

Kyle Roth

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EDUCATION

Université de Montréal

Ph.D., Computer Science; advised by Dr. Bang Liu

- investigating the representation of procedural knowledge using language models
- **4.3 GPA** during first year as master's student
- switched from master's to doctoral program in August 2022

Montréal, QC

Sep 2021 - May 2025

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:** achieved 71% accuracy on a Basque morphology corpus with a recent VoCRF implementation

Provo, UT

Aug 2014 - Dec 2019

WORK EXPERIENCE

Cobalt Speech and Language

Speech scientist (full time)

- Built an online training service in Go to manage parallel training of Kaldi models on sensitive live data
- Implemented state-of-the-art hyperparameter selection algorithms (learning rate range test; adaptive filtering) for online training
- Implemented MFCC extraction in Go while avoiding allocs and array bound checks

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 2019 - 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 2019 - 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

- **Languages:** Python, Go, C++, Java, Dart, Bash, \LaTeX
- **Tools:** PyTorch, TensorFlow, SLURM, Kaldi, git, scikit-learn, NumPy, Pandas, AWS, SQL, PySpark
- **Natural languages:** native English, fluent Spanish, basic French