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William Levine

Experience

Sept. 2009–Feb. 2016   Carnegie Mellon University

Research Assistant

- Performed a statistical analysis of a specific physics process, requiring the isolation of about 200,000 relevant physics events from a dataset of 20 billion events.
  - Used a modified nearest-neighbors algorithm for signal-background separation.
  - Worked as a member of CLAS, an international particle physics collaboration centered at Jefferson Lab particle accelerator.
- Wrote software and developed algorithm to cluster coincident detector signals in both simulated and experimental particle physics data.
  - Decreased rate of false cluster merges by 2 times and false cluster splits by 3 times.
  - This work became part of the standard analysis software used by dozens of members of the GlueX collaboration.

Summer 2015   Ruby Science Foundation (funded by Google)

Student Developer

- Worked on NMatrix, a linear algebra library for Ruby, as part of Google Summer of Code.
- Decoupled the core NMatrix code from the more advanced features, which have complex external dependencies. This greatly simplified NMatrix installation.
- Wrote a second backend for advanced linear algebra features, allowing these features to be used with a generic LAPACK library rather than only with ATLAS.

Spring 2016   Students for Urban Data Studies

Analyst

- Worked with the Greater Hazelwood Community Collaborative, summarizing and presenting results from a community census they commissioned.
- Results available at http://www.greaterhazelwoodcensus.org/

Education

May 2016   Carnegie Mellon University

PhD, Physics

- Thesis: Measurement of spin density matrix elements in the reaction $\gamma p \rightarrow K^+ \Lambda(1520)$ using CLAS at Jefferson Lab (Faculty Advisor: Curtis Meyer)
- Clifford G. Shull Research Fellowship (for 1st year Physics PhD students)

May 2011   Carnegie Mellon University

M.S., Physics

May 2009   University of Virginia

B.S., Physics

- Graduated with high honors, Phi Beta Kappa
- Echols Scholar (undergraduate honors program)

Computer skills: R, Python, pandas, numpy, scikit-learn, C++, Ruby, SQL, Git, Linux