

# Kyle Roth

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## EDUCATION

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### Université de Montréal

*M.S., Computer Science; artificial intelligence track*

- **4.3 GPA**; advised by Dr. Bang Liu

Montréal, QC

May 2023

### Brigham Young University

*B.S., Mathematics; Applied and Computational Mathematics Emphasis*

- Cum Laude (**3.9 GPA**); minor in computer science; concentration in linguistics
- **Senior project**: scored 76% accuracy on phoneme classification of the TIMIT corpus (research-style paper [here](#))
- **Grant-funded research**: used the BYU supercomputer to achieve 71% accuracy on the ZTC morphology corpus (Basque) with a recent VoCRF implementation

Provo, UT

Dec 2019

## WORK EXPERIENCE

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### Cobalt Speech and Language

*Speech scientist (full time)*

- Built an online training server for Kaldi speech recognition models, using Go to create a parallel pipeline for serving data to multiple models on separate GPUs
- Implemented state-of-the-art algorithms (such as the learning rate range test and adaptive filtering) to set learning rate and momentum in an online training setting
- Implemented MFCC extraction in Go, avoiding allocs and array bound checks to improve performance

remote from Provo, UT

Jan 2020 - Aug 2021

### Emergent Trading

*Software developer (intern)*

- Wrote fast market analysis code in C++ to track competitors on currency markets at the Chicago Mercantile Exchange
- Designed and built an interactive tool to observe trades and prices in Brazilian currency futures using the Bokeh Python library

Chicago, IL

May - Aug 2019

### CamachoLab, Brigham Young University

*Research assistant (part time)*

- Simulated field profiles of photonic chip components in TensorFlow using neural networks with resize convolutions
- Built [SLURM\\_gen](#), a tool to automatically generate and manage simulated datasets in a high-performance computing environment
- Wrote custom resize-convolution layer to improve performance

Provo, UT

Jan - Dec 2019

### Cobalt Speech and Language

*Speech scientist (intern)*

- Improved model accuracy from 76% to 94% for autonomous drone recognition of air traffic control speech, using class-based (Thrax) language models

remote from Provo, UT

Apr 2018 - Nov 2018

## SKILLS & INTERESTS

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- **Languages**: Python, Go, C++, Java, Dart, Bash,  $\LaTeX$
- **Tools**: TensorFlow, PyTorch, Kaldi, git, scikit-learn, NumPy, Pandas, AWS, SQL, strace, PySpark
- **Natural languages**: native English, fluent Spanish, basic French
- **Sports**: skiing, distance running, swimming, cycling