Joshua S. Speagle

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POSITIONS

National Science Foundation Graduate Research Fellow: Harvard University — 2016-**Present**
Project Academic Support Staff: Kavli IPMU (WPI), UTIAS, The University of Tokyo — 2015-2016

EDUCATION

Harvard University: MA/PhD Program — 2016-**Present**
Advisers: Daniel Eisenstein (Primary), Charlie Conroy, Doug Finkbeiner
Harvard University: BA with Honors in Astrophysics and Physics — 2011-2015
Adviser: Daniel Eisenstein

RESEARCH INTERESTS

Statistical methods, machine learning, all-sky surveys, spectrophotometric modeling, galaxy evolution, cosmology, stellar populations, dust mapping

TEACHING

Teaching Fellow: Harvard
ASTRON 17 — **Fall 2018**
ASTRON 130 — Spring 2018
ASTRON 16 — Spring 2017
Course Instructor: Banneker & Aztlán Institute (Harvard)
Python 1, Python 2 — Summer 2018
Python 2, Data Analysis 2 — Summer 2017
Course Assistant: Harvard
PHYS 16 — Fall 2013

AWARDS & HONORS

Harvard Certificate of Distinction in Teaching — Fall 2017
National Science Foundation Graduate Research Fellowship — 2016
Herchel Smith-Harvard Undergraduate Science Fellowship — Summer 2014
Harvard College Research Program Research Fellowship — Spring 2014
Spring, Summer, Fall 2012
Weismann International Internship Program Fellowship — Summer 2013
Chambliss Astronomy Achievement Student Award — *Winter 2013
Winter 2011
REU in Astronomy and Astrophysics: Cornell U. — Summer 2012

* Honorable mention

SELECTED PRESENTATIONS

Aug. 2018: **Harvard**, CMSA Big Data Conference, **Invited Talk**: "Revealing the Milky Way's Dust-iny"

Mar. 2018: **Bayes Comp**, **Poster**: "Dynamic Nested Sampling with dynesty"

Oct. 2017: **UMass Amherst**, Data Science Tea, **Invited Talk**: "Big Data Inference: Combining Hierarchical Bayes and Machine Learning to Improve Photometric Redshifts"

Sep. 2017: **Harvard**, Astrostatistics Seminar, **Talk**: "An Introduction to Dynamic Nested Sampling"

Sep. 2017: **Harvard-Smithsonian CfA**, AstroStat Day, **Talk**: "Typical Sets: What They Are and How to (Hopefully) Find Them"

Jan. 2017: **AAS 229**, **Poster**: "Improving Photometric Redshifts for Hyper Suprime-Cam (HSC) with Hierarchical Bayes and Machine Learning"

May 2016: **COSMO21**, **Talk**: "Improving Photometric Redshifts for Hyper Suprime-Cam"

Mar. 2016: **Kavli IPMU**, Astro Lunch Seminar, **Talk**: "Mapping, Visualizing, and Exploiting the Color-Redshift Relation"

Apr. 2015: **Harvard**, Senior Thesis, **Talk**: "Mapping the Universe (at low resolution) with Photometric Redshifts"

Jan. 2015: **AAS 225**, **Talk**: "Improving Photometric Redshift Accuracy and Computational Efficiency"

Jan. 2014: **AAS 223**, **Poster**: "Parallel Galaxy Main Sequence and Quasar Evolution from z=0-6"

Dec. 2013: **Harvard**, Junior Thesis, **Talk**: "'Main Sequence' Evolution from z~0-6"

Aug. 2013: **Tsukuba Univ.**, **Talk**: "The Evolution of Star-Forming Galaxies Over Cosmic Time"

Jul. 2013: **Kavli IPMU**, Astro Lunch Seminar, **Talk**: "Gyrochronology and the Angular Momentum Evolution of Solar-like Stars"

Jan. 2013: **AAS 221**, **Poster**: "An In-Depth Analysis of the *Kepler* Low-Amplitude Blazhko RR Lyrae Stars"

Jan. 2012: **AAS 219**, **Poster**: "The X-ray Counterpart of the High-*B* Pulsar J0726-2612"

SELECTED PUBLICATIONS

2018:

Zucker, C.; Schlafly E. F.; Green, G. M.; **Speagle, J. S.** et al., **accepted to ApJ** (1803.08931): "A New Technique for Mapping Distances Across the Perseus Molecular Cloud Using CO Observations and Stellar Photometry"

Medezinski, E.; Masamune O.; Nishizawa, A. J.; **Speagle, J. S.** et al., **PASJ** (1706.00427): "Source Selection for Cluster Weak Lensing Measurements in the Hyper Sprime-Cam Survey"

Tanaka, M.; **the HSC Photo-z Team** et al., **PASJ** (1704.05988): "Photometric Redshifts for the Hyper Suprime-Cam Subaru Strategic Program Data Release 1"

2017:

Speagle, J. S. & Eisenstein, D. J., **MNRAS** (1510.08080): "Deriving Photometric Redshifts with Fuzzy Archetypes and Self-Organizing Maps II. Implementation"

Speagle, J. S. & Eisenstein, D. J., **MNRAS** (1510.08073): "Deriving Photometric Redshifts with Fuzzy Archetypes and Self-Organizing Maps I. Methodology"

2016:

Speagle, J. S. et al., **MNRAS** (1508.02484): "Exploring Photometric Redshifts as an Optimization Problem: An Ensemble MCMC and Simulated Annealing-Driven Template-fitting Approach"

Steinhardt, C. L.; Capak, P. L.; Masters, D. C.; & **Speagle, J. S.**, **ApJ** (1506.01377): "The Impossibly Early Galaxy Problem"

2015:

Masters, D. C. **et al.**, **ApJ** (1509.03318): "Mapping the Galaxy Color-Redshift Relation: Optimal Photometric Redshift Calibration Strategies for Cosmology Surveys"

2014:

Steinhardt, C. L. & **Speagle, J. S.**, **ApJ** (1409.2883): "A Uniform History for Galaxy Evolution"

Steinhardt, C. L.; **Speagle, J. S.** et al., **ApJL** (1407.7030): "Star Formation at $4 < z < 6$ from the Spitzer Large Area Survey with Hyper-Suprime-Cam (SPLASH)" **(Press Release: JPL)**

Speagle, J. S.; Steinhardt, C. L.; Capak, P. L.; & Silverman, J. D., **ApJS** (1405.2041)**:** "A Highly Consistent Framework for the Evolution of the Star-Forming 'Main Sequence' from z~0-6" **(~350 citations)**

2011:

Speagle, J. S.; Kaplan, D. L.; & van Kerkwijk, M. H., **ApJ** (1111.2877): "The X-ray Counterpart of the High-*B* Pulsar J0726-2612"

Last Updated: August 27, 2018