

Samantha Thrush

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EDUCATION

UNIVERSITY OF ILLINOIS

PHD IN ASTRONOMY
Expected May 2020 | Urbana, IL
Cumulative GPA: 3.60

OHIO UNIVERSITY

BS IN ASTROPHYSICS
Earned May 2015 | Athens, OH
Honors Tutorial College
Dean's List (2 Quarters and 6 semesters)
Cumulative GPA: 3.817

COURSEWORK

GRADUATE

Big Data Optimization
Computational Astrophysics
General Relativity I & II
Physics of Compact Objects
Teaching Assistant for:
Introduction to Data Science
Advanced Data Science

UNDERGRADUATE

Mathematical Physics
Geometrical and Physical Optics
Quantum Mechanics
Standard Physics Degree Coursework

SKILLS

PROGRAMMING

Fluent:
Git • \LaTeX • Python • Shell
Slurm • Unix
Proficient:
C • C++ • Excel
FLASH hydrodynamic code
Fortran • SQL • NoSQL
Familiar:
HTML • Lasagne • Mathematica •
Matlab • PERL • Theano

LEADERSHIP

Presents Research at Conferences •
Effectively explains high-level research to non-scientists • Natural Leader •
Manages long-term projects effectively •
Has international collaborators •

RESEARCH

LSST CODE RESEARCH AT NCSA | GRADUATE RESEARCH ASSISTANT

May 2017 - Present | Urbana, IL
Currently working with Dr. Hsin-Fang Chiang to improve, test, and troubleshoot existing LSST reprocessing codes. Created code framework to better understand data usage of LSST's reprocessing codes (results included in a formal LSST internal paper).

LSST EXOPLANET DETECTION | GRADUATE RESEARCH ASSISTANT

Jan 2017- Present | Urbana, IL
Currently working with Dr. Athol Kemball to find exoplanet transits in LSST data. Created code framework to simulate LSST exoplanet transit data. Created a machine learning code to differentiate sparsely sampled exoplanet transit data from other types of transient data, noise, and steady-state star data.

DEEP LEARNING ON PHOTO-Z'S | GRADUATE RESEARCH ASSISTANT

May 2016 - Jan 2017 | Urbana, IL
Worked with Dr. Robert Brunner to improve upon existing deep learning codes to find the photometric redshifts of SDSS images using Theano and Python, and optimize deep learning codes to work on the Stampede supercomputer. I also helped write a (successful) proposal to gain computational time on Stampede.

LIGO GRAVITATIONAL WAVE SIMULATION | REU STUDENT

June 2014 - Aug 2014 | Minneapolis, MN
Worked with Dr. Vuk Mandic to modify and write code to test the binning capabilities of the LIGO post-processing codes to increase the detection sensitivity for stochastic gravitational waves for my undergraduate thesis.

PROTOSTELLAR DISK SIMULATION | REU STUDENT

June 2013 - Aug 2013 | Davis, CA
Worked with Dr. Matt Richter to modify and write code to simulate water spectrum emissions from distant protostellar disks.

ACCELERATOR LAB SPECTRA | UNDERGRAD RESEARCH ASSISTANT

Sept 2012 - May 2013 | Athens, OH
Worked with Dr. David Ingram to adapt the PIXE experiment to be carried out at Ohio University's Edward Accelerator Lab. Modeled and created new beam-line attachments. Identified sources of unknown spectral lines in detected spectra.

BLAZAR TIME EVOLUTION | UNDERGRAD RESEARCH ASSISTANT

June 2012 - Aug 2012 | Athens, OH
Worked with Dr. Markus Boettcher to modify and write a Monte Carlo code to allow for tracking the time evolution of blazar outbursts. Created plots of results which were presented at the 3rd Annual Conference on High Energy Astrophysics in Southern Africa.

EXTRACURRICULARS

Sept 2017 - Present	Graduate Liaison for the Astronomy Department at UIUC
Sept 2017 - Present	Mentor Coordinator for Women in Astronomy at UIUC
June 2017 - Present	Webmaster for Women in Astronomy at UIUC
Aug 2013 - May 2014	President at Ohio University's Sigma Pi Sigma Chapter
Aug 2013 - Present	Math and Science Tutor
Aug 2011 - Present	Presented and created content for over 20 outreach programs.