Nitya Mandyam

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EDUCATION

NEW YORK UNIVERSITY
PH.D. PHYSICS
Aug 2011 - Sept 2018 | New York, NY
Henry M. MacCracken Fellow
Thesis: "Galaxy Evolution: Star Formation Indicators and Environments"

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
M.SC. PHYSICS
July 2009 - July 2011 | Mumbai, India
Thesis: "Stochastic Simulations of Biochemical Systems"

STELLA MARIS COLLEGE
B.SC. PHYSICS
June 2006 - June 2009 | Chennai, India

Relevant Coursework:
Computational Physics • Linear Algebra • Big Data • Mathematical Physics

PROGRAMMING

General Purpose:
Python • R • C • Fortran
Data Analysis:
Python • R • Hadoop
Web Development:
HTML • CSS • Javascript
Query Languages:
MySQL • NoSQL
Relevant Modules:
Pandas • Numpy • Scipy
Matplotlib • BeautifulSoup
Spacy • Scikit-Learn
Other:
LaTeX • Vim • JSON
Git • Jupyter Notebook

LINKS

Github:// NityaMandyam
LinkedIn:// NityaMandyam

SELECTED RESEARCH EXPERIENCE

GALAXY EVOLUTION | ASTRONOMY
Ph.D. Thesis | New York, NY

- *Description*: Estimated various star formation and environment indicators in galaxies and compared their relative merits as tracers of star formation activity using galaxy survey datasets such as the NASA Sloan Atlas catalog and MaNGA (*Mapping Nearby Galaxies at Apache Point*)
- *Skills*: statistical modeling, data munging large datasets, bayesian inference, optimization, *k*-d trees, data visualization

BIOCHEMICAL STOCHASTIC SYSTEMS | STATISTICAL PHYSICS
Masters' Thesis | Mumbai, India

- *Description*: Modeled and analyzed the Lysis-Lysogeny decision-making process of bacteriophages using stochastic simulation algorithms
- *Skills*: Monte Carlo methods (Metropolis-Hastings, Gillespie algorithm, etc.), stochastic calculus, numerical simulations

DATA-HACKING PROJECTS

DATAKIND DATADIVE
June 2018 | Google, New York, NY

- Contributed to the International Accountability Project's (IAP) Early Warning System to identify poorly-designed or potentially harmful development projects
- Employed Word2Vec methods to rank the semantic similarity between bank-funded project documents and possibly relevant news articles

ANGELHACK
May 2018 | Amazon Web Services Loft, New York, NY

- Created and queried data structures using a NoSQL database (AWS Dynamodb) to build the backend for a food image aggregator platform
- Finished amongst the top eight teams out of twenty-five teams

EXPEDITION HACKS | COMBATING HUMAN TRAFFICKING
Apr 2018 | George Mason University, Arlington, VA

- Designed a platform, "Slavery Included", to alert consumers to the pervasive use of forced labor in everyday products
- Published a chrome extension directing Amazon.com users to the Slavery Included platform (temporarily retracted due to legal concerns)
- Structured user-specific activity into API queries to IBM's Watson for sentiment analysis on topical news items
- Finished second place out of fourteen teams of developers

Teaching and Outreach: Selected Experiences

- Taught Observational Astronomy (including hands-on instruction with telescopes), Astrophysics, Physics and Astronomy in the Renaissance, General Physics, Quarks to Cosmos, etc. to over 300+ students
- Managed the SDSS booth at the NY Hall of Science Big DataFest 2015
- Led a student tour and gave a presentation "Galaxies and Survey Astronomy", as part of an interactive "Astro-tour" for middle- and high-school students from the Spence School