

# HARSHIL M. KAMDAR

## Curriculum Vitae

---

Harvard University,  
Center for Astrophysics, 60 Garden St.,  
Cambridge, MA, 02138

harshil.kamdar@cfa.harvard.edu  
<http://harshilkamdar.github.io>  
[@harshilkamdar](https://twitter.com/harshilkamdar)

<b>Education</b>	PH.D IN ASTRONOMY AND ASTROPHYSICS Harvard University, Cambridge, MA, USA	2016 – Present
	S.M. IN COMPUTATIONAL SCIENCE & ENGINEERING Harvard University, Cambridge, MA, USA	2016 – Present
	B.S. IN PHYSICS B.S. IN ASTRONOMY University of Illinois, Urbana, IL, USA	2012 – 2016
<b>Honors &amp; Awards</b>	DOE COMPUTATIONAL SCIENCE GRADUATE FELLOWSHIP	2016 – Present
	ROBERT E. HETRICK SENIOR THESIS PRIZE	2016
	STANLEY J. WYATT MEMORIAL AWARD	2016
	BLUE WATERS FELLOWSHIP	2015 – 2016
	HARRY E. PREBLE AWARD FOR UNDERGRADUATE RESEARCH	2014, 2015
	FINALIST FOR BEST POSTER UNDERGRADUATE RESEARCH SYMPOSIUM	2015
	DEANS LIST	2013, 2014, 2015
UNIVERSITY ACHIEVEMENT SCHOLAR	2012 – 2016	
<b>Research Experience</b>	UNDERGRADUATE RESEARCH ASSISTANT Supervisors: Prof. Robert J. Brunner, Prof. Matthew J. Turk	2013 – Present
	<ul style="list-style-type: none"><li>• Modeling galaxy formation and evolution in cosmological simulations using machine learning techniques</li><li>• Large astronomical mosaics using Caltech/JPL's Montage on Blue Waters</li><li>• A weighted, fast two-point correlation function to make cosmological measurements more accurate</li><li>• Making probability distribution functions for photometric redshifts on MICE data using MLZ</li></ul>	
	UNDERGRADUATE RESEARCH ASSISTANT Supervisors: Prof. Jeff P. Filippini	2015 – 2016
	<ul style="list-style-type: none"><li>• Data analysis for the CMB experiment SPIDER</li></ul>	
<b>Professional Experience</b>	UNDERGRADUATE RESEARCH ASSISTANT Supervisors: Prof. Alfred Hubler	2012 – 2013
	<ul style="list-style-type: none"><li>• Analyzed the Lyapunov stability of a theoretical open dissipative system made of capacitors</li><li>• Ran several simulations in Matlab to reinforce theoretical predictions</li></ul>	
	LOCAL ORGANIZING COMMITTEE (National Communicating Science workshop for Graduate Students)	2016 – Present
GRADUATE STUDENT COUNCIL REP (Astronomy Department, Harvard University)	2016 – Present	
RESIDENT ASSISTANT (Hendrick House, IL)	2013 – 2016	
STUDENT (Caltech Gravitational Wave Astrophysics School)	2015	

**Technical Experience** PYTHON, C, C++, MATLAB, LISP, JAVA, OPENMP/MPI, MATHEMATICA, L<sup>A</sup>T<sub>E</sub>X, MONTAGE, HEALPIX, HPC

- First Author Publications**
3. POPULATING N-BODY SIMULATIONS USING MACHINE LEARNING;  
**Kamdar, H.M.**, Turk, M.J., Brunner, R.J., Submitted (MNRAS)
  2. [MACHINE LEARNING AND COSMOLOGICAL SIMULATIONS II: HYDRODYNAMICAL SIMULATIONS](#);  
**Kamdar, H.M.**, Turk, M.J., Brunner, R.J., *MNRAS*, 457 1162
  1. [MACHINE LEARNING AND COSMOLOGICAL SIMULATIONS I: SEMI-ANALYTICAL MODELS](#);  
**Kamdar, H.M.**, Turk, M.J., Brunner, R.J., *MNRAS*, 455, 642

**Talks & Posters**

TALK: MACHINE LEARNING AND COSMOLOGICAL SIMULATIONS  
**Kamdar, H.M.**; Turk, M.J., Brunner, R.J.  
*Astrophysics, Cosmology, and Gravitation Seminar, Urbana, IL (Feb 2016)*

TALK: MACHINE LEARNING AND COSMOLOGICAL SIMULATIONS  
**Kamdar, H.M.**; Turk, M.J., Brunner, R.J.  
*Dept. of Physics Symposium, Urbana, IL (Feb 2016)*

POSTER: MACHINE LEARNING AND COSMOLOGICAL SIMULATIONS  
**Kamdar, H.M.**; Turk, M.J., Brunner, R.J.  
*Presentation # 342.05, 227th AAS Conference, Kissimmee, FL (Jan 2016)*

TALK: MOCK CATALOGS USING MACHINE LEARNING  
**Kamdar, H.M.**; Turk, M.J., Brunner, R.J.  
*DES Chicagoland Meeting, Urbana, IL (Dec 2015)*

POSTER: MACHINE LEARNING AND COSMOLOGICAL SIMULATIONS  
**Kamdar, H.M.**; Turk, M.J., Brunner, R.J.  
*Dept. of Physics Symposium, Urbana, IL (Oct 2015)*

POSTER: MODELING GALAXY FORMATION AND EVOLUTION USING MACHINE LEARNING  
**Kamdar, H.M.**; Turk, M.J., Brunner, R.J.  
*Undergraduate Research Symposium, Urbana, IL (April 2015)*

POSTER: A PROBABILISTIC CORRELATION FUNCTION  
**Kamdar, H.M.**; Brunner, R.J.  
*Undergraduate Research Symposium, Urbana, IL (April 2014)*

POSTER: A PROBABILISTIC CORRELATION FUNCTION  
**Kamdar, H.M.**; Brunner, R.J.  
*Annual Computational Science and Engineering Meeting, Urbana, IL (April 2014)*

**Press Release** [Machine Learning could solve riddles of galaxy formation](#), November 2015

**Teaching Experience** PHYSICS TUTOR 2013 – Present  
SPLASH@UIUC 2015