Kyle Roth

Montréal, QC | kylrth.com | kylrth@gmail.com | kylrth | +1 208 704 9909

EDUCATION

Université de Montréal — **Montréal, QC**
Ph.D., Computer Science — *May 2023 - current*
- **4.3 GPA**; advised by Dr. Bang Liu

Brigham Young University — **Provo, UT**
B.S., Mathematics; Applied and Computational Mathematics Emphasis — *Dec 2019*
- 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

WORK EXPERIENCE

Cobalt Speech and Language — **remote from Provo, UT**
Speech scientist (full time) — *Jan 2020 - Aug 2021*
- 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

Emergent Trading — **Chicago, IL**
Software developer (intern) — *May - Aug 2019*
- 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

CamachoLab, Brigham Young University — **Provo, UT**
Research assistant (part time) — *Jan - Dec 2019*
- 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

Cobalt Speech and Language — **remote from Provo, UT**
Speech scientist (intern) — *Apr 2018 - Nov 2018*
- Improved model accuracy from 76% to 94% for autonomous drone recognition of air traffic control speech, using class-based (Thrax) language models

SKILLS & INTERESTS

- **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
- **Sports:** skiing, distance running, swimming, cycling