Steven Boada, Ph.D

Contact Information

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Education

Texas A&M University, College Station, Texas USA
Ph.D, Physics (Astronomy focus), August, 2016
- Dissertation Title: "Measuring the Scatter in the Cluster Optical Richness–Mass Relation with Machine Learning"

The University of Tennessee, Knoxville, Tennessee USA
M.S., Physics (Astronomy focus), August, 2009
- Thesis Title: "An Automated Approach to the Study and Classification of Colliding and Interacting Galaxies"

B.S., Physics, May, 2007

Quick Profile

Independent scientist with a strong background in analyzing large structured, unstructured, and often noisy datasets. Passionate about deriving nuanced insight from complicated systems and communicating those insights to others.

Education

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Professional Experience

Freelance Work **September, 2017 - Present**
- Analyzed TBs of astronomical imaging; producing calibrated, standardized data catalogs.
- Collaborated with group members at least weekly and supervised research activities of both graduate and undergraduate students.
- Contributed to many open source astrophysical projects.

Rutgers University, New Brunswick, New Jersey USA
Postdoctoral Research Associate **September, 2016 - Present**
- Analyzed TBs of astronomical imaging; producing calibrated, standardized data catalogs.
- Collaborated with group members at least weekly and supervised research activities of both graduate and undergraduate students.
- Contributed to many open source astrophysical projects.

Texas A&M University, College Station, Texas USA
Research Assistant **August, 2010 - 2016**
- Conducted original research of a forthcoming (simulated) astronomical survey and showed that results could be improved by implementing machine learning techniques (e.g., random forest regression) when compared to traditional analysis methods. Demonstrated improved results in a pilot survey of the real sky and under real-world conditions.
- Collaborated with group members both in person, and through collaborative tools (e.g., GitHub, SVN).
- Presented scientific results in high-impact, peer reviewed journals and at international conferences.
- Contributed to many open source astrophysical projects.

The University of Tennessee, Knoxville, Tennessee USA
Research Assistant **August, 2007 - 2009**
- Conducted original research at Oak Ridge National Laboratory (see below).
- Supervised, designed, and taught laboratory experiences for undergraduate students.

National Center for Computational Science, Oak Ridge National Laboratory, Oak Ridge, Tennessee USA
Visiting Scientist **May, 2007 - August, 2009**
- Leveraged high-performance computing ($\sim$ 100k cores) for scientific simulations.
- Analyzed hundreds of GBs of data output from scientific simulations using C and Python.
- Optimized scientific simulations using a genetic algorithm base approach.
- Implemented simple computer vision algorithms to examine simulation results.

Technical Skills

Machine Learning: Regression, Classification, Feature Engineering, Optimization
Statistical Methods: Regression models, hypothesis testing and confidence intervals, error analysis, image analysis, MCMC
Software and Computing: Python (e.g. Scikit-learn, Numpy, Scipy, Pandas, Matplotlib), SQL, ANSI C, Linux, Microsoft Excel, GPGPU, and HPC (100k+ core) applications