Unique Divine

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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, Deep Reinforcement Learning

TECHNICAL SKILLS

Programming: Python (proficient, 5 yrs), Bash/Shell, Git, SQL, MATLAB, Linux (Ubuntu), Java, C++
Libraries: PyTorch, Keras, TensorFlow, Scikit-learn, NumPy, Pandas, Matplotlib, SciPy.stats, Ignite, Skorch, Cython

EXPERIENCE

Applied Technology Solutions, Inc. (ApTSi)
Artificial Intelligence Engineer (Sep 2020 – Present)
- ❏ Developing APIs and novel ML applications to automate portions of the doctor-patient interaction with NLP
- ❏ Leveraging Apache Spark, Docker, Kafka, REST APIs, Spring Boot, and Kubernetes to establish a robust, automated system to handling large datasets and build microservices

Selective Corporate Internship Program (SCIP)
Marketing Analyst (Aug 2020 – Present)
- ❏ Regularly presenting as a marketing consultant to SCIP's corporate partners in order to help plan and execute marketing strategies; clients include
- ❏ Spearheaded YouTube initiative by generating, promoting, and editing content
- ❏ Performed in-depth analysis to urge best practices and identify key metrics, increasing viewership as much as 300%

Columbia University
Bioinformatics Researcher (Computational Genomics), with Dr. Itsik Pe'er (Aug 2020 – Feb 2021)
- ❏ Applied neural networks with PyTorch to predict 3 phenotypes of Sprague Dawley rats based only on genetic variants (SNPs) and transcriptome wide associations
- ❏ Simulated rat genomes using generative adversarial networks in an attempt to create more plentiful training data and achieved 15% higher classification accuracy
- ❏ Collaborated with PhD student to investigate deep learning's viability as a replacement for polygenic risk metrics

University of Illinois Urbana-Champaign Physics REU
Undergraduate Researcher (Machine Learning), with Dr. Joaquin Vieira (May – Aug 2019)
- ❏ Implemented convolutional neural networks to predict gravitational lensing parameters for use in cosmology research with Python (TensorFlow) upwards of several million times faster than traditional methods
- ❏ Presented research results and wrote a report for this 10-week NSF REU
- ❏ Added functionality for predictive modeling with custom CNNs in addition to Inception-v4, AlexNet, and Overfeat

Susquehanna University
Teaching Assistant & Tutor*:* Courses: Calculus, Physics I & II, Astrophysics I (Aug 2016 – May 2018)

PROJECTS

Algorithmic Stock Trading (May 2020 – Present)
- ❏ Leading and collaborating with a team of 6 professional developers to create an automated trading setup
- ❏ Applying a novel approach to blending NLP with financial factor analysis using news as an indicator
- ❏ Achieve average ROI between 15-150% in one year backtests, using Alpaca's API for real-time paper trading
- ❏ Stock trend classification accuracy is 90%+
- ❏ Utilize: PyTorch, Lightning, RNNs (LSTM), and Transformers to predict stock sequences

Click-Through Rate Prediction for CriteoLabs (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, XGBoost, PyTorch

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

OTHER SKILLS: Stock trading, Japanese (advanced/fluent, ~3yrs), Saxophone, Excel, HTML, CSS, Time series analysis

PHYSICS RESEARCH

Columbia University

Undergraduate Researcher (Astrophysics), with Dr. Marcel Agüeros (Jan – May 2019)

- ❏ Performed spectral reduction, a method for correcting artifacts and instrumental defects in stellar spectra
- ❏ Built fluency with Linux and BASH scripting

Susquehanna University

Undergraduate Researcher (Quantum Physics), with Dr. Carl Faust (Jan – May 2018)

- ❏ Analyzed interacting states of ultracold several thousand NaCs molecules and presented results for undergraduate senior thesis
- ❏ Built a relational database in Excel in order to quickly parse information from experimental results

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