

# Kyle Roth

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## EDUCATION

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### Brigham Young University

*B.S., Mathematics; Applied and Computational Mathematics Emphasis (3.9 GPA)*

Provo, UT

Dec 2019

- Minor in computer science; concentration in linguistics
- Relevant coursework: optimization, deep learning, analysis, algorithm design, data structures, computer systems, model uncertainty, data science, natural language processing

## EXPERIENCE

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### Emergent Trading

*Intern*

Chicago, IL

May 2019 - Aug 2019

- Built an interactive tool to observe movement in Brazilian currency futures using the Bokeh Python library
- Wrote fast and extensible analysis code in C++ to track competitor's responses to market conditions in the Chicago Mercantile Exchange

### CamachoLab, Brigham Young University

*Research assistant*

Provo, UT

Jan 2019 - current

- 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
- Presented early results at the BYU student research conference

### Cobalt Speech and Language

*Modeling Intern*

Tyngsboro, MA

Apr 2018 - Nov 2018

- Improved accuracy of a neural network model from 76% to 94% for autonomous drone recognition of air traffic control speech using class-based (Thrax) language models
- Wrote Go scripts to validate and generate spec files for a natural language understanding engine

## PROJECTS

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### *Speech2phone - senior group project*

Aug 2018 - May 2019

- Scored 76% accuracy on phoneme classification of the TIMIT corpus
- Created data caching mechanism for easy dataset access
- Wrote research-style [paper](#) describing methods and results

### *Investigation in Variable-Order CRFs - grant-funded independent research*

Oct 2017 - Dec 2018

- Achieved 71.3% accuracy on ZTC morphology corpus (Basque) with new VoCRF implementation
- Used SLURM-based supercomputer to train memory-intensive models

### *Custom deep learning setup - personal project*

Mar 2019 - current

- Installed GPU-enabled TensorFlow and PyTorch with custom Anaconda environments and IPython kernels
- Hosted JupyterHub environment for multiple users on personal computer

## SKILLS & INTERESTS

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