ELLIOT GOLIAS, PH.D.

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PROFESSIONAL SUMMARY

Theoretical physics PhD graduate interested in quantitative research and data science with a strong desire to solve new problems, search for meaningful insights in complex datasets, develop innovative methods for the analysis of data, and construct insightful representations of data.

EDUCATION

CASE WESTERN RESERVE UNIVERSITY   Cleveland, OH
  Ph.D. Theoretical Particle Physics   August 2022

KENT STATE UNIVERSITY   Kent, OH
  B.S. Physics, B.A. Mathematics, Minor in Italian Language and Culture   May 2016

EXPERIENCE

TWITTER SENTIMENT ANALYSIS AND CRYPTOCURRENCY PRICES   Cleveland, OH
Department of Physics, Case Western Reserve University   May 2022 – Present

- Used Twitter API to mine Twitter data with specific parameters such as retweet count and like count and then clean data using the Pandas Python package before constructing a machine learning model
- Mined cryptocurrency data to acquire ETH prices over a predetermined interval of time and stored both Twitter and ETH data in an AWS S3 bucket
- Implemented a continuous bag of words machine learning model using the PyTorch Python packages in a Jupyter notebook to analyze the sentiment of Twitter data and search for relationships between tweets about ETH and price changes

THEORETICAL PARTICLE PHYSICS PHENOMENOLOGY   Cleveland, OH
Department of Physics, Case Western Reserve University   August 2016 – August 2022

- Collaborated with an international team of theoretical physicists to develop and research analytic models for dark matter and matter unification in the universe
- Completed numerical studies (using a high-performance computing cluster) of the production, direct detection, indirect detection, and relic density of WIMP dark matter candidates using Mathematica, Python, and C++
- Published 5 papers in peer-reviewed journals and gave numerous presentations at conferences including the APS Division of Particle and Fields meetings and many seminars
- Organized and participated in multiple international conferences focusing on the physics of particles, strings, and cosmology

TECHNICAL SKILLS

Data Science and Machine Learning (ML)
Time-Series Analysis | Natural Language Processing | Neural Networks (CNN)

Programming
Python | SQL | C++ | Java | Matplotlib | NumPy | Pandas | Scikit-Learn | Pytorch | Hadoop | Spark | TensorFlow | Tableau | Excel | Bash

Workflow
AWS (S3) | Distributed Computing | High-Performance Cluster Computing | GitHub | Linux/Unix

SOFT SKILLS

Presentations
25+ conference/seminar talks given during PhD

Mentoring
Physics Graduate Student Association Officer, Physics Underrepresented Minority Student Group Mentor, Hathaway Brown High School Science and Engineering Program Mentor, Science Olympiad Coaching