Unique Divine

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github.com/Unique-Divine

EDUCATION

Columbia University **New York, NY**
M.S. Applied Mathematics (Anticipated 2021)
B.S. Applied Physics, minor in Applied Mathematics (GPA: 3.4) (May 2020)
Susquehanna University (3-2 dual degree program with Columbia University) **Selinsgrove, PA**
B.S. Physics, minor in Computer Science (GPA: 3.8) (May 2018)
Relevant Coursework:

- **Graduate Courses**: Machine Learning for Data Science, Partial Differential Equations, Probability and Statistics, Machine Learning with Applications in Finance, Decision Making and Reinforcement Learning
- **Undergraduate Courses**: Probability Theory, Principles of Computer Science (Python), Computational Linear Algebra with Python Labs, Discrete and Combinatorial Mathematics

TECHNICAL SKILLS

Programming: Python (proficient, 5 yrs), Bash/Shell, Git, SQL, R, MATLAB, Linux (Ubuntu)
Libraries: TensorFlow, NumPy, Pandas, Matplotlib, SciPy, Scikit-learn, Keras, PyTorch

PROJECTS

Neural Networks for Gravitational Lens Modeling (May 2019 – July 2020)

- Applied deep learning to recover lens parameters upwards of several million times faster than traditional methods
- Added functionality for predictive modeling with custom CNN's in addition to Inception-v4, AlexNet, and Overfeat
- Updated functionality for Python 3 and TensorFlow 2
- Utilized: TensorFlow, Python, MATLAB, PyTorch

Click-Through Rate Prediction with Stochastic Gradient Descent (June – July 2020)

- Determined whether advertisements from CriteoLabs, a multinational digital marketing company, would be clicked
- Worked end-to-end, leveraging statistical methods for data cleaning, feature engineering, and algorithm tuning
- Utilized: Python (NumPy, Pandas, Matplotlib), Pegasos, Logistic Regression, SVMs

Algorithmic Stock Trading (May 2020 – Present)

- Developed accurate predictive models for stock prices of companies such as AAPL, FB, GOOGL, TSLA, IBM, MSFT
- Successfully applying a novel approach that blends natural language processing with traditional financial factors
- Achieve average ROI between 7-12% in backtests
- Utilize: TensorFlow, Keras, RNNs (LSTM), MLPs, Quantopian

For additional information and projects: github.com/Unique-Divine

EXPERIENCE

Columbia University
***Bioinformatics Researcher (Computational Genomics)**, with Dr. Itsik Pe'er* (Aug 2020 – Present)
I apply deep learning methods to identify genetic variants (SNPs), evaluating genetic risk scores and predicting the risk of patients having inheritable diseases based on their genetic makeup.
***Undergraduate Researcher (Astrophysics)**, with Dr. Marcel Agüeros* (Jan – May 2019)
Performed spectral reduction, a method for correcting artifacts and instrumental defects in stellar spectra, with Pyraf, building fluency working with Linux/Bash

University of Illinois Urbana-Champaign Physics REU
***Undergraduate Researcher (Machine Learning)**, with Dr. Joaquin Vieira* (May – Aug 2019)
Developed, trained, and implemented convolutional neural networks that predict gravitational lensing parameters for use in cosmology research with Python (TensorFlow).

Lehigh University Physics REU
***Undergraduate Researcher (Biophysics)**, with Dr. Slava Rotkin* (May – Aug 2017)
Developed techniques for localization of single-walled carbon nanotubes inside of C17.2 neural stem cells
Worked extensively with Raman spectroscopy to analyze the effects of concentration size on cell health

Susquehanna University
***Undergraduate Researcher (Quantum Physics)**, with Dr. Carl Faust* (Jan – May 2018)
Analyzed interacting states of ultracold NaCs molecules, creating a relational database (in Excel) in order to quickly parse information from experimental results
Teaching Assistant & Tutor: Courses: Calculus, Physics I & II, Astrophysics I (Aug 2016 – May 2018)

OTHER SKILLS: Japanese (advanced/fluent, ~3yrs), Saxophone, Computer Vision, NLP, Microsoft Excel