

# Unique Divine



[Unique-Divine.github.io](https://github.com/Unique-Divine)



[linkedin.com/in/unique-divine/](https://linkedin.com/in/unique-divine/)



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## EDUCATION

### Columbia University

M.S. Applied Mathematics

B.S. Applied Physics, minor in Applied Mathematics

New York, NY

(June 2021)

(May 2020)

**Relevant Graduate Coursework:** Data Mining, Machine Learning for Data Science, Natural Language Processing, Applications in Financial Machine Learning, Empirical Methods of Data Science, Mathematics for Data Science

### Susquehanna University (3-2 dual degree program with Columbia University)

B.S. Physics, minor in Computer Science | Dean's list | Departmental honors

Selinsgrove, PA

(May 2018)

## TECHNICAL SKILLS

**Programming:** Python (extremely proficient, 6+ yrs), Bash/Shell, Java, SQL, UNIX / Linux

**Libraries:** PyTorch, Keras, TensorFlow, Scikit-learn, SciPy.stats, Pytest, NumPy, Pandas, Matplotlib, Plotly, Flask

**Other:** Git, Vim, Tableau, HTML, PostgreSQL, MongoDB, Docker, Kubernetes

## EXPERIENCE

### IBM

#### Data Science Intern

(Jun 2021 – Aug 2021)

- ❑ Performed clustering and unsupervised topic modeling with survey responses for 2 IBM product teams
- ❑ Wrangled terabytes of data made up of click streams, product usage, and NPS data to derive actionable insights
- ❑ Regularly presented visualizations and results to stakeholders, the VP of Client Advocacy, and other leadership
- ❑ Leveraged: Sentence BERT, Latent Dirichlet Allocation (LDA), NLTK, Gensim, Plotly, PyTorch, SQL

### Applied Technology Solutions, Inc. (ApTSi)

#### Artificial Intelligence Engineer Intern

(Sep 2020 – Jun 2021)

- ❑ Developed novel ML applications to automate portions of the doctor-patient interaction with NLP
- ❑ Advised and implemented necessary DevOps changes with Docker and Kubernetes
- ❑ Wrote containerized applications, RESTful web microservices, and APIs with Spring Boot and Java
- ❑ Leveraged: Apache Spark (PySpark), Spring Boot, Java, Docker, Kubernetes, SQL, PostgreSQL, MongoDB, PyTorch

### Columbia University

#### Bioinformatics Researcher (Computational Genomics), with Dr. Itsik Pe'er

(Jan 2020 – Feb 2021)

- ❑ Applied neural networks (PyTorch) to predict 3 phenotypes of rats based only on genetic variants (SNPs) in DNA.
- ❑ Simulated rat genomes to create additional data with generative adversarial networks (GANs), improving accuracy by 15%
- ❑ Utilized the High-Performance Computing cluster to leverage CUDA GPUs, interfacing with PyTorch Lightning
- ❑ Presented results in Columbia University's Computer Science Research Colloquy

### National Science Foundation Physics REU at University of Illinois Urbana-Champaign

#### Undergraduate Researcher (Machine Learning), with Dr. Joaquin Vieira

(May 2019 – Aug 2019)

- ❑ Implemented convolutional neural networks with Python (TensorFlow) to predict gravitational lensing parameters
- ❑ Added functionality for predictive modeling with custom architectures, ResNets, Inception-v4, AlexNet, and Overfeat

### Columbia University

#### Undergraduate Researcher (Astrophysics), with Dr. Marcel Agüeros

(Sep 2018 – May 2019)

- ❑ Performed spectral reduction, a method for correcting artifacts and instrumental defects in stellar spectra
- ❑ Built fluency with Linux / UNIX, scripting with BASH and Python, and management of large datasets

### National Science Foundation Physics REU at Lehigh University

#### Undergraduate Researcher (Biophysics), with Dr. Slava Rotkin

(May 2017 – Sep 2017)

- ❑ Developed techniques for localization of single-wall carbon nanotubes inside of C17.2 neural stem cells.
- ❑ Worked extensively with Raman spectroscopy to analyze the effects of nanotube concentration on cell health

## PROJECTS

### RL Memory | [\[code\]](#) | [\[report\]](#) | [\[video\]](#)

- ❑ Efficient transfer learning in the deep reinforcement learning setting using Transformers and ConvNets (PyTorch)

### Langevin Dynamics for Neural Network Optimization | [\[code\]](#) | [\[report\]](#)

- ❑ Bayesian neural network implementations (PyTorch) for algorithms such as SGLD and pSGLD.

### Banknote Fraud Detection | [\[code\]](#)

- ❑ Wrote a decision tree algorithm from scratch that outperforms Scikit-learn's given the same tree depth.

### Algorithmic Stock Trading

- ❑ Built an automated trading approach that blends NLP with indicator analysis by training a news sentiment for predictions
- ❑ Models bring about consistent alpha and ROI (20%+) in paper trades and backtests; classification accuracy is above 90%.
- ❑ Leveraged: PyTorch, RNNs (LSTM), Transformers, Alpaca API, NLTK, Gensim, Pandas

**OTHER SKILLS/INTERESTS:** Japanese (advanced/fluent), saxophone, piano, guitar, reading, long-distance running