# Kyle Roth

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## EXPERIENCE

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

**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
- 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

## EDUCATION

**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

## SERVICE

**Refugee4Refugees**     **Mitilini, Greece**
*Volunteer*     *Jul - Aug 2018*
- Stood night watch to spot and land refugee boats as they arrived from Turkey
- Taught swimming; cleaned up around Moria camp; organized donated materials

**Church of Jesus Christ of Latter-Day Saints**     **Quetzaltenango, Guatemala**
*Missionary*     *Feb 2015 - Feb 2017*
- Taught and developed relationships with families all over northwestern Guatemala
- Learned Spanish to an exceptionally fluent level, around a 3+ on the ILR scale

## SKILLS & INTERESTS

- **Languages:** Python, Go, C++, Java, Dart, Bash, LaTeX
- **Tools:** TensorFlow, PyTorch, Kaldi, git, scikit-learn, NumPy, Pandas, AWS, SQL, MongoDB, PySpark
- **Natural languages:** Native English, fluent Spanish, basic Portuguese
- **Sports:** Alpine skiing, distance running, swimming