Cameron MacKeen

Creative problem solver powered by curiosity.
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Work Experience

Graduate Researcher -- X-ray Absorption Fine Structure

UNIVERSITY OF CALIFORNIA, SANTA CRUZ - DR. FRANK BRIDGES - Santa Cruz, CA
June 2014 to March 2019

• Several research projects resulted in academic publications, awarded Chancellor's Dissertation Fellowship for achievements.
• Analyzed interference patterns of the X-ray absorption fine structure, engineered physical models using high parameter fits.
• Meticulously collected and processed data, iterative background characterization with command line and Linux shell scripts.
• Created automated analysis framework with Python to optimize pipeline, redefined lab procedures, and saved 600 manhours.
• Discovered two new, self-consistent algorithms for extracting an asymmetry parameter of a general stochastic distribution.

Data Scientist

SERACARE LIFE SCIENCES - LORN DAVIS
May 2016 to September 2016

• Created precision-incentivized model to maximize profit from $600k of stagnant inventory, while increasing turnover ratio.
• Employed AWS and cleaned large data sets; began with an analytical overview of test data and imputed sparse features.
• Engineered features and developed a random forest model coupled with an industry-based economic loss function.
• Presented results and strategic roadmap to executives, with explicit short-term action items for next phase of program.

Machine Learning Researcher - Elastic Net Regression

UNIVERSITY OF CALIFORNIA, SANTA CRUZ - DR. ARTEM SOKOLOV - Santa Cruz, CA
July 2015 to October 2015

• Conducted research to improve framework for regularization when predicting drug response from cancer genome.
• Employed elastic net regression on a learning set of DNA sequences, incorporating graph database of domain knowledge.
• Analyzed performance for various pathway weighting schema using R; identified the optimal database for predictions.

Machine Learning Researcher

CONCORD CONSORTIUM - DR. HEE-SUN LEE
January 2015 to May 2015

• Utilized Python to parse and clean log data of students' interactions with computer module, engineered entropy-based features.
• Learned R to use Rattle for statistically analyzing data and developed a binary decision tree model to categorize students.
• Compiled results and protocols in a manuscript; established new link between student understanding and action entropy.

Characterizing Avalanche Photodiode Gain Undergraduate Researcher

UNIVERSITY OF MASSACHUSETTS, AMHERST - DR. ANDREA POCAR - Amherst, MA
April 2010 to June 2013

• Erected an ultra-high vacuum manifold with a liquid nitrogen plumbing system to cool avalanche photodiodes.
• Constructed a circuit to bias photodiodes, wrote C++ scripts to interface with circuit board firmware for signal analysis.
• Research presented at symposium; awarded an Honors grant and fellowship for exceptional work.

Education

PH.D. IN PHYSICS in research

University of California - Santa Cruz, CA
2013 to 2019

B.SC. IN PHYSICS AND MATH in research

University of Massachusetts - Amherst, MA
2009 to 2013

Skills

C++, Hadoop, Hive, Javascript, Python, Pyspark, Tensorflow, Ruby, Scripting, Linux, Shell scripting, Hadoop, Sql, Tableau, Java, Matlab

Links

http://cmackeen.github.io

Additional Information

Skills
Programming: Python (pandas, scikit-learn, sqlalchemy, tensorflow, pytorch, flask, pyspark) • Linux shell scripting
R (Rattle) • SQL • Hadoop (Hive) • Java • C++ • MATLAB • Mathematica • Javascript • Ruby • Tableau