Christopher Rohlicek

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EDUCATION

Brown University Providence, RI
ScM Candidate in Data Science *September 2020 - May 2021*
- Relevant Coursework: Probability, Statistics, and Machine Learning; Data Engineering; Statistical Learning; Deep Learning and Special Topics in Data Science

Harvard University Cambridge, MA
AB in Applied Mathematics. GPA 3.6/4.0 *September 2016 - May 2020*
- Relevant Coursework: Honors Linear Algebra and Multivariable Calculus with Real Analysis; Theory of Groups and Vector Spaces; Decision Theory; Abstraction and Design in Computation; Computer Networks; Vector Space Methods for Differential Equations; Optimization; Matrix Methods in Data Analysis, Signal Processing, and Machine Learning

EXPERIENCE

Brown University – Carney Institute for Brain Science Providence, RI
Research Assistant to Prof. Jason Ritt *June 2020 – Present*
- Working on dynamical dimensionality reduction of neuroscientific models of the brain.
- Using recurrent neural networks to solve an inverse problem posed by the collected neuron spike data
- Developing method for dimensionality reduction of high-dimensional dynamical systems

MIT Lincoln Laboratory Lexington, MA
Research Intern with Dr. Michael Brandstein *May 2019 – August 2019*
- Applied signal processing and speech recognition techniques to identify bird species from flight call data
- Combined CNNs and k-nearest neighbors to improve state of the art accuracy from 94% to 99%

O&R Patent Boston, MA
Summer Intern *May 2018 – August 2018*
- Developed Python-based software tools for use at patent law firm, saving hundreds of person hours
- Used Python and SQL to automate entity resolution and summarization of records for financial analysis

PROJECTS

Neural Network Parameter Reduction Using Pruning and Matrix Decomposition (Matrix Methods):
- Conducted experiments in PyTorch comparing effects of magnitude-based pruning techniques to matrix decomposition methods of network size reduction.

Predicting Voting Behavior of Supreme Court Nominees (Decision Theory):
- Employed machine learning techniques to predict political valence of Supreme Court nominees, achieving a final prediction accuracy of 72%.

Elliptic Curves and Cryptography (Theory of Groups and Vector Spaces):
- Completed research on the use of elliptic curves in applied cryptography as well as the mechanics of cryptographic backdoors. Wrote findings into a survey paper describing the techniques and derivations.

TECHNICAL SKILLS

Programming Languages: Java, Python, OCaml, SQL, R, MATLAB, Julia
Libraries: Numpy, Pandas, Scikit-learn, PyTorch, Tensorflow, Keras

ACTIVITIES AND INTERESTS

Trumpet: Played lead trumpet for band of the Hasty Pudding Theatricals, oldest theater company in the United States; performed a run of 44 shows through February and March with a budget of $500,000
Singing: Performed as a baritone in the Krokodiloes, Harvard's premier a cappella group; toured internationally