# Megan Christina Davis

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## Education

*2015 – 2019* Michigan State University (MSU), East Lansing, MI.
Bachelors of Science from the Honors College in Astrophysics with a minor in Computational Mathematics, Science, and Engineering.

**Thesis:** Modeling the Radial Migration of Stars and Gas in the Milky Way
**Advisors:** Dr. Brian O'Shea (MSU/JINA-CEE) and Dr. Benoit Côté (MSU/Konkoly Observatory)

## Work and Research Experience

*May – Aug. 2018* **National Aeronautics and Space Administration (NASA) Intern**
Jet Propulsion Laboratory in Pasadena, California under Dr. Mike Bottom

- Built a fully-automated testbed model of a Starshade-Telescope System to test formation flying concepts to be used in direct exoplanet imaging

*May – Aug. 2017* **IceCube International Research Experience for Students (IRES)**
Vrije Universiteit Brussel in Brussels, Belgium under Dr. Katie Mulrey

- Worked on data reduction and analysis for the LOFAR Radio Telescope LORA scintillating detectors and made Monte Carlo simulations of cosmic ray showers

*May – Aug. 2016* **IceCube Research Experience for Undergraduates (REU)**
University of Wisconsin in River Falls, Wisconsin under Dr. Lowell McCann

- Studied optical fibers and their properties for possible use in IceCube Gen2 light detectors

*Michigan State University*

*2019 – Present* **Summer Undergraduate Research Assistant**
Under Dr. Abigail Stevens and Dr. Jay Strader

- Studies compact objects and their spectral variability in the X-ray wavelength via *NICER* data
- Develops new scripts and features for the Stingray Python package that is used for astrophysical spectral-timing analysis

*2018 – 2019* **Undergraduate Research Assistant**
Under Dr. Brian O'Shea

- Used the NuPyCEE Galactic Chemical Evolution Python code to make simulations of the Milky Way
- Built new functionality to account for radial migration of gas and stars in the thin disk of the Milky Way

*2017 – Present* **Expert Observer and Outreach Coordinator at the Campus Observatory**

- Takes calibration frames and images of various sources, like exoplanet candidates or cataclysmic variable stars
- Reduces raw data and submits it to the American Association of Variable Star Observers, KELT Collaboration, and Center for Backyard Astrophysics
- Develops educational activities and displays for the Public Outreach Program and runs social media accounts

*2017 – 2019* **Learning Assistant**
AST 208: an introduction to exoplanets and observational techniques
AST 207: an introductory course for astronomy majors
ISP 205 (two semesters): an introductory astronomy course for non-science majors

*2016 – 2017* **Resident Assistant in *Case Hall***

- Assisted fellow undergraduate students by providing resources and support to the building community

## Publications

M. Bottom, S. Martin , E. Cady , **M. C. Davis**, et al. 2019. Starshade formation flying I: optical sensing, submitted to **JATIS** on 28 May 2019.

## Awards

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| *2019* | 1st Prize in the University Undergraduate Research and Arts Forum (UURAF) for presenting a poster titled Modeling the Radial Migration of Stars and Gas in the Milky Way ($100) |
| *2019* | Outstanding Teaching Assistant Award from the Department of Physics and Astronomy ($800) |
| *2016 – 2017* | Most Compassionate Campus Resident Assistant |
| *2016* | Alternate Student selected to be sent to the Amundsen-Scott South Pole Station in Antarctica (IceCube REU) |

## Conferences Attended and Presentations

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| *May 2019* | JINA-CEE Frontiers and the First Frontiers Summer School in East Lansing, MI |
| *April 2019* | University Undergraduate Research and Arts Forum (UURAF) Poster Presentation |
| *January 2019* | Conference for Undergraduate Women in Physics (CUWiP) in East Lansing, MI |

## Committees

*2019 – Present* Astronomy Department Reporting Task Force

- Developing the infrastructure for reporting harassment/bullying/bad behavior within the group for students, faculty, and research associates

*2019 – Present* Undergraduate Representative for the Stellar Mentorship Program

- Overseeing the development and implementation of a mentor/mentee program for students within the Astronomy Department

## Outreach Experience

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| *2019 – Present* | MSU Observatory Outreach Coordinator |
| *2015 – 2019* | Abrams Planetarium and MSU Observatory Outreach Assistant |

*Invited Outreach Talks and Panels*

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| *January 2019* | MSU Honors College Student Recruitment Weekend Panelist |
| *November 2018* | **Storytellers: The Insight on InSight**- Impact89 FM Radio Interview |
| *October 2018* | **Interview a Professional** at Freeman Elementary School in Flint, MI |

## Additional Skills

- Competent to program in Python and familiar with C++, HTML, and bash scripting
- Regularly uses version control software, like Github, for academic and research work
- Proficient in AstroImageJ, MaximDL, and XSPEC
- Regularly uses a DSLR and CCD cameras for astrophotography and photometry
- Proficient in French with elementary German and Dutch language skills
- Conflict resolution and personal development training

## Extracurricular Activities

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| *2016 – 2019* | Alpha Omicron Pi Sorority, Beta Gamma Chapter |
| *2018 – 2019* | Sigma Pi Sigma Physics Honors Society |
| *2015 – 2019* | MSU Astronomy Club |
| *2015 – 2019* | Society of Physics Students |
| | *2018 – 2019* President |
| | *2017 – 2018* Vice President |
| | *2016 – 2017* Treasurer |