Sameer

sameeresque| sameeresque@protonmail.com|

EDUCATION

PENN STATE
PhD Astronomy & Astrophysics (Computer Science Minor)
Honors: *magna cum laude*
Aug 2018-Aug 2022 | State College, PA
MS Astronomy & Astrophysics
Aug 2016-Aug 2018 | State College, PA

INDIAN INSTITUTE OF SPACE SCIENCE & TECH.
BS Physical Sciences
Astronomy Major
Honors: *summa cum laude*
Aug 2007-Aug 2011 | Trivandrum, India

SKILLS

AREAS OF EXPERTISE
• Statistical Data Analysis • Mathematical Modeling • Bayesian inference • High Performance Computing
• Parallel computing • Data visualization

LANGUAGES
Python • R • Matlab • Mathematica • SQL

COMMUNICATION
Technical writing/editing • Public speaking
• Community outreach/engagement
•Small team management

HONORS & AWARDS

2018 - 2019, 2021 | Zaccheus Daniel Fellowship, Penn State
2016 | Homer F. Braddock/Nellie H. and Oscar L. Roberts Fellowship
2011 | Academic Excellence Award
2007 - 2011 | ISRO Full scholarship in Bachelor's education

PROFESSIONAL ACCOMPLISHMENTS

• Primary author on 3 publications and co-authored an additional 26. (ADS-Full publication list)
• Taught university-level astronomy courses
• Presented oral talks at several conferences and institutes on my research works.
• Brought in over $300,000 in grant funding

RESEARCH EXPERIENCE

PENNSYLVANIA STATE UNIVERSITY | State College, PA
Aug 2016 - Aug 2022 | Graduate Research & Teaching Assistant

- Developed a Bayesian framework to perform ionization modeling of quasar absorption lines to explore complicated likelihood spaces of gas properties such as metallicity, density, and temperature, resulting in much faster and more robust convergence than traditional chi-squared minimization techniques.
- Developed efficient Python-based scripts to carry out distributed parallel processing and produce dense interpolated grids of ionization models.
- Developed tools to distill and visualize information from optical spectra obtained with ground based telescopes, ultraviolet spectra obtained with the Hubble Space Telescope, and X-ray spectra obtained with the Chandra X-ray Observatory.

PHYSICAL RESEARCH LABORATORY | Gujarat, India
Jan 2015 - Aug 2016 | Observational Astronomer (Scientist-SD)

- Handled the operations of a 1.2m telescope for carrying out variability study of blazars in the Near Infrared and Optical regimes from Mt. Abu Infrared Observatory (MIRO), Rajasthan, using broadband photometry.
- Developed Python based codes to reduce and analyze data from a variety of focal-plane instruments i.e. CCDs in Optical and NICMOS in Infrared.

Aug 2011 - Dec 2014 | Mass spectroscopist (Scientist-SC)

- Handled the operations of a secondary ion mass spectrometer (NanoSIMS-50L) to carry out studies of early solar system objects including meteorites, lunar samples from the Apollo mission, and cometary material.
- Developed Matlab based codes for real time processing of data acquired with the NanoSIMS.

TEACHING & MENTORING EXPERIENCE

GRADUATE TEACHING ASSISTANT | Penn State
ASTRO-11 | Spring 2018, Spring 2017, Fall 2016

- Taught selected experiments and explorations to illustrate major astronomical principles and techniques.

Observational Astronomy & Experimental Physics | Fall 2016

- Basic observational astronomy techniques introduced through observational exercises and lab experiments.

Research Mentorship | Fall 2021 - Summer 2022

- Mentored Penn state undergraduate, Shengdi You, on different projects pertaining to multiphase ionization modeling of absorption line data.

VOLUNTEERING EXPERIENCE

- Subject Matter Expert for Space Telescope Science Institute public outreach initiatives.
- StackOverflow contributor - answering questions for professional and enthusiastic programmers on the topics of Python programming and High Performance Computing.
- AstroFest volunteer for stargazing through the telescopes at Penn State.