Elliott Waissbluth

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Education

University of California, Berkeley — Berkeley, CA
*GPA - **4.000** | MS Information Management and Systems - Data Science Focus* — *Aug. 2020 – May 2022*

The Ohio State University — Columbus, OH
*GPA - **3.905** | BS Electrical and Computer Engineering - Signals and Systems Focus* — *Aug. 2015 – Dec. 2019*

Coursework: Natural Language Processing, Optimization Models, Computer Vision, Data Mining, Neural Computation, Statistics

Technical Skills

Languages: Python, R, C++, SQL, Visual Basic, MATLAB
Developer Tools: Tableau, Alteryx, Adobe Creative Suite, Excel, RStudio, GitHub
Libraries: PyTorch, OpenCV, CVXPY, librosa, pandas, NumPy, Matplotlib, sklearn, keras
ML Architectures: Transformer, CNN, VAE, LSTM

Projects

Bayesian Framework for Sensory Adaptation | *Python, OpenCV* — Oct. 2020 – Dec. 2020
- Proposed a computational framework to explain the motion aftereffect using Bayesian statistics.
- Implementing said framework in Python, produced data matching that of psychophysical data.

Drum Synthesis | *Python, PyTorch, librosa* — Feb. 2020 – Present
- Training a VAE to produce novel drum samples from linear combinations of pre-defined drum samples. Utilizes a CNN architecture as the encoder and a simple feed-forward network as the decoder.

Tensor Hero | *Python, PyTorch, librosa* — Sep. 2020 – Present
- Creating a machine learning based program to produce playable Guitar Hero songs from any audio file.
- Uses a CNN trained on onset detection to generate audio embeddings and a skip-gram model to generate "note" embeddings. The embeddings are then passed through a transformer (encoder and decoder) to produce Guitar Hero charts with long term structure.

Detecting Structure in Cellular Automata | *Python, keras* — Nov. 2020 – Dec. 2020
- An issue in cellular automata is the difficulty of finding rule sets which produce interesting results.
- Utilized a CNN to analyze the degree of "interestingness" in a stitched image of captured frames drawn from 100 steps of evolution.
- Achieved 100% recall and 84% accuracy on a sparse dataset.

Experience

Hedging Analyst Intern — January 2020 – May 2020
National Life Group — *Montpelier, VT*
- Operated within a small investments team to hedge ∼$14 billion in liabilities via call option trading.
- Increased efficiency by migrating Excel based options pricing and valuation programs to Python, circumventing an outdated investments engine.
- Utilized Tableau to increase data transparency, creating dashboards for the hedging and investments teams.

Platform Systems Intern — May 2017 – Aug. 2017
Honeywell Aerospace — *Phoenix, AZ*
- Used data from a jet plane's central pipeline to create a machine learning based system that measured braking performance, then automatically transmitted a report to planes landing on the same runway. The algorithm predicted deceleration using relevant motion and pilot inputs.
- Won Director's Recognition Award for best intern project.

Activities and Interests

Podcasting: Manage a weekly interview based podcast spanning topics in science, history, art, and more.
Snowboarding: Former president of The Ohio State Ski and Board Team. Freestyle instructor at Woodward Tahoe.
Misc: Music, Climbing, Animation, Mountain Biking, Backpacking (Completed 165 mile solo hike July 2019).