

# Jacob Mish

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## TECHNICAL SKILLS

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**Programming:** Python, Rust, Java, MATLAB, Typescript, Swift, SQL  
**Libraries:** Numpy, Pandas, Scikit-learn, Tensorflow, Pytorch, Keras, Scipy, Obspy  
**Tools:** Azure ML Studio, Databricks, Amazon Web Services, Docker, MatGPR, R2  
**V-Control:** Git/Github, Azure DevOps, GitLab  
**Database:** Databricks SQL, MySQL, Microsoft SQL Server, Oracle SQL  
**Frameworks:** React Native, Streamlit, Flask  
**Visualizations:** Matplotlib, Plotly, Seaborn, Tableau, PowerBI

## SOFT SKILLS

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Strong communication skills - demonstrated through the ability to convey complex technical information to a non-technical audience through presentations

Collaboration skill - working with others and sharing ideas/feedback to produce effective results efficiently while maintaining a positive environment

## RELEVANT EXPERIENCE

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### Data Developer

March 2023 - Present

*Strathcona Resources LTD.*

*Calgary, AB*

- Utilized LLM Transformers to create a Q&A chatbot with contextual knowledge of company HR documentation.
- Developed a web app featuring Azure Single Sign-On authentication, managed group-based permissions, and integration with multiple APIs, centralizing access to diverse tools for enhanced user experience.
- Utilize various APIs to collect data, automate tasks, and gather insights for business intelligence purposes.
- Design and develop curated tables from raw data to provide valuable insights for various teams across the organization.
- Create automated workflows for efficient data collection, cleaning, and transformation, generating curated data ready for analysis and visualization.
- Optimize cloud compute costs by configuring ideal settings for specific tasks and improving script runtime efficiency.
- Implement data validation, data transformation, and data quality checks to ensure data consistency and accuracy.
- Stay current with industry trends and best practices in data engineering and technologies to continuously improve data infrastructure and workflows.

### AI/Machine Learning Consultant

(Contract) October 2023 - Present

*CircuitStream*

*Calgary, AB*

- Spearheaded the creation of the capstone project, a sophisticated Discord bot that integrates OpenAI APIs and traditional machine learning models, like recommender systems.
- Collaborated in the development of a comprehensive Machine Learning Pre-University Course, focusing on practical, student-centered learning
- Assisted in the meticulous planning of the course schedule, ensuring a coherent and progressive learning experience
- Played a key role in curating and determining the course content for each session, aligning theoretical knowledge with practical application

### Associate Machine Learning Developer

(4-Month Contract) September 2022 - December 2022

*AltaML*

*Hybrid / Calgary, AB*

- Implemented tree-based regression algorithms for predicting the permeability of rock core images with an accuracy of 94%, saving the client upwards of \$10 million dollars.
- Conducted error analysis to further improve model performance.
- Prepared visualizations and presented weekly updates to clients.
- Developed a Machine Learning pipeline from scratch on Azure.
- Competed in a Microsoft-hosted hackathon, and created an application utilizing Natural Language Processing (NLP) to extract moods from journals.

## Undergraduate Researcher

December 2020 – February 2022

University Of Calgary

Calgary, AB

- Published and presented as primary speaker at EAGE Edinburgh
- Used Machine Learning / Convolutional Neural Networks (CNN's) from Python Tensorflow to Detect Near Surface Geohazards from Distributed Acoustic Sensing (DAS) Data
- Utilized signal processing techniques to filter and process raw data
- Worked with AWS cloud computing to store and handle large data volumes
- Built interpretation of results from statistical analysis
- Published in Near Surface Geoscience Conference & Exhibition

## IRIS Intern

May 2020 – September 2020

Incorporated Research Institutions for Seismology (IRIS) & University of Miami

Online / Remote

- Worked with Linux (Shell Scripting, AWK, GMT), Seismic Analysis Code (SAC), Web Services (IRIS DATABASE), Python (Pandas, Numpy, Obspy)
- Processed Seismic data from Web-Services and identified epicenters and hypocenters of events, along with magnitudes
- Determined principal functions of events using models and predicted likelihood of future events
- Used seismic data to create a model showing changes in human activity after COVID-19 pandemic restrictions were set in place
- Differentiated between natural seismic events and human-related activity (bomb testing)

## OTHER EXPERIENCE

### Medical Office Assistant

May 2020 - August 2020

Dr. Noiles & Mish Medical Clinic

Calgary, AB

### Pizza Restaurant Supervisor

April 2018 - October 2018

Andaros Pizza

Calgary, AB

### Volunteer

January 2014 - December 2015

Youth Central

Calgary, AB

## EDUCATION

### University Of Calgary

Calgary, AB

Bachelor of Science in Geophysics

May 2022

- GPA: 3.7/4.0 Last 90 Credits
- Graduated With Distinction
- Elected as Geophysics Representative of the Graduating Class of 2022
- Suncor Energy Emerging Leaders Science Scholarship
- (PURE) Program for Undergraduate Research Experience Award
- Faculty of Science Deans List
- Jason Lang Scholarship

## PUBLICATIONS

- Mish, J., Ferguson, R., Mosher, C. (2023). Distributed Acoustic Sensing and Machine Learning: Rockfall Detection at Mt. Meager, B.C. NSG2023 29th European Meeting of Environmental and Engineering Geophysics, Sep 2023, Volume 2023, p.1 - 5 <https://doi.org/10.3997/2214-4609.202320030>
- Ferguson, R., Mosher, C., Dettmer, J., & Mish, J. (2021). Distributed Acoustic Sensing of daylight on a glacier in Canada: Hotspot Monitoring. NSG2021 27th European Meeting of Environmental and Engineering Geophysics. <https://doi.org/10.3997/2214-4609.202120218>
- Mosher, C. M., S. Sood, R. J. Ferguson, and Mish, J. Javaseis cloud: A cloud-native framework for seismic io. In 2022 Rice Oil & Gas HPC Conference, page [Video Recording](#), Houston, United States, 2022.

## EXTRACURRICULARS

- Personal Projects / App-Development working in Python, Rust, React Native, Swift
- Building and Working on Desktop Computers
- Hiking / Tennis / Biking