

Steven Boada, Ph.D

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| Contact Information | Cranford, New Jersey, USA (615) 200-0119 | stevenboada@gmail.com http://boada.github.io |
| Profile | Collaborative, scientific thinker passionate about discovering and communicating nuanced insight from complicated data. Strong programming and analytical background working with large, often noisy datasets. | |
| Education | Texas A&M University , College Station, Texas USA Ph.D, Physics (Astronomy focus), August, 2016 <ul style="list-style-type: none">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 <ul style="list-style-type: none">Thesis Title: "An Automated Approach to the Study and Classification of Colliding and Interacting Galaxies" B.S., Physics, May, 2007 | |
| Technical Skills | Machine Learning: Regression (Linear, Random Forests), classification (RF, SVM), feature engineering, optimization, deep learning Statistical Methods: Hypothesis testing and confidence intervals, error analysis, image analysis, Monte Carlo methods Software and Computing: Python (e.g. Scikit-learn, Numpy, Scipy, Pandas, Matplotlib, fast.ai), mySQL, ANSI C, Linux, Microsoft Excel, GPGPU, and HPC (100k+ core) applications | |
| Data Projects | Using Imaging to Predict Galaxy Spectroscopic Properties <ul style="list-style-type: none">Leveraged Convolutional Neural Network, trained on GPUs, to analyze $\sim 150,000$ images from the Sloan Digital Sky Survey: https://github.com/boada/galaxy-cnnsPredicted spectroscopic properties with $\sim 5\%$ error from psuedo-three color imaging. Predicting Tournament Performance in Warmachine <ul style="list-style-type: none">Cleaned and analyzed tournament results of a popular tabletop game using Python (e.g., Pandas).Created an Elo based model to forecast the results of an upcoming tournament.Explored tournament results to gain insight into broad community trends. | |
| Professional Experience | Rutgers University , New Brunswick, New Jersey USA <i>Postdoctoral Research Associate</i> September, 2016 – Present <ul style="list-style-type: none">Analyzed TBs of astronomical imaging; producing calibrated, standardized data catalogs.Led weekly collaboration meetings with senior scientists and supervised student research.Contributed to open source projects including: PHOTOMETRYPIPELINE, ASTLIB, and EASYGALAXY. Texas A&M University , College Station, Texas USA <i>Ph.D Candidate</i> August, 2010 – 2016 <ul style="list-style-type: none">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. The University of Tennessee , Knoxville, Tennessee USA <i>Master's Candidate, Visiting Scientist</i> August, 2007 – 2009 <ul style="list-style-type: none">Conducted original research at the National Center for Computational Science, part of Oak Ridge National Laboratory.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 based approach.Implemented computer vision algorithms to examine simulation results. | |