

Gillen Brown

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Astrophysics Ph.D. graduate with strong programming, data analysis, and communication skills looking to perform rigorous analysis and provide data-driven insights that make a difference in the broader world

Education

University of Michigan Ph.D. Astronomy and Astrophysics GPA: 4.0/4.0	Ann Arbor, MI April 2022
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University of Missouri-Kansas City B.S. Physics with emphasis in Astronomy Minors in Mathematics and Computer Science GPA: 4.0/4.0 (Summa Cum Laude)	Kansas City, MO May 2016
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Research Experience

University of Michigan <i>Graduate Student Research Assistant</i>	Ann Arbor, MI September 2016 — April 2022
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- Performed astrophysics research resulting in four peer-reviewed publications
- Used Python to analyze astrophysical data of several kinds, including tables, images, and volumetric data
- Created a Bayesian model to measure the radii of star clusters seen in Hubble Space Telescope images
- Successfully measured the radii of over 6,000 star clusters, more than all previous studies combined
- Performed some exploratory analysis of these radii with the goal of understanding how star clusters form and evolve, finding that more massive clusters form with larger radii and expand slightly with time
- Ran numerical hydrodynamical simulations of galaxy formation on the Stampede2 supercomputer
- Developed a automated Python pipeline to extract relevant galaxy properties from these simulations
- Won grants totaling more than 15 million CPU-hours on the Stampede2, Anvil, and Frontera supercomputers
- Presented work at local seminars, scientific conferences, and to the public (audiences from 5 to 100+ people)

Leadership and Teamwork Experience

Michigan Dark Skies <i>Co-coordinator</i>	Ann Arbor, MI September 2019 — April 2022
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- Helped coordinate the activities of this group with 100+ members working to prevent light pollution
- Worked with the University of Michigan Central Student Government to pass a resolution encouraging the University to reduce its light pollution

University of Michigan <i>Graduate Student Instructor</i>	Ann Arbor, MI September 2017 — April 2021
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- Facilitated lab sections for four introductory level astronomy courses (~100 students per course)
- Sole instructor for 50 student course "Naked Eye Astronomy"
- Mentored 10 other graduate student instructors

University of Michigan Museum of Natural History <i>Science Communication Fellow</i>	Ann Arbor, MI May 2019 – March 2020
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- Created hands-on activity for children demonstrating the amounts of different elements in the Universe
- Delivered multiple presentations on astronomy for museum visitors of all ages

Skills

Technical Skills: Python (including SciPy, NumPy, Matplotlib, etc.), C/C++, Unix, LaTeX, git

Data Analysis: Statistics and probability, linear regression, Bayesian modeling, data visualization

Soft Skills: Technical writing, public speaking, critical thinking, problem solving