

# JASON HATHAWAY

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## EDUCATION

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### **Rochester Institute of Technology**

Master of Astrophysical Science and Technology

Henrietta, New York

*September 2020 - May 2022*

### **University of Massachusetts Amherst**

Bachelor of Science in Astronomy & Bachelor of Science in Physics

Amherst, Massachusetts

*January 2018 - May 2020*

### **Community College of Rhode Island**

Associates of Science

Concentration: Astronomy and Physics

Warwick, Rhode Island

*September 2014 - December 2017*

### **College Reading and Learning Association**

Certificate of Level 1 Tutoring

Oak Creek, Wisconsin

*January 2015*

## TECHNICAL STRENGTHS

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### **Computer Languages**

Python (3 years), C++ (2 years)

### **Software & Tools**

LaTeX, Excel

## RESEARCH EXPERIENCE

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### **Transient Glitches in Gravitational Waves**

*Rochester Institute of Technology*

September 2020 - Present

*Advisor: Richard O'Shaughnessy*

- Creating surrogate models of gravitational wave signals
- analyzed glitches that mimic these signals in order to use phase space plots to create a filter for the LIGO pipeline
- Used a Python and UNIX framework

### **Special Topics In General Relativity**

*UMass Amherst*

September 2019 - May 2020

- Used *Spacetime and Geometry* by Sean Carroll and *General Relativity* by Robert Wald for references.
- Supplemented with Kip Thorne's *Black Holes and Time Warps* for historical context
- Studied the historical approaches and methods of solving problems in GR
- Studied at gravitational waves & equations of state for compact objects

### **Particle Physics Research: Muon Trigger Study**

*UMass Amherst*

September 2018 - March 2019

- Analyzed data with C++, ROOT, and Python in order to assess a specific programs ability to calculate the path of Muon released during a particle collision experiment
- Data was used in order to minimize discrepancies between the data calculated and the actual results and implement this new system into the next generation of detectors and analyzers for the ATLAS project in the LHC.

## RELEVANT COURSES

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## Physics Courses

Classical Mechanics  
Quantum Mechanics  
Intermediate Lab  
Statistical Mechanics  
Intermediate E&M  
General Relativity

## Astronomy Courses

Obsv. Techniques of Optical & Infrared Astronomy  
Modern Astrophysics I  
Modern Astrophysics II  
Galactic Mechanics  
Writing in Astronomy  
Radiative Processes in Astrophysics

## WORK EXPERIENCE

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### Astronomy Tutor

September 2019 - May 2020

*UMass Amherst*

- Provided group tutoring for undergraduates in lower level astronomy classes covering topics of basic physics and astronomy
- Lead groups in review sessions and exam prep as part of a two tutor team

### Astrophysics Teaching Assistant

July 2018 - August 2018

*Johns Hopkins Center for Talented Youth*

- Provided in class support to a group of 18 advanced middle schoolers in astronomy topics ranging from basic kinematic theory and basic properties of light to special relativity and cosmology
- Taught night sessions focused on clearing up confusion on topics and presenting special topics to the class such as the Fermi Paradox, Cherenkov Radiation, Synchrotron Radiation, and the Hohmann Transfer Orbit
- Students were from four different states within the U.S. as well as China, Thailand, and Japan

### Astronomy Tutor

December 2016 - May 2017

*Community College of Rhode Island Student Success Center*

- Provided one on one as well as group tutoring for college students in the topics included in the courses of Astronomy 1010 and Astronomy 1020, focusing on various concepts such as astrometry, the history of astronomy, celestial mechanics, the electromagnetic spectrum, workings of telescopes, planetary geology, the sun, stellar birth, stellar evolution, stellar death, stellar remnants, general and special relativity, as well as cosmology
- Structured specifically tailored exam preparation seminars for individual pupils in order to meet their particular needs and best fit their learning styles
- Designed sessions using homemade exercises and exercises designed to ensure student confidence and success during their midterm and final exams

## LEADERSHIP POSITIONS

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### Physics & Astronomy Peer Mentor Program

October 2019 - May 2020

*Peer Mentor*

*UMass Amherst*

- Met one on one with an underclassman to encourage them in their studies
- Aided in finding classes that would help their interest and abilities
- Helped guide underclassman towards research and gave insight into obtaining research

### Astronomy Club CCRI

February 2016 - December 2017

*Founding Treasurer & President*

*Community College of Rhode Island*

- As founding treasurer I handled the account for the club as well as organizing and running the fundraisers held during Spring 2016.

- Fall 2016 I became president of the club and was in charge of the general direction of the club as well as acquisition and use of the NASA RI Space Grant (\$1200) along with my fellow officers. This grant being used to acquire a high grade telescope, CCD camera and various other equipment for the club
- Helped reach out to the public on public open nights at the Margaret M. Jacoby Observatory at the Warwick campus