Curriculum Vitae

Rohan Ravindra Rahatgaonkar

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Education

Bachelor of Science in Physics, Mathematics — Aug. 2016 - May 2020
University of Toledo (UT), Toledo, OH
Honors: magna cum laude, GPA: 3.7/4.0

Awards and Honors

American Astronomy Society 235th Chambliss Award Mention	2020
Wolf Mathematics Scholarship	2019-2020
Nicholas Memorial Scholarship	2019-2020
Violet B. Davis Scholarship	2018-2020
Robert and Noreen Stollberg Award	2017-2018

Academic Experience

Neighborhood Watch Survey Intern — Aug. 2020 - Feb. 2021
NSF's NOIRLab Gemini Observatory, La Serena, Chile

- Work on processing and analyzing CTIO 4-m Dark Energy Camera (DECam) imaging data of nearby galaxy groups and clusters.
- I am responsible for testing,comparing and improving custom data reduction pipelines to optimize reduction routines.
- Learning detection strategies of dwarf galaxies and creating surface brightness profiles.

Summer Undergraduate Research — Summer 2019
Office of Undergraduate Research, UT, OH

- Submitted a competitive proposal to obtain summer funding to study star formation in the Orion region with Prof. Tom Megeath.
- Studied hydrogen-spectral lines in near-IR spectra for protostars from Herschel Orion Protostar Survey (HOPS) data-set to obtain accretion luminosities.
- Independently developed python based code to obtain results faster and more efficiently. Worked radiative transfer model and implemented mathematical analysis to analyse the results.

Summer Undergraduate Internship — Summer 2017
Tata Institute of Fundamental Research, Mumbai, India

- I worked under Dr.Manoj Puravankara on extracting the Br-gamma lines from SpecX spectra to study IR spectroscopy of protostar.
- Understood mechanism of proto-stellar evolution and data analysis procedure for such objects.

Telescope Observing Team — Aug. 2016 - May 2019
Ritter Observatory, Ritter Planetarium, Toledo, OH

- Gained familiarity with operating 1.06 meter Ritchey-Chrétien telescope, using CCD for low dispersion spectograph and learning about the HPOL spectralpolarimeter. Primarily used for spectroscopy in the Balmar (660-360 nm) spectral region, long term observations of variable stars with winds and other request targets were fulfilled.
- Also participated in public outreach by setting up and conducting public observation nights.

Research Presentation

Understanding The Star Formation and Protostellar Evolution Processes Jan. 2020
National Collegiate Research Conference(NCRC)
Harvard University, MA

Measuring Gas Accretion Onto Orion Protostars Jan. 2020
235th American Astronomy Society (AAS) Meeting, Hawaii
BIBCODE: 2020AAS...23527204R

Understanding Protostars and Presenting Accretion Rate Measurements Aug. 2019
Summer undergraduate research presentation
Office of Undergraduate Research, UT, OH

Teaching Experience

Undergraduate Academic Assistant Jan 2020 - May 2020
Department of Mathematics at UT, OH

- Worked with professor to help explain coursework concepts, innovate teaching methods and mentor students for College Algebra.
- Offered and held personalized online office to ensure smooth learning transition to online learning during the pandemic.
- Came up with study guides, online resources and problem walk-throughs to ensure students were not stressed and had multiple resources to perform well in class.

Mathematics Tutor Jan 2019 - May 2019
Learning Enhancement Centre, Carlson Library, Toledo, OH

- My role was to be a mentor, facilitate one-to-one and group discussion, and help promote independent or inter-dependent learning. Helped students with course work's general knowledge, specific problems, and learning strategies.
- Was responsible and had helped for courses ranging from introductory college algebra (1000 level) to Numerical Analysis (3000 level)

Outreach and Professional Service

Panelist for Golden Webinars in Astrophysics Aug. 2020 - Dec. 2020
Institute of Astrophysics of the Pontificia Universidad Católica de Chile

- Provided me with an opportunity to learn, about distinct specializations in Astrophysics, and interact with prominent speakers (Dr. Adam Riess, Dr. Sara Seager, Dr. Michael Merrifield).
- Encouraged to answer and/or ask questions by audience to the speaker. Allowing me to share my enthusiasm, knowledge and curiosity with general public.

Peer Mentor for NSM 1000 Orientation Course Aug. 2019
Department of Physics, UT, OH

- Invited to be a peer mentor to engage in a discussion with freshman physics students to share my academic experience in the Department of Physics.
- Answer questions and concerns regarding academia and astrophysics as a career/major. Furthermore, provide them with resources including but not limited to research, courses, organizations, work ethic, etc.

University of Toledo Astronomy Open-house — Summer 2019
Department of Physics, UT, OH

- Invited by the department to share my undergraduate experience and promote UT's physics program to prospective international and domestic high school students.
- Being an international student, I was able to provide a holistic experience and answered questions relating to academic and extracurricular opportunities as an undergraduate.
- Provided them with unbiased resources and experience to help them make decision.

Computational Skills

- *Python 3.x* — Pandas,Astropy,PyRAF and PostgreSQL
- *shell-script and astronomy packages* — GALFIT, SExtractor, SOAImageDS9
- *Other programming languages with introductory knowledge* — IDL and R
- *Miscellaneous* — LaTeX, GIMP and GitHub:Git

Relevant Coursework

Numerical Analysis (interpolation methods, bayesian analysis) — A
A First Course in Numerical Analysis - By Anthony Ralston

Astrophysics I, II (photometry, cosmology, galactic dynamics) — A
An Introduction to Modern Astrophysics - By Bradley W Carroll

Astrophysical Measurements (astronomical raw data processing) — A-
Opportunity to work with color-composite data from DCT Telescope

Thermal Physics, Classical and Quantum Mechanics — A, B+, A
ISBN-10: 0-201-38027-7 ,1-891389-22-X, 0-13-191175-9

Linear algebra, Intro to Abstract Algebra and Complex Variable — A, A, A-
ISBN-10: 3-319-11079-9, 0-201-76390-7, 0-989-89755-9

Computational Physics (monte-carlo simulation, fourier transform) — A-
Computational Physics - By Mark Newman

References

- *Prof. Tom Megeath* — S.Megeath@utoledo.edu
- *Prof. Rupali Chandar* — Rupali.Chandar@utoledo.edu
- *Prof. Thomas Puzia* — tpuzia@astro.puc.cl