

GEORGE H. LEWIS

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(203) 918-4859

SKILLS

Languages: C/C++, Python, Javascript, PHP

Tools: SQL, MongoDB, Numpy/Scipy, HTML/CSS, jQuery, Flask, d3, git/svn, bash, L^AT_EX, ROOT

General: Analysis of large datasets, statistical modeling, Bayesian and frequentist inference, machine learning, data visualization, web design and development, object-oriented design, graduate-level physics, advanced mathematics

EXPERIENCE

Fellowship

2013

Insight Data Science

- Created a web app using Flask, Twitter Bootstrap, and jQuery that implements a Markov chain recommendation algorithm to suggest nearby and similar bars
- Used Python libraries to implement a similarity ranking based on latent semantic analysis
- Built a probabilistic model combining semantic similarity, distance, and user reviews to recommend nearby venues
- Scraped online magazine reviews from NYMag.com and combined with location and user information from Foursquare API using Python
- Deployed site to Heroku, using MongoDB to store data and Amazon S3 to host the trained algorithm

Graduate Research

2008 - 2013

New York University and The European Organization for Nuclear Research (CERN)

Member of the ATLAS experiment at the Large Hadron Collider (LHC)

- Developed statistical modeling and analysis software used extensively throughout a 3000 person experiment
- Used a parallel analysis architecture to analyze petabytes of data distributed over a worldwide grid of data centers
- Designed and implemented statistical techniques to combine physical measurements made independently by several analysis groups to decrease overall uncertainty
- Used profile likelihood ratio to evaluate frequentist confidence intervals and compared those to Bayesian credible intervals using Markov chain Monte-Carlo
- Wrote highly optimized C++ code to classify which of millions of collisions per second to permanently store for later analysis
- Enforced coding standards, conventions, and best practices across a large C++ and Python code base
- Recipient of National Science Foundation US LHC Graduate Student Support Award
- Taught Quantum Mechanics (graduate), Quarks to the Cosmos, and General Physics (undergraduate)

Undergraduate Research

2006

Los Alamos National Laboratory

Stanford Linear Accelerator (SLAC)

- Used x-rays to study the chemical and orbital structure of heavy metal elements (uranium, plutonium)
- Aided in design and construction of experimental equipment
- Performed and monitored data collection at SLAC

EDUCATION

PhD in Experimental High Energy Particle Physics

2013

New York University, New York, NY

B.A. in Physics and Mathematics

2007

Columbia University, New York, NY