Andrew Hard

Résumé

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Skills

Scientific Physics, Machine Learning, Statistics, Simulations, Numerical Methods, Data Structures, High-Throughput Computing, Databases, Public Presentation

Programming C++, Python, TensorFlow, Java, Go, LaTeX, Unix/Linux shell scripting, ROOT, Matlab, SQL

Languages English (native), French (basic oral and written communication), German (A1.3)

Experience

2019 - Present **Senior Software Engineer**, Google
- TL and manager for multiple interns and projects
- Researched and built federated acoustic models for Assistant with TensorFlow, Python
- Interviewed 100 candidates for SWE and ML positions

2017 - 2019 **Software Engineer**, Google
- Researched generative text models with federated learning and differential privacy
- Published work on federated training for recurrent neural language models
- Developed multi-word prediction networks for Gboard with TensorFlow, C++, Python

2011 - 2016 **Graduate Research Assistant**, *Department of Physics, University of Wisconsin*
- Discovered Higgs boson, performed first measurements of mass, couplings, and spin
- Optimized physics searches with TB-scale datasets using machine learning techniques
- Statistical expert, created new Monte Carlo method to reduce CPU usage by $1000\times$

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*
- Developed & maintained calibration software package using Python and MySQL

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

Volunteering & Outreach

- Participated in industry panel discussions and advisory board for physicists 2019
- Demonstrated Newtonian physics concepts for Chicago Public Library 2016
- Discussed research & funding with U.S. lawmakers in Washington D.C. 2014, 2015
- Created GIF visualizations of Higgs boson discovery data 2013
- Science outreach 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*