
Experience

Senior Machine Learning Scientist	<i>Feb 2022 – Present</i>	Computational Geosciences Inc
Data Scientist	<i>Sep 2020 – Feb 2022</i>	

- Deliver deep-learning mineral prospectivity mapping, as well as tailored machine learning models across the mining and energy sector, working collaboratively with clients and an internal geoscience team.
- Improve internal deep learning methods by testing developments in areas such as graph neural nets, PDE inspired neural nets, and data augmentation in collaboration with university partner.
- Advanced internal proof-of-concept deep learning code to production system accelerating workflow of mineral prospectivity projects by weeks/months.

Founder	<i>July 2018 – Sep 2021</i>	Inlet Laboratories
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- Independent consulting on projects such developing a Bayesian time series forecasting system for a medical school, business process mapping of personally identifiable information flow through a Fortune 500 company, and technology evaluation for a leading mining company.
- Handled all aspects of a small business including sales, legal, and finance.

Co-Founder	<i>July 2018 – Dec 2019</i>	Prose AI
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- Designed and optimized LSTM neural networks for real-time voice recognition in-browser and managed AWS cloud infrastructure.

Postdoctoral Researcher	<i>July 2017 – July 2018</i>	University of Edinburgh
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- Developed new ice-sheet model for uncertainty quantification of sea level rise due to mass loss from the Antarctic ice sheet.
- Finite element modelling of ice flow using the FEniCS library leveraging automatic differentiation for solving inverse problems and error propagation.

PhD Candidate	<i>Oct 2013 – July 2017</i>	University of Cambridge
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- Quantified the partitioning of Greenland ice sheet melt among flowpaths by developing a hydrology model.
- Determined impact of increased surface melting on the Greenland ice sheet on ice-mass loss by developing and applying a coupled finite difference ice flow and hydrology model to Paakitsoq Region, Greenland.

Project Geophysicist	<i>May 2011 – July 2013</i>	Scott Geophysics Ltd
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- Co-lead field teams collecting geophysical data in remote areas by managing logistics, communicating with clients, and executing surveys.

Research Assistant	<i>May – Aug, 2008 and 2009</i>	University of British Columbia
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- Prepared logistics, equipment, and instruments for glaciology field work.
- Participated in five week field seasons as part of a team of four to eight in the Yukon Territory, Canada.

EDUCATION

University of Cambridge

Oct 2013 – July 2017

- PhD in Polar Studies. Thesis: “Modelling the impact of surface melt on the hydrology and dynamics of the Greenland ice sheet”

University of British Columbia

Sep 2006 – May 2011

- B.Sc. Honours Geophysics with distinction. Thesis: “Strain Localization and Bulk Rheology Variation in Partially Molten Rocks: Insight from Analogue Model Experiments of Polyphase Materials.”

PUBLICATIONS

- Koziol, C. P., et al. (2021) fenics_ice 1.0: a framework for quantifying initialization uncertainty for time-dependent ice sheet models, *Geoscientific Model Development*
- Koziol, C. P., & Arnold, N. (2018). Modelling seasonal meltwater forcing of land-terminating margins of the Greenland Ice Sheet, *The Cryosphere*
- Koziol, C. P., & Arnold, N. (2017). Incorporating modelled subglacial hydrology into inversions for basal drag, *The Cryosphere*
- Koziol, C., et al. (2017). Quantifying supraglacial meltwater pathways in the Paakitsoq region, *Journal of Glaciology*

INVITED SEMINARS

BGC Engineering

March 2020

- How machine learning and data science are becoming important tools in the earth sciences

Simon Fraser University

Oct 2018

- Modelling hydrological forcing of ice sheet velocities and uncertainty quantification of ice sheet forecasts

University of Cambridge

March 2018

- Modelling seasonal acceleration of land terminating sectors of the Greenland ice sheet margin

University of Zurich

Feb 2018

- Modelling hydrologically forced seasonal acceleration of the Greenland ice sheet margin

DATA STUDY GROUPS

University of Washington Waterhackweek

March 25 – 29, 2019

- Analyzed modelled past and future streamflows in the Pacific Northwest.

Alan Turing Institute Data Study Group

April 16 – 20, 2018

- Improved research group’s understanding of language recovery after a stroke using data analysis.