

BENJAMIN TANNENWALD

COLUMBUS, OH

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EXPERIENCE

Postdoctoral Researcher/Graduate Research Associate Columbus, OH/Geneva, CH
Ohio State University/CERN 2013 - 2017

- Produced precise measurements of the interactions of fundamental particles and searched for new signatures of the Higgs boson with petabyte scale datasets collected at the CERN Large Hadron Collider
- Worked in small (2-4 people) and larger (10-20 people) analysis groups spread across multiple time zones in leadership and supporting roles coordinating workflow and collaborating on multiple projects
- Developed multiple C++ software frameworks with 1000+ lines of code used by physicists at 6 collaborating international and American institutions
- Designed distributed computing algorithms to sift through multiple 100GB+ data sets with over 100 million entries, categorize events based on significant criteria, and extract information using combinatorial likelihoods
- Modeled uncertainty in complex multivariate processes using various statistical techniques in order to understand significance of observed results
- Used industrial machine control software (WinCC) to design, create, and commission databases and user interfaces for the monitoring and operation of sensitive silicon and diamond pixel detectors
- Developed and maintained Condor computing cluster used for simulation and data analysis
- Presented analysis work and results to research groups inside the collaboration and to larger audiences at international scientific conferences

Independent Projects

Franklin County Voter Prediction 2017

- Predicted voting behavior in the November 2017 general election using publicly available Franklin County, OH voting records. Used SQLite and Python with scipy, numpy, and matplotlib to design data structures, identify significant voting history patterns, create prediction models using Bayesian modeling and regression techniques, and identify precincts with large numbers of likely voters

Columbus Political Campaign Finance 2017

- Worked with Columbus political organization to identify patterns in municipal campaign activities and fundraising. Used Python with scrapy, BeautifulSoup, numpy, and matplotlib to scrape city government databases for municipal campaign finance information in Columbus, OH, create database for querying scraped data, and identify trends

Graduate Teaching Associate Columbus, OH
Ohio State University 2011 - 2013

- Taught undergraduate holography, lab courses, and general physics classes covering kinematics, electromagnetism, nuclear physics, and thermodynamics (each 20-30 students)
- Received Hazel Brown Outstanding Teaching Assistant Award in 2012

EDUCATION

Ph.D. in experimental particle physics, Ohio State University, Columbus, OH 2017
M.Sc. in physics, Ohio State University, Columbus, OH 2013
B.S. in physics, University of Kansas, Lawrence, KS 2011
B.A. in mathematics and anthropology, University of Kansas, Lawrence, KS 2011

SKILLS

- Computing languages: Python, SQLite, C++, Linux, shell scripting, \LaTeX , WinCC, Mathematica
- Tools: Scrapy, BeautifulSoup, Numpy, Scipy, Matplotlib, Git, Condor
- Languages: English (native), French (fluent)