

Andrew Hard

Résumé

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EDUCATION

- 2016 **Doctor of Philosophy** in Physics
University of Wisconsin, Madison WI, USA
Thesis: *Search and discovery with the resonant $\gamma\gamma$ final state at ATLAS*
Advised by Prof. Sau Lan Wu
- 2010 **Bachelor of Arts** in Physics, Honors
University of Chicago, Chicago IL, USA
Advised by Prof. Edward Blucher

EXPERIENCE

- 2011 - 2016 **Graduate Research Assistant**, *Department of Physics, University of Wisconsin*
 - Discovered Higgs boson, performed first measurements of mass, couplings, and spin
 - Developed widely used analysis software with C++, Python, ROOT, & shell scripts
 - Statistical expert, created new Monte Carlo method to reduce CPU usage by $1000\times$
 - Invented algorithm to spatially and temporally match CMOS chip hits at LBNL
 - Optimized physics searches with TB-scale datasets using machine learning techniques
 - Contributed significantly to 21 papers & notes, author on 250+ ATLAS publications
 - Wrote and coordinated successful DoE funding reports for Wisconsin ATLAS Group
- 2014 **Graduate Teaching Assistant**, *Department of Physics, University of Wisconsin*
 - Led discussions and labs on classical mechanics, electrodynamics, thermodynamics
 - Designed supplemental exercises and summary notes that boosted exam performances
- 2010 - 2011 **CERN Technologist**, *Enrico Fermi Institute, University of Chicago*
 - Electronic calibration expert for the ATLAS Experiment hadronic calorimeter
 - Developed & maintained calibration software package using Python and MySQL
 - Documented, monitored and reported on detector status to collaboration
- 2009 - 2010 **Undergraduate Research Assistant**, *Enrico Fermi Institute, University of Chicago*
 - Developed particle detector simulation in C++ with ROOT and Geant4 libraries
 - Constructed μ particle modules, worked in machine shop, tested electronics

SKILLS

- Scientific** Physics, Statistics, Simulation, Numerical Methods, Data Structures, High Throughput Computing, Databases, Machine Learning, Public Presentation
- Programming** C++, Python, Java, ~~LaTeX~~TeX, Unix/Linux shell scripting, ROOT, Matlab, SQL, TensorFlow
- Languages** English (native), French (basic oral and written communication)

VOLUNTEERING & OUTREACH



- Newtonian physics demonstration for Chicago Public Library 2016
- US voter outreach & registration at CERN 2016
- Discussed research & funding with U.S. lawmakers in Washington D.C. 2014, 2015
- Created GIF visualizations of Higgs boson discovery data 2013
- Visited classrooms at the Chattanooga School for the Arts & Sciences 2012

AWARDS

- 2015 **Teaching Assistant Rookie of the Year**, *Department of Physics, University of Wisconsin*
2013, 2014 **Lightning Round Winner**, *US LHC User's Association Annual Meeting*