Conrad Koziol, PhD

ckoziol@gmail.com

cpk26
ckoziol.com
Vancouver, BC

Experience

Senior Machine Learning Scientist	*Feb 2022 – Present*	Computational Geosciences Inc
Data Scientist	*Sep 2020 – Feb 2022*	

• Deliver deep-learning mineral prospectivity mapping, as well as tailored machine learning models across the mining and energy sectors, working collaboratively with clients and an internal geoscience team.

• Improve internal deep learning methods by testing developments in areas such as graph neural networks, neural differential equations, 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	*July 2018 – Sep 2021*	Inlet Laboratories

• 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	*July 2018 – Dec 2019*	Prose AI

• Designed and optimized LSTM neural networks for real-time voice recognition in-browser and managed cloud infrastructure.

Postdoctoral Researcher	*July 2017 – July 2018*	University of Edinburgh

• 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	*Oct 2013 – July 2017*	University of Cambridge

• 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 the Paakitsoq Region, Greenland.

Project Geophysicist	*May 2011 – July 2013*	Scott Geophysics Ltd

• Co-lead field teams collecting geophysical data in remote areas by managing logistics, communicating with clients, and executing surveys.

Research Assistant	*May – Aug, 2008 and 2009*	University of British Columbia

• 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.