ZACHARY JENNINGS

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PROFILE:

PhD candidate in astronomy & astrophysics with extensive training in graduate-level statistics, especially Bayesian statistics. Worked on many projects requiring one to start with raw astronomical data and independently identify interesting questions, calibrate data, make measurements, perform statistical inference, and create publications/presentations from results. Experience working both on individual projects and as part of large, international collaborations.

EDUCATION:

PhD, Astronomy and Astrophysics with Designated Emphasis in Statistics **(Expected June 2017)**
University of California, Santa Cruz. Advisors: Dr. Jean Brodie, Dr. Aaron Romanowsky

- **Relevant Coursework:** probability theory, frequentist inference, Bayesian inference, Bayesian modelling, non-parametric Bayesian statistics, extensive coursework in astrophysics.

MS, Astronomy and Astrophysics **June 2014**
University of California, Santa Cruz
BS, Physics and Astronomy, Honors **June 2012**
University of Washington, Seattle

RESEARCH EXPERIENCE:

Graduate Student Researcher **UC Santa Cruz (Summer 2012 - Current)**

- Developed a fully-Bayesian model for simultaneous classification of star clusters and inference of their global parameters in extragalactic imaging data. Model implemented fully in Python, using MCMC to sample parameter spaces.
- Created star cluster catalogs, each containing photometric properties of thousands of sources, for several local galaxies in the SLUGGS survey.
- Member of international collaboration featuring over two dozen researchers, experience working on several simultaneous collaborative projects with diverse research goals.
- Four published lead-author papers, eleven more as contributing author in top astrophysics journals.

Undergraduate Researcher **University of Washington (Fall 2010 - Summer 2012)**

- Developed technique for predicting masses of supernova progenitor stars based on measured color and luminosity of surrounding stellar populations in Hubble Telescope imaging data.

SELECTED HONORS AND AWARDS:

National Science Foundation Graduate Research Fellow **Fall 2013 - Summer 2016**
Full support fellowship, awarded to top ~5% of STEM doctoral students across US.
Whitford Prize, UC Santa Cruz **Summer 2014**
Department prize awarded to top graduate student following completion of second year requirements.

SELECTED OUTREACH AND TEACHING:

Telescope Club Coordinator **Fall 2012 - Current**
Organized and led several dozen amateur astronomy nights for local schools, companies, intro astronomy classes at UCSC, and general public. Gave several public talks on astronomy as components of these.
Teaching Assistant, Introduction to Scientific Computing **Winter 2013**
Taught basic scientific computing skills to advanced science undergraduates.

SELECTED SKILLS:

Statistics/Machine Learning: probability, classical confidence intervals and hypothesis testing, regression, Bayesian modelling and inference, nonparametric Bayesian statistics, Dirichlet processes, MCMC, classification.

Computer Skills, Extensive: Python (including scipy, scikit-learn, pandas, emcee, ipython, seaborn), IDL, LaTeX, Unix.
Intermediate: R, git, SQL, Jekyll, HTML.