Prajwel Payyappilly Joseph

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Summary

I am a Project Scientist at the AstroSat UltraViolet Imaging Telescope (UVIT) Payload Operations Centre at the Indian Institute of Astrophysics, Bangalore with extensive experience in payload operations and data pipeline development. My research focuses on ultraviolet and multi-wavelength studies of nearby galaxies, AGN feedback, star formation, and time-domain astronomy in the ultraviolet. I actively develop and maintain open-source software for UV astronomy.

Education

PhD **CHRIST (Deemed to be University)**, Physics — Bangalore, India — Dec 2017 – Mar 2025
- Thesis (PhD): Study of the effect of AGN activity on star formation in nearby galaxies using UVIT
- Supervisors: Dr. Blesson Mathew, Prof. P. Sreekumar

MSc **CHRIST (Deemed to be University)**, Physics — Bangalore, India — June 2013 – Mar 2015

BSc **Christ College, Irinjalakuda**, Physics — Thrissur, India — June 2010 – May 2013

Experience

Indian Institute of Astrophysics, Project Scientist-I (UVIT Payload Operations Centre) — Bangalore, India — July 2022 – present — 3 years 7 months
- Lead contributor to UVIT Level2 pipeline (v7) and mission data products
- Responsible for UVIT Payload Operations Centre data processing and validation
- Support UVIT observations, calibration activities, and official mission data releases

Indian Institute of Astrophysics, Research Trainee (UVIT Payload Operations Centre) — Bangalore, India — Aug 2016 – May 2022 — 5 years 10 months

Bishop Cotton Women's Christian College, Guest lecturer — Bangalore, India — June 2015 – Mar 2016 — 10 months

Peer reviewed publications

Detection of time delay between UV and X-ray variability in Mrk 1044 using AstroSat observations — Jan 2026
M. Reshma, C. S. Stalin, Amit Kumar Mandal, Abhijit Kayal, S. B. Gudennavar, ***Prajwel Joseph***
(Accepted, Journal of High Energy Astrophysics)

Nine years of UVIT: assessing sensitivity variation — Dec 2025
Akanksha Dagore, ***Prajwel Joseph***, S. N. Tandon, Annapurni Subramaniam, S. K. Ghosh, C. S. Stalin
10.48550/arXiv.2512.24475 (Accepted, The Astronomical Journal)

Redshift ~2.7 is not special: Comment on the Kolmogorov analysis of JWST deep survey galaxies — Sept 2025
Prajwel Joseph
10.1051/0004-6361/202555988 (Astronomy and Astrophysics)

Euclid: Early Release Observations of ram-pressure stripping in the Perseus cluster: Detection of parsec-scale star formation within the low surface brightness stripped tails of UGC 2665 and MCG +07-07-070 — Sept 2025
K. George, A. Boselli, J. C. Cuillandre, M. Kümmel, A. Lancon, C. Bellhouse, T. Saifollahi, M. Mondelin, M. Bolzonella, ***Prajwel Joseph***, …
10.1051/0004-6361/202554836 (Astronomy and Astrophysics)

UVIT data release version 7: Regenerated high-level UVIT data products — July 2025
Prajwel Joseph, S. N. Tandon, S. K. Ghosh, C. S. Stalin
10.1007/s12036-025-10069-5 (Journal of Astrophysics and Astronomy)

Ultraviolet Flux and Spectral Variability Study of Blazars Observed with UVIT/AstroSat — Nov 2024
M. Reshma, Aditi Agarwal, C. S. Stalin, ***Prajwel Joseph***, Akanksha Dagore, Amit Kumar Mandal, Ashish Devaraj, S. B. Gudennavar
10.3847/1538-4357/ad702e (The Astrophysical Journal)

UVIT view of NGC 5291: Ongoing star formation in tidal dwarf galaxies at 0.35 kpc resolution — June 2023
R. Rakhi, Geethika Santhosh, ***Prajwel Joseph***, Koshy George, Smitha Subramanian, Indulekha Kavila, J. Postma, Pierre-Alain Duc, …
10.1093/mnras/stad970 (Monthly Notices of the Royal Astronomical Society)

UVIT Observations of the Small Magellanic Cloud: Point-source Catalog — Apr 2023
A. Devaraj, ***Prajwel Joseph***, C. S. Stalin, S. N. Tandon, S. K. Ghosh
10.3847/1538-4357/acba9c (The Astrophysical Journal)

An automated pipeline for Ultra-Violet Imaging Telescope — Dec 2022
S. K. Ghosh, S. N. Tandon, S. K. Singh, D. S. Shelat, P. Tahlani, A. K. Singh, T. P. Srinivasan, ***Prajwel Joseph***, A. Devaraj, Koshy George, R. Mohan, J. Postma, C. S. Stalin
10.1007/s12036-022-09842-7 (Journal of Astrophysics and Astronomy)

