

Education

- **Memorial University of Newfoundland** St. John's, Canada
BSc 2015 - 2019
 - Earth Sciences and Physics Joint Honours
 - Mathematics Minor
- **Colorado School of Mines** Golden,USA
Masters in Computational and Applied Mathematics 2019-current
- **Colorado School of Mines** Golden,USA
PhD in Geophysics 2019-current

Academic experience

1. **Graduate Research assistant:** I'm currently working with professor Roel Snieder at the Center for Wave Phenomena, Colorado School of Mines. We aim to study and understand under which conditions Super-Resolution may be achieved in Seismic Imaging.
2. **Geophysics Research student:** Scattering and attenuation estimation comparing an Icelandic Geothermal Field and synthetic data through the study of coda wave information under the supervision of Dr. Alison Malcolm at Memorial University of Newfoundland (May 2017-August 2019).
3. **Geophysics Summer Researcher:** Scattering and attenuation estimation through the study of coda information for long-period and Volcano-Tectonic events. This work also included the use of specfem3D to simulate seismic response to different physical parameters. This work was done under the supervision of Dr. Rabbel at Christian-Albrechts-Universitt zu Kiel. (May 2018-August 2018)
4. **Geophysics field assistant:** Mostly consisted in monthly magnetic and gravity surveys in Nordstrand, Schleswig-Holstein, Germany with researchers from Christian-Albrechts-Universitaet zu Kiel (May 2018-August 2018).
5. **Fluid dynamics laboratory assistant:** Experiment set up for study of internal gravity waves (May 2016-December 2016).

Technical Publications

1. **MA Jaimes**, AE Malcolm, MC Fehler. Validation Of a Recently Proposed Method For Coda Wave Inversion: A comparison of field and synthetic data. *American Geophysical Union Fall meeting*, San Francisco, CA, December 9-13, 2019.

Research Interests

I'm interested in several aspects of exploration and earthquake seismology. I seek to use mathematical and physical tools to better understand processes that occur in the subsurface from data recorded at the surface, a.k.a. the typical geophysical inverse problem. Below I describe the two avenues of research that I'm currently pursuing.

1. **Super-Resolution:** For a long time it has been thought that beating the diffraction limit of $\frac{\lambda}{2}$ is an impossible task to perform. Recently, it has been experimentally shown that in complex media super-resolution may be achieved as the medium heterogeneity increases the angles from which the subsurface is illuminated. I'm interested in knowing: what receiver geometries increase image resolution, how the resolution depends on the velocity model, and how the seismic resolution changes for a given experimental set-up.
2. **Coda Waves:** Coda waves are composed of seismic waves that have scattered multiple times in their path from the source that originated them to the receiver where they are recorded. They contain meaningful information about the subsurface in the form of seismic scattering and intrinsic absorption. These two properties, however, are hard to separate from one another. I'm interested in methods which allow separating these two properties and that agree with geophysical/geological observations.

Awards, Grants & Honours

Graduate Fellowship at CWP	2019-present
Chevron Canada Ltd. Term Scholarship in Business, Earth Sciences, Economics, and Engineering	2018-2019
DAAD RISE - MITACS Scholarship to young scholars for research in Germany	2018
Chevron Canada Ltd. Term Scholarship in Business, Earth Sciences, Economics, and Engineering	2017-2018
The Harry Kieft scholarship fund	2016-2017
International Student Award Scholarship	2016-2017
Dr. Hugh J. Anderson Junior and Senior Scholarship in physics and Physical Oceanography	2016-2017
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PEGNL Scholarship	2015-2016
The Husky White Horse Diversity Project Scholarship	2015-2016
International Student Award Scholarship	2015-2016
Science Dean's list	2016-2017
Science Dean's list	2015-2016
Winner of the Vex Robotics Colombian national championship	2013

Technical/Computer Skills

1. Working experience with Python, Linux, bash script, Mathematica, Fortran and C.
2. Introductory MatLab and Parallel computing.
3. Proficient in Microsoft packages

Teaching/Volunteering experience

1. President of the physics undergraduate society PAPOS (2017-2018).
2. Treasurer of the physics undergraduate society PAPOS (2018-present).
3. Tutor of third year physics at Memorial University through PAPOS (2018-present).
4. Tutor of pre-calculus math in the Mathematics department at Memorial University (2018-present)
5. Science outreach with Lets Talk Science in Newfoundland, mostly consisting of demonstration/explanation of experiments to kids from elementary and middle school. (2015-present)
6. Lead robotics tutorials and activities for primary school kids at Colegio San Pedro Claver (2012-2014)