

## INTRODUCTION

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As a Hydrographic Surveyor with interest in computer programming I have developed automated and semi-automated workflows using python coupled with batch processors to accomplish final products. I have recently expanded my knowledge and interest in programming through AI programming.

## SKILLS/ TRAINING

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### Software Development

- Python
  - Pandas
  - SciKit Learn
  - Pytorch
- SQL
  - Oracle
  - Postgres
- JavaScript

### Geospatial Software

- Caris Products
  - Hips and Sips
  - Base Editor
  - Bathy Database
- Kongsberg SIS
- QGIS
- ArcGIS
- QPS Products

### Training Certificates

- Personal Survival Techniques (STCW) (July 2023)
- Domestic Vessel Safety (DVS) (July 2021)
- Small Vessel Operators Course (SVOP) and MED A3 (December 2019)
- Radio Operator's Course (ROC-MC) (August 2019)

## WORK EXPERIENCE

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### Canadian Hydrographic Service (CHS)

#### Senior Geomatician (Acting)

April 2023 – August 2023 & June 2024- August 2024

- Develop an automated workflows using python for incoming community based Hydrographic bathymetry data
- Provide support and process Incoming Data
- Prepare and present on progress of Community Hydrography to working groups, other hydrographic offices, communities, clients, and external stakeholders
- Follow, maintain standards metadata standards for crowd source bathymetry and digestion into CHS database holdings

#### Hydrographer in Charge (Acting)

March 4 – March 17, 2024 & May 15 – May 29, 2024

- Lead Hydrographer aboard Leeway Novus and Coriolis Survey Vessels
- Communicated with ship's captain and crew for planning during survey operations
- Ensured data collected met IHO S-44 Standards, through real time monitoring
- Analyze and quality check data for potential NAVWARNs for release to mariners
- Delivered support and on-job training to junior staff member on data acquisition, processing and analysis best practices following CHS ISO 1000 series documentation

#### Multi-Disciplinary Hydrographer

June 2019- Present

- Develop numerous python scripts utilizing processing software packages coupled with the python scripting language enhancing CHS workflows

- Provide in-house troubleshooting to several staff on software and tools from installation, to describing how to run certain processing tools
- Lead LiDAR Quality check on contract deliverables before submitting and loading into Database
- Thoroughly document procedures and follow ISO work flows, as well as preform yearly audits on ISO procedures to ensure standards are continuously met

CO-OP Student Hydrographer

May 2018- September 2018

- Develop automate solutions utilized functionalities of Caris Process Designer tool and Python programing language
- Organize and lead user meetings to ensure solutions meet user standards

### **Geodesy and Geomatics (GGE) Department**

Student Assistant for Ocean Mapping Group  
and GGE Department (several work terms)

June 2016 – September 2018

- Utilize software tools such as Arcmap, and QGIS to interpret, organize and manipulate geographical data including ocean mapping data.
- Create surface product deliverables from multi-beam and back-scatter data, using Caris, Arcmap and QGIS products
- Appropriately following safety and equipment instructions for calibrating and testing Geomatics lab equipment
- Support with recruitment activities held by the UNB Geomatics Department, by preparing presentations and geocaching events for future students of UNB

### **Natural Sciences and Engineering Research**

January 2017– April 2017

#### **Council of Canada Undergraduate Student Research Award (USRA)**

Research Team Member under Dr. Stefanakis at the University of New Brunswick

- Individual research and analysis for flood modeling mapping on a team project
- Analyze and compare open source elevation data against LiDAR elevation data using digital elevation models (DEMs)
- Understand and use software such as python programing language, QGIS and ArcMap to attain final deliverables

## **EDUCATION**

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Nova Scotia Community College (IT Campus)

September 2024 – Present

Graduate Certificate in IT Programming for artificial Intelligence

- Machine Learning using scikit-learn, pytorch, python, react, javascript
- Data cleaning, manipulation, analysis using panada libraries for machine learning data display to users using matplotlib and seaborn python libraries.

University of New Brunswick (Fredericton Campus)

September 2014 – May 2019

Bachelor of Science in Engineering in Geodesy Geomatics Engineering.

- Big Data Analytics course covering the fundamentals of data analysis and advance functions of Python programming language
- Image Processing course (C++, C#, Matlab)
- Courses focusing on geospatial data, data processing and analysis, engineering survey design, and computer science

## AWARDS/ ACHIEVEMENTS

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- Publication in IHR – Rondeau M., Brenton M., Montpetit-Allard G, Leger M, Bilodeau Y, Kasudluak J From volunteer ping to community map – The CHS' Community Hydrography Program, No. 20 May 2024
- Government of Canadas Immediate Award for development of scripts and enhancements to data processing (December 2019 & May 2021)
- Presenter at USHYDRO (September 2021)
- Publication in IHR – Leger M., Gong J., Church I. 2019, Vertical Assessment of Lidar Bathymetry. International Hydrographic Review, No. 22, November 2019, pp. 39-53
- Competitor in National Geomatics Competition Fredericton NB (2018)
- A.W McLaughlin Scholarship in Geomatics Engineering (2017)
- Natural Sciences and Engineering Research Council of Canada Undergraduate Student Research Award (USRA) (January 2016- April 2016)
- Royal Canadian Electrical and Mechanical Engineers (RCEME) Bursary Award (2015)

## VOLUNTEER WORK

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Long Lake Provincial Park Cleanup (2022)

Nashwaak Water Shed Association Volunteer 2017 - May 2019

- Assist with various field projects including culvert assessments for their Aquatic Connectivity Project & provided information for their educational geocaching programs. (Summer 2017)
- Provided assistance with restoration of the Marysville Flats by assisting in planting silver maple trees

Kids Ball hockey Volunteer and Fundraiser 2015-2017