Matthew Moocarme

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Experience

Insight Data Science **New York City**
Fellow *09/2016–Present*

- Built *jamify.rocks*, a recommender of songs for musicians to play based on listening interests and skill level
- Developed a Python-based recommendation engine using latent semantic analysis and logistic regression models to predict song difficulty using data from the *million song dataset* and *ultimate-guitar.com*
- Built a front end using Python, Flask, HTML, CSS, Javascript, D3, and stored data (40 million rows) in PostgreSQL database

The Graduate Center of CUNY **New York City**
Graduate Student Researcher in Physics *09/2010–Present*

- Developed theories, validated in simulations, and performed experiments to build 2D surfaces that efficiently manipulate the polarization of light that resulted in 4 first-author publications in high impact journals
- Co-developed and taught "Physics for Computer Scientists II", which built students' understanding of causal inference and communication of results using Python and Matlab

Independent Projects

Creating Custom Playlists: Developed and validated recommendation engines in R and Spark to generate various types of custom playlists based on individual users' listening history

Google Trends Predict Stock Returns: Performed time-series analyses that incorporated Google trends/news into an ARIMA-GARCH model that gives 6% annual return on investment in R from 2 years historical data

Has Vision Zero Worked?: Analysed whether the campaign to reduce the number of NYC traffic injuries is successful using R and Tableau, as well as providing data-driven recommendations to improve efficacy

Why All Country Music Sounds the Same: Mined song data using BeautifulSoup and stored data with SQLite to compare musical features of country music with other genres in Python

Coursera Data Science Specialization: Certified 10-course specialization using R

Education

The Graduate Center of CUNY **New York, NY**
Ph.D. Physics (Expected Graduation: December 2016) *2010–2016*

The Graduate Center of CUNY **New York, NY**
M.Phil. Physics *2010–2016*

Queens College of CUNY **New York, NY**
M.A. Physics *2010–2016*

California State University, Long Beach **Long Beach, CA**
B.Sci. Physics *2006–2010*

Skills

Languages: Python, R, SQL, Matlab, Git, Spark, Latex, HTML/CSS, JavaScript*, Java*

Tools: Tableau, NumPy, SciPy, Scikit-Learn, Pandas, MatplotLib, D3*, Flask, Illustrator
*Basic working knowledge