Sophie Varabioff

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Experience

VodaSafe August 2023 - Present

Research and Data Engineer

- Built a data collection system that effectively and efficiently captured raw sonar data at lakes, rivers and oceans, and assembled a database of over 5000 labelled sonar scans for training our ML
- Developed a data pre-processing pipeline in python, as well as data visualization and analysis scripts, and managed code with git and bitbucket
- Designed, developed and maintained a scalable data pipeline using AWS services
- Collaborated closely with a cross-functional team to understand requirements and translate product management, engineering, and business constraints and inquiries into actionable research questions
- Implemented and managed R&D projects including sonar beam shape measurement, resonant frequency characterization, human sonar reflection characterization
- Integrated guidance from the marketing team on user needs with technical feasibility and product requirements to ensure our developments add strategic value for the company
- Refined my ability to learn and adopt relevant new technologies, tools, methods and processes to leverage in solutions, and handle ambiguity

ARIS Environmental April 2021 **-** August 2022

Software Developer

- Developed Python code to model contaminated sites, as the backend for a web analytics site assessment tool
- Researched and modelled aspects of contaminated sites hazard data, geospatial data, and other data sources
- Established a CI/CD pipeline utilizing VS Code, Bitbucket, Postman, and Azure
- Led user experience decision making for input options and output of numeric data in real time
- Wrote and maintained external client documentation, including the original mathematical models, user input requirements, and usage guidelines for the outputs

Projects

Machine Learning Entomology Classifier for Smart Insect Traps

- Collaborated with a small team to design an AI-powered smart insect monitoring tool
- Implemented a segmentation algorithm for field images of sticky-trapped insects (captured with a Raspberry Pi camera) and labelling tool for individual insects
- Developed a hierarchical classifier (following biological taxonomy) using machine learning
- Gained an understanding of data preprocessing and augmentation techniques for large-scale image datasets

Building Energy Optimization | UBC Smart City

- Developed a Python program to calculate optimized building retrofit options to improve energy efficiency and decrease energy demand
- Designed a user interface using Tkinter
- Organized a development timeline and kept us on track, as each team member developed separate submodules such as water heating, lighting, and solar power
- Communicated with team mates throughout the process to understand technical challenges, clarify user needs and integrate the inputs and outputs of each submodule into a cohesive software program

Skills & Certifications

Python, Git/Github, AWS, MySQL, MATLAB, OnShape, French (DELF B2), data visualization, image processing, Jira/Bitbucket, AWS, Italian (intermediate), customer service

Education

University of British Columbia Vancouver, BC

Bachelor of Applied Science in Engineering Physics, Minor in Entrepreneurship May 2023

- Coursework: computational physics, multivariable calculus, applied linear algebra, principles of software construction, signals and systems, electromagnetic theory, probability

Hobbies

dancing, hiking, skiing, music production, painting, learning new skills, Fred again.., meeting new people, culinary experiences, engaging with community events, wine history and pairings, mezcal, jazz, coffee, ocean conservation, boats, water sports, marine life, SCUBA