

SAHIL JHAWAR

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INTRODUCTION

A postgraduate student with scientific training and temperament. Gained valuable experience while working on research projects that demand sound analytical and problem solving skills, adaptability and sound understanding of programming, Physics and Mathematics. I look at things scientifically and make sure that I learn everything about it. I like to know about new technologies and the way they function.

EDUCATION

Universität Potsdam, Potsdam
Master of Science in Astrophysics

October 2021 - Present
Potsdam, Germany

Coursework:

- Gravitational Wave Astrophysics
- Atomic Spectroscopy
- Computational Astrophysics
- General Relativity
- Stellar Evolution
- Bayesian Inference
- Multi-messenger astronomy
- Galactic Dynamics
- Statistics

Christ (Deemed to be University), Bengaluru
Bachelor of Science (Physics, Maths and Electronics)
GPA: 3.68/4.0

July 2018 - June 2021
Bengaluru, India

Final Year Project: Gesture Controlled System based on Raspberry Pi Pico

WORK

Theoretical Astrophysics Group, Universität Potsdam
Master's Thesis

March 2023 - Present
Potsdam, Germany

Master's thesis student under **Prof. Dr. Tim Dietrich**.

- Working on Bayesian techniques for Multi Messenger Astronomy using *NMMA* [G](#).
- Characterizing the non stationary systematic uncertainties that arise in the modeling of electromagnetic counterparts of multi-messenger source (draft PR [G](#))
- Using parallel computing techniques such as MPI and multi-threading to make inferences and analysis faster.

Leibniz-Institut für Astrophysik Potsdam (AIP)
Student Assistant

December 2022 - Present
Potsdam, Germany

Student Assistant in the Project Management team for building (integration, installation and maintenance) the 4-metre Multi-Object Spectroscopic Telescope *4MOST*.

- Participating in a 3 weeks coding campaign for the *4MOST* commissioning, followed by one week commissioning bootcamp (November 2023)
- Collaborating with a team of 5 developers, following the Scrum agile methodology, to deliver high-quality code in short iterations, with regular feedback from stakeholders/product owner.
- Using Python (OOP and scientific computing) to implement various commissioning procedures.
- Utilized technical skills in troubleshooting and problem-solving within the specialized environment of an astronomical integration hall.

- Proactively managed procurement activities, liaising with vendors to procure essential large-scale items for the integration hall, ensuring timely delivery while adhering to budget constraints.
- Engaged in data analysis, providing insights to the telescope detectors

PUBLICATIONS

1. *Data driven study on kilonova modelling systematics via Bayesian analysis.* In preparation.
2. T. Hussenot-Desenonges et al. *Multi-band analyses of the bright GRB 230812B and the associated SN2023pel.* 2023. arXiv: 2310.14310 [astro-ph.HE].

RESEARCH PROJECTS

Astronomical Institute of CAS, Prague

August 2022 - September 2022

Participant

Ondřejov, Czech Republic

Research workshop on evolved stars: The workshop involved the acquisition of spectra for a select group of stars, identified from a catalog containing several hundred thousand stars. To accomplish this, the Perek 2m (spectroscopic) telescope, situated at the Ondřejov Observatory, was utilized. Subsequently, the data was subjected to reduction and analysis using IRAF, while Python was employed for visualization purposes.

IUCAA & NCRA-TIFR, India

December 2020 - January 2021

Winter Student

Pune, India

Radio Astronomy Winter School 2020: Learned basics of radio astronomy, from theory to instrumentation and computational aspects. Workshop enabled me to work on few physical experiments and on GMRT and ORT data of Vela pulsar.

Detailed reports can be found here

Krittika, IIT Bombay

May 2020 - August 2020

Summer Project Intern

Mumbai, India

Developed a Python package to analyse various types of binary star system.

TECHNICAL PROJECTS

NMMA

contributor and maintainer

A Pythonic library for probing nuclear physics and cosmology with multimessenger analysis.

directory-cleaner

Python script to help you clean your directory by rearranging the files in sub-directories as per the file kind.

git-overleaf-sync

Python script that let's you sync your overleaf documents with GitHub/GitLab for free and efficient version control.

cowin-vaccine

Python script to help you know the availability of vaccines around you (CoWIN).

OUTREACH AND COMMUNITY ENGAGEMENT

Let's Talk Astronomy, Christ

November 2019 - January 2021

Student coordinator

Bengaluru, India

Acted as a liaison between students and faculty. Conducted 15+ talks.

LIGO-India, Vigyan Samagam (DAE-DST-NCSM, G.O.I) *September and December 2019*

Scientific Communicator

Bengaluru and Kolkata

Successfully played the role of science communicator by explaining GW Science and GW Exhibits to an audience of all ages. Catered to nearly 500 visitors.

Astronomical Society of India

Volunteer

February 2019

Bengaluru, India

Worked with hospitality committee to cater to all needs of guests and help in the smooth running of the conference during the 37th Annual Meeting of ASI at Christ (Deemed to be University).

OBSERVING EXPERIENCE

Perek 2m Telescope	Assisted with 7 nights (Ondřejov, Czech Republic)
OST 0.5m Telescope	Assisted with 2 nights (Potsdam, Germany)

SKILLS

Technical	Python, C/C++, L ^A T _E X, Git, Unix based OS and Windows, MS Office
Packages and tools	NumPy, SciPy, Pandas, Matplotlib, Astropy
Personal	Critical thinking, Problem solving, Leadership, Research and Analysis
Language	English and Hindi

CERTIFICATIONS/MOOCs

Light and Beyond (2020)	ICTS, Bengaluru
Astronomy and Astrophysics (2019)	MPBIFR, Bengaluru

CO-CURRICULAR ACTIVITIES

POSITIONS OF RESPONSIBILITY

Student Coordinator of Mathematics Association, Christ

Student Coordinator of Sequence 2021, Christ

Student Coordinator of Event Horizon 2021, Christ

Head of Events Core Committee for Sequence 2020, Christ

Event Head in Eureka 2019, Christ

PRIZES, AWARDS AND HONORS

- Awarded a scholarship of ₹35,000 (~ €400) by Badrilal Soni Maheshwari Shiksha Sahyog Kendra, India (2023)
- Awarded co-curricular activities based scholarship from Christ (Deemed to be University) (2021)
- Won numerous inter and intra collegiate events, and successfully lead a team of players resulting in various rolling trophies for the department (2018-2021)
- Gold honor in International Astronomy and Astrophysics Competition (IAAC), secured 38/40 and placed in the top 1% worldwide (2020)