

Jim Fonseca, PhD, PMP

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PROFILE

Computational scientist transitioning into data science. Over 10 years of experience in high performance computing and data analysis in nanoelectronics and computational biology

EXPERIENCE

The Data Incubator

April 2017 – June 2017

- Completed two month fulltime data science bootcamp with a ~4% acceptance rate
- Coded weekly projects focused on a variety of machine learning processes from data acquisition and cleaning, to model design and evaluation, with datasets up to ~100 GB

Purdue University

Research Scientist, Network for Computational Nanotechnology (NCN)

July 2012 – April 2017

Postdoctoral Research Associate, NCN

June 2011 – July 2012

- Sped up turnaround time 10x for client's web-based simulation tool by scraping and analyzing data on 10,000s of compute cluster jobs and analyzing usage patterns and suggesting improvements
- Deployed group's NEMO5 semiconductor modeling software on nanoHUB.org, a cyberinfrastructure for nanotechnology research, while curating user experience and leading support team
- Led design, implementation, and maintenance of testing framework for ensuring build stability, performance reliability, and result consistency of NEMO5 on 500+ tests
- Managed several graduate students on the development of 10+ nanoHUB.org simulation tools

Rush University Medical Center

Postdoctoral Researcher, Visiting Assistant Professor

May 2008 – June 2011

Department of Molecular Biophysics and Physiology

- Developed protein simulation software using Monte Carlo algorithms to explain physiological properties of ion channels using high-performance computing systems

Ohio University

January 2005 – May 2008

Research Assistant, Department of Electrical Engineering and Computer Science

- Analyzed 10s of GBs of atomic trajectories and volumetric electrostatic data from molecular dynamics simulations of the sodium pump (Na^+ , K^+ -ATPase) using homology modeling of SERCA

SKILLS & EXPERTISE

- Machine learning, high performance computing, project management
- Python, pandas, NumPy, SciPy, scikit-learn, C++, Fortran, Apache Spark, SQL, Hadoop MapReduce, Flask

ACTIVITIES & AWARDS

Awarded various grants for millions of node-hours on supercomputers (NSF, XSEDE)

Mentored 13 students for Purdue Summer Undergraduate Research Fellowship (SURF)

2013-2016

EDUCATION

- Ohio University Ph.D., Electrical Engineering & Computer Science June, 2008
- Ohio University M.S., Electrical Engineering & Computer Science June, 2004
- Virginia Tech B.S., Computer Engineering, Minor in Computer Science June, 2001

SCIENTIFIC PUBLICATION SUMMARY

Peer reviewed publications: 13 totaling 200+ citations

h-index: 8

Technical presentations: 12

Poster presentations: 27