Thomas Mastrianni PERRY, Ph.D.

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I was formally trained at the world's leading particle physics laboratory (CERN) to collect, clean, analyze, and present data on the petabyte scale. As a graduate student and postdoc there, I worked primarily in `c++` and `Python` in `Linux`-based environments to lead analyses and datataking operations. Recently I have been teaching and writing, and am ready to bring my technical skills to industry.

EDUCATION

2016	**Ph.D. in Physics** University of Wisconsin–Madison, Madison, WI
	A measurement of $W b \bar{b}$ production and a search for monophoton signals of dark matter using the CMS detector at the CERN LHC
2009	**B.S. in Physics** (astrophysics minor) Union College, Schenectady, NY
	Magna Cum Laude with departmental honors
	Multi-frequency VLBI imaging of two compact symmetric objects

RELEVANT EXPERIENCE

Graduate Research Assistant 2012-2016, University of Wisconsin and CERN

Collected and analyzed data from the CERN Large Hadron Collider (LHC), specializing in dark matter searches and heavy-flavor physics with displaced secondary vertices

- contributed to the collection and analysis of the largest physics dataset in history
- wrote software for efficient cleaning, data-driven analysis, statistical modeling, interpretation, and visualization of petabyte-scale datasets, including machine learning techniques (neural net and BDT)
- ran analysis software on a distributed computing network using HTCondor, stored in HDFS filesystems
- took shifts in the control room and served as on-call expert monitoring data-taking, diagnosing problems, and delivering solutions in a fast-paced, high-pressure environment
- served as editor for one published paper, contributed to eight others

Postdoctoral Research Fellow 2016-2018, Florida State University and CERN

Lead analyses using the Higgs boson to search for evidence of new physics and was appointed to HCAL Operations Manager, overseeing all aspects of data collection for one of only four CMS subdetectors.

- wrote custom codebase for physics analysis in c++ that is still in use 5 years later
- trained and supervised subdetector experts who monitored datataking in real time, chaired weekly meetings of 30 physicists, carried a CERN phone 24/7 for emergency response
- had the authority to speak on behalf of a subdetector in a 3500+ person international collaboration

Math Teacher/Tutor 2019-present, Santa Fe Preparatory School

Taught algebra and calculus, as well as tutoring privately
- improved presentation skills, organization, and communication with nonexperts

SKILLS

statistical analysis and interpretation of large datasets; numerical optimization and fitting of partially-correlated variables; high-speed, parallel, and distributed computing; object-oriented and functional programming; collaborative software design in diverse groups; technical and nontechnical communication; critical thinking and problem solving

`c++`, `Python`, `bash` (`csh`, `tsh`, ...), `Linux/Unix`, `Git`, `ROOT`, `HTCondor`, LaTeX, `VIM`