

## Andrés David Cimmarusti

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### Summary

Versatile scientist with broad, hands-on experience in data collection, analysis and experimental design

### Experience

**Yield engineer**, Intel Corporation, Hillsboro, OR 07/2014–present

- Earned outstanding performance review after first full year at job (top 6% in group)
- Experienced with wafer UV laser inspection tool and SEM for defect metrology
- Improved position correlation algorithm leading to defect positioning accuracy by more than 60%
- Re-purposed position correlation algorithm to predict a 95% reduction of failure correlation radius
- Trained robust SVM and random forest ML classifiers for reducing misdetections by more than 50%
- Implemented SPC charts/dashboards for real-time monitoring of tool health
- Developed scripts for ETL tool logs for easy failure root cause analysis

**Research Assistant**, Joint Quantum Institute, College Park, MD 05/2009–05/2014

- Designed and built optical systems: beam sizing, filtering, injection locking, fiber coupling, Fabry-Perot cavities
- Tuned solid-state and diode lasers: power performance 60% beyond specs, frequency stability ( $< 1$  MHz)
- Developed MATLAB atom-light coupling MC simulation achieving qualitative agreement with experiment
- Developed ROOT/C++ atomic beam MC simulation to guide experiment design decisions
- Developed C/C++ utility for fast correlation analysis of raw data
- Developed MATLAB script for data-to-data fitting, comparison and visualization
- Experienced using linear and non-linear regressions on data
- Developed temperature ( $< 0.1$  C) and laser power ( $< 1$  mW) stabilizers using micro-controllers
- Experienced with machine shop and mechanical development including opto-mechanics and high vacuum systems
- Scientific writing: co-author of 7 research papers
- Technical presentations: 4 contributed talks at conferences
- Lead student researcher from 2010, mentored of 5 undergraduate students

**Teaching Assistant**, University of Maryland, College Park, MD 08/2008–12/2009

- Taught physics fundamentals to a large variety of majors
- Earned excellent TA reviews

**Trainee**, Laboratoire de Physique Nucléaire et de Hautes Energies, Paris, France 05/2006–11/2006

- Topic:* Analysis of Top anti-Top decays in the lepton plus jets channel at the ATLAS experiment
- Experienced with large team collaborations
  - Delved into large legacy code base for analysis of Monte Carlo simulated data
  - HELEN complementary training fellowship

### Education

**PhD in Physics**, 3.8, University of Maryland, College Park, MD 05/2014

**MS in Physics**, 3.8, University of Maryland, College Park, MD 12/2010

**BS in Physics**, 19.5 / 20, Universidad de Los Andes, Mérida, Venezuela 01/2007  
*Summa Cum Laude*

### Skills

**Scientific:** Optics, Lasers, Experimentation, Data analysis, Vacuum chambers, Simulations, Regression analysis, Machine learning

**Programming:** Python, C/C++, SQL, git, Shell scripting, ROOT, HTML, CSS

**Software:** MATLAB, Mathematica, Gnuplot, LabVIEW, Autodesk Inventor, Excel

**Other:** L<sup>A</sup>T<sub>E</sub>X, Linux, PCB design, Arduino, Machining, Clean room, SPC, ETL

**Languages:** Spanish (native), English (fluent), French (moderate), Italian (basic)