Sai Krishanth PM

Steward Observatory, 933 N Cherry Ave, Tucson, AZ, 85721
saikrishanth@arizona.edu
520-528-6436

Education

University of Arizona, College of Science August 2018-May 2022
B.S. Physics and Astronomy with a minor in Mathematics

Work Experience

Internship at Paramium Technologies May 2021-August 2021
Advisor: Dr. Justin Hyatt

- Building a test bench to generate a hysteresis curve of the stepper motor response on an adjustable radio dish mold
- Designing and 3D printing components for use in the test bench
- Quantifying test results by writing a technical report and generating a GIF of the mold for qualitative analysis

Research Staff at The Univerrsity of Arizona September 2022-Present
Advisor: Dr. Ewan Douglas

- Eps Eri Paper

Research Experience

Characterizing HI distributions in nearby massive spiral galaxies September 2018–May 2022
Advisor: Dr. Alyson Ford, Steward Observatory

- Reducing Green Bank Telescope (GBT) spectroscopic data of neutral hydrogen (HI) for low redshift spiral galaxies
- Calculating column density and error boundaries from generated FITS files
- Co-writing proposal for an expanded survey based on the results of reduced data and observing targets at GBT for said survey
- Reducing HI data from quiescent elliptical galaxies and creating deep maps to measure cool gas content and distribution.

Pipeline development for the NEID spectrograph January 2020-August 2021
Advisor: Dr. Chad Bender, Steward Observatory

- Manually checking for errors in lightcurves obtained by the NEID spectrograph
- Debugging the NEID control software
- Writing and implementing error correcting code in the NEID data collection pipeline
- Designing and building shutter control boxes for the NEID and HPF spectrographs.

Determining the dominant source of uncertainty in FoM calculations July 2020-May 2022
Advisor: Dr. Tim Eifler, Steward Observatory

- Running simulated likelihood analysis of Dark Energy Survey Year 3 data (DES Y3)
- Quantifying the dominant source of uncertainty by performing figure of merit (FoM) calculations.
- Using Self organizing maps (SOMs) to generate photometric redshift probability distribution functions (PDFs).

Testing Universal Relations in Neutron Stars September 2021–Present
Advisor: Dr. Vasileios Paschalidis, Steward Observatory

- Quantifying violations in universal relations using millions of equations of states of neutron stars
- Implementing momentum of inertia computations for equations of state in the slow rotation limit

Publications and Proposals

1. *A Survey of Extended HI Disks Around Nearby Galaxies*, Alyson Ford, Joel Bregman, Edmund Hodges-Kluck, Jeremy Bailin, Michael Hardegree-Ullman, **Sai Krishanth Pulikesi Mannan**, Observed during the Spring 2022 semester at GBT, `https://dss.gb.nrao.edu/project/GBT22A-287/public`.
2. *Accelerating cosmological inference with Gaussian processes and neural networks - an application to LSST Y1 weak lensing and galaxy clustering*, Supranta S. Boruah, Tim Eifler, Vivian Miranda, **P M Sai Krishanth**, Monthly Notices of the Royal Astronomical Society, Volume 518, Issue 4, February 2023, Pages 4818–4831, `https://doi.org/10.1093/mnras/stac3417`.
3. *Limits on scattered light from the Epsilon Eridani inner warm debris belt*, Ewan S. Douglas, Bin Ren, John H. Debes, Kerri Cahoy, Hannah Jang-Condell, **Sai Krishanth P.M.**, Isabel Rebollido, Christopher C. Stark, Robert Thompson, Yinzi Xin, in preparation.

Technical Skills

Programming Languages: Python, C++, IDL, IRAF, HTML, CSS, JavaScript, LaTeX
Software: MATLAB, GBTIDL (Custom version of IDL for GBT), SLURM, AstroImageJ, DS9, Solidworks, Adobe Inventor
Other: Certified observer at GBT, Soldering, Circuit Design

Outreach

Vice President, Astronomy Club December 2019 - September 2021

- Student led organization to promote outreach and education in Astronomy.
- Responsibilities:
  - Facilitated the Astrophotography program in the club.
  - Organized and planned field trips.
  - Acted as liaison between officers and club members
  - Lead the diversity and inclusion initiative.
  - Organized a graduate student panel to discuss diversity and equity in STEM.

TIMESTEP Leader, Steward Observatory August 2020 - January 2021

- Organization to promote minority student engagement and retention in STEM.
- Responsibilities:
  - Participated in a discussion panel about undergraduate research.
  - Aided in organizing other panels and proposed future meeting ideas.

Talks and Presentations

- Astronomy club internal colloquium
- Astronomy news of the week presentations for astronomy club
- TIMESTEP summer internship summary presentation
- Splendido retirement community astronomy research presentation