Remote)

- Helped drive **business growth & client satisfaction** by creating and launching a new automated BI product.
- Designed the product to be **easy to use & sell** by creating clear and insightful data visualizations.
- **Resolved a critical data discrepancy** by debugging and optimizing complex SQL queries, improving the accuracy and credibility of the product.
- **Analyzed & fixed bugs** across multiple layers of a large production codebase.

Python | *Pandas* | *Jupyter* | *SQL* | *Debugging* | *Git* | *CI/CD* | *Airflow* | *PostgreSQL* | *BigQuery* | *JavaScript* | *React*

Environment & Climate Change Canada Jan - Apr 2021
Research Assistant & Data Analyst Intern Dorval, QC (Remote)

- Evaluated the performance of soil moisture prediction models by filtering, graphing and analyzing data.
- **Developed an algorithm** to merge low and high-resolution satellite data as a new modeling approach.
- Helped guide the project direction by **delivering clear presentations** of my results to scientists and stakeholders.

Linux | *Vim* | *Python* | *Numpy* | *Matplotlib* | *Excel*

TECHNICAL PROJECTS

Interactive Kinetic Art Installation Oct 2021 - Dec 2024
Mechatronics Team Lead

- Co-led the design and creation of an interactive kinetic origami structure that brings awareness to air pollution. Link to our successful Kickstarter.
- Prototyped custom actuation mechanisms to animate a large piece of origami based on user input from a web app.
- Facilitated **cross-team collaboration & coordinated 5-10 members** to meet project milestones on time.
- Presented the project to an audience of over 100 at the ACEC-BC Young Professionals Conference.

Prototyping | *Power management* | *Software & hardware integration* | *Project management*

Breath-controlled Actuated Chair Sept 2022 - Apr 2024
Mechatronics Capstone

- Designed and built a breath-controlled actuated chair that met our sponsor's budget, requirements and objectives.
- **Modelled** the desired outcome using **math & physics**.
- **Analyzed** pump and motor **specifications** to determine suitability based on **budget & design requirements**.
- Built a functional **prototype** using CAD, water jet cutting, hand tools and 3D printing.
- **Controlled** the position and speed of a stepper motor with a **low-pass filter** to provide a smooth user experience.

CAD | *Power transmission* | *Mechanical design* | *Controls* | *ESP32* | *C++* | *Project management* | *Conflict resolution*

LLM Hackathon March 2024
24hr Team Competition

- Designed and developed a functional web app in 24 hours with a team of three to support women's health. Github.
- Integrated Cohere's API to implement a **live AI chatbot** that answered user questions and gave prompt suggestions.
- Developed **backend & frontend features** for the live chat interface, ensuring smooth interaction between user queries and Cohere's LLM responses.

Cohere | *JavaScript* | *NodeJS* | *React*

Gazebo Simulation & Convolutional Neural Network Oct - Dec 2021
Machine Learning Project Course

- Wrote **custom functions** to identify license plate characters in a Gazebo environment using OpenCV.
- Published and subscribed to ROS topics to control the driving robot inside the environment. Link to video.
- Set up and **trained a convolutional neural network** (CNN) using Keras to read license plates.

Linux | *Python* | *Keras* | *OpenCV* | *ROS* | *Machine learning's principles*

Autonomous Robot Jul - Aug 2021
Robotics Project Course

- Designed and built a successful autonomous tape following robot that picked up cans and satisfied design constraints. Pictures & video.
- Analyzed, designed and debugged **circuits**, including custom made H-Bridges.
- Programmed an STM32 with C++ to control the robot using optical sensors, motors and switches.
- **Optimized** power management and reduced electrical noise to **improve performance**.

Mechanical & electrical design | *Power management* | *Noise control* | *DC motors* | *Sensors* | *STM32* | *C++*

UNDERGRADUATE COURSES

Software | Principles of Software Construction | Data Structures & Alg. | Microcomputers | Applied Machine Learning
Mathematics | Multivariable Calculus | Applied Linear Algebra | ODEs | PDEs | Probability & Statistics
Engineering | Signals & Systems | Electrical Circuits | Fluid Mechanics | Mechanics of Materials | Machine Design
Physics | E&M | Thermodynamics | Classical Mechanics | Electromagnetic Theory | Quantum Mechanics | Optics