

Brendan Hasz

PhD Candidate in Neuroscience

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Summary

Doctoral candidate in Neuroscience with strong programming and statistics background. Extensive experience with data analysis, time series, clustering, machine learning, neural networks, reinforcement learning, and Bayesian statistics.

Education

University of Minnesota / Ph.D. Candidate in Neuroscience

August 2013 - Present, Minneapolis, MN

Brandeis University / B.S. in Computer Science and Neuroscience

September 2009 - May 2013, Waltham, MA

Skills

- **Languages:** Python, C, Matlab, R, SQL, and Stan.
- **Tools:** AWS EC2, git, TensorFlow, numpy/pandas/sklearn/bokeh, pytest, tidyverse, etc.
- **Technical skills:** data cleaning and analysis, feature engineering and selection, clustering, machine learning, reinforcement learning, Bayesian modeling, and statistics.

Experience

University of Minnesota / Graduate Assistant

August 2013 - Present, Minneapolis, MN

- Built a high-performance hierarchical clustering algorithm in C.
- Wrote a custom kernel-density-based decoder of neural activity in Python using Numba.
- Performed Bayesian model comparison between Gaussian process and hidden Markov models on neural data in R.
- Predicted rat choices from neural activity using machine learning approaches in Matlab, including GLMs, GBDTs, and neural networks.
- Fit Bayesian reinforcement learning algorithms to animal behavior in Python using Stan.

Local Analytics Groups / Participant

October 2016 - Present, Minneapolis, MN

- **AnalyzeThis! Sports Analytics challenge:** Worked with a team to build a regression model to predict daily baseball fantasy points, and placed fourth.
- **Social Data Science collaboration with the Science Museum of MN:** Engineered features in Python to evaluate visitor and membership behavior.
- **Data Science Minneapolis "Career Village" Hackathon:** Worked with a team to build an implicit content-based post recommendation system, using BERT language models, PCA, target encoding, negative sampling, etc.

Portfolio Projects

August 2018 - Present

- Created a Python package for building Bayesian neural networks with TensorFlow.
- Evaluated categorical encoding methods and used them to predict customer loyalty.
- Built a dual-headed Bayesian density neural network to predict taxi trip durations.
- Constructed interactive plots of Nice Ride station demand using Bokeh.
- ... and many more at brendanhasz.github.io