Active galactic nucleus feedback in NGC 3982 — Nov 2022
Prajwel Joseph, Koshy George, K. T. Paul
10.1051/0004-6361/202243923 (Astronomy and Astrophysics)

UVIT view of Centaurus A: a detailed study on positive AGN feedback — Oct 2022
Prajwel Joseph, P. Sreekumar, C. S. Stalin, K. T. Paul, Chayan Mondal, Koshy George, Blesson Mathew
10.1093/mnras/stac2388 (Monthly Notices of the Royal Astronomical Society)

The Astropy Project: Sustaining and Growing a Community-oriented Open-source Project and the Latest Major Release (v5.0) of the Core Package — Aug 2022
Astropy Collaboration, …, ***Prajwel Joseph***, …
10.3847/1538-4357/ac7c74 (The Astrophysical Journal)

In-orbit performance of UVIT over the past 5 years — Oct 2021
S. K. Ghosh, ***Prajwel Joseph***, A. Kumar, J. Postma, C. S. Stalin, Annapurni Subramaniam, S. N. Tandon
10.1007/s12036-020-09685-0 (Journal of Astrophysics and Astronomy)

Curvit: An open-source Python package to generate light curves from UVIT data — Oct 2021
Prajwel Joseph, C. S. Stalin, S. N. Tandon, S. K. Ghosh
10.1007/s12036-020-09680-5 (Journal of Astrophysics and Astronomy)

Performance of the UVIT Level2 pipeline Oct 2021
S. K. Ghosh, S. N. Tandon, ***Prajwel Joseph***, A. Devaraj, D. S. Shelat, C. S. Stalin
10.1007/s12036-020-09686-z (Journal of Astrophysics and Astronomy)

More insights into bar quenching. Multi-wavelength analysis of four barred galaxies Dec 2020
Koshy George, ***Prajwel Joseph***, Chayan Mondal, Smitha Subramanian, Annapurni Subramaniam, K. T. Paul
10.1051/0004-6361/202038810 (Astronomy and Astrophysics)

Additional Calibration of the Ultraviolet Imaging Telescope on Board AstroSat Apr 2020
S. N. Tandon, J. Postma, ***Prajwel Joseph***, A. Devaraj, Annapurni Subramaniam, I. V. Barve, Koshy George, S. K. Ghosh, …
10.3847/1538-3881/ab72a3 (The Astronomical Journal)

Insights on bar quenching from a multiwavelength analysis: The case of Messier 95 Jan 2019
Koshy George, ***Prajwel Joseph***, Chayan Mondal, Smitha Subramanian, Annapurni Subramaniam, K. T. Paul
10.1051/0004-6361/201834500 (Astronomy and Astrophysics)

Long-term ultraviolet variability of Seyfert galaxies Dec 2018
N. Sukanya, C. S. Stalin, ***Prajwel Joseph***, S. Rakshit, D. Praveen, R. Damle
10.1007/s12036-018-9556-z (Journal of Astrophysics and Astronomy)

Dissecting star formation in the Atoms-for-Peace galaxy. UVIT observations of the post-merger galaxy NGC 7252 June 2018
Koshy George, ***Prajwel Joseph***, Patrick Côté, S. K. Ghosh, J. B. Hutchings, R. Mohan, J. Postma, K. Sankarasubramanian, …
10.1051/0004-6361/201832705 (Astronomy and Astrophysics)

UVIT observations of the star-forming ring in NGC 7252: Evidence of possible AGN feedback suppressing central star formation May 2018
Koshy George, ***Prajwel Joseph***, Chayan Mondal, Ashish Devaraj, Annapurni Subramaniam, C. S. Stalin, Patrick Côté, S. K. Ghosh, …
10.1051/0004-6361/201833232 (Astronomy and Astrophysics)

In-orbit Calibrations of the Ultraviolet Imaging Telescope Sept 2017
S. N. Tandon, Annapurni Subramaniam, V. Girish, J. Postma, K. Sankarasubramanian, S. Sriram, C. S. Stalin, Chayan Mondal, S. Sahu, ***Prajwel Joseph***
10.3847/1538-3881/aa8451 (The Astronomical Journal)

Search for Low-mass Objects in the Globular Cluster M4. I. Detection of Variable Stars Feb 2016
M. Safonova, D. Mkrtichian, P. Hasan, F. Sutaria, N. Brosch, E. Gorbikov, ***Prajwel Joseph***
10.3847/0004-6256/151/2/27 (The Astronomical Journal)

Open source projects

UVIT Level2 pipeline
Used to generate high-level (Level2) UVIT data products; adopted for official UVIT data release version 7 and archived at ISRO Science Data Archive.

Curvit
Curvit is a Python package to generate light curves from UVIT data.

Aafitrans

Aafitrans is a Python package that builds upon the capabilities of the Astroalign package's find_transform function. It incorporates several modifications to improve its functionality and performance.

CanUVIT

To check whether a field can be safely observed with UVIT.