Pavan A. Uttarkar

puttarkar@swin.edu.au Pavan Uttarkar http://pavanuttarkar.github.io

Education

Feb 2022 – Aug 2025 — **Ph.D., Swinburne University of Technology (SUT)** on fast radio bursts (FRBs)
Thesis title: *Probing the progenitor environments of fast radio bursts.*
Expected submission: September 2025

Aug 2015 – Aug 2019 — **Bachelor of Engineering, Siddaganga Institute of Technology (SIT)** in Electronics and Instrumentation (CGPA:9.66/10).
Thesis title: *Design and implementation of low-frequency observational setup.*

Research experiences

Jan 2019 - Dec 2021 — **Visiting student program (VSP):**

- Design and implementation of low-frequency observational setup.
- Software correlator for the sky watch network array (SWAN) demonstration system.

May 2018 - Aug 2018 — **IASc-INSA-NASI Summer Research Fellow 2018:** Radio imaging using Sky watch network array (SWAN) demonstration system, Raman Research Institute (RRI), Bengaluru, India.

May 2017 - July 2018 — **IASc-INSA-NASI Summer Research Fellow 2017:** Pulsar timing with GMRT, National Centre for Radio Astrophysics (NCRA), Pune, India.

Research Publications

Selected Journal Articles

1. *Dial, T., A. T. Deller, **Uttarkar, P. A.**, M. E. Lower, R. M. Shannon, Kelly Gourdji, Lachlan Marnoch, A. Bera, Stuart D. Ryder, Marcin Glowacki, and J. Xavier Prochaska. "FRB 20230708A, a quasi-periodic FRB with unique temporal-polarimetric morphology"., vol. 536, no. 4, Feb. 2025, pp. 3220–31. https://doi.org/10.1093/mnras/stae2756.

2. Lee, Y. W. J., M. Caleb, Tara Murphy, E. Lenc, D. L. Kaplan, L. Ferrario, Z. Wadiasingh, A. Anumarlapudi, N. Hurley-Walker, V. Karambelkar, S. K. Ocker, S. McSweeney, H. Qiu, K. M. Rajwade, A. Zic, K. W. Bannister, N. D. R. Bhat, A. Deller, D. Dobie, L. N. Driessen, K. Gendreau, M. Glowacki, V. Gupta, J. N. Jahns-Schindler, A. Jaini, C. W. James, M. M. Kasliwal, M. E. Lower, R. M. Shannon, **Uttarkar, P. A.**, Y. Wang, and Z. Wang. "The emission of interpulses by a 6.45-h-period coherent radio transient". *Nature Astronomy*, vol. 9, Mar. 2025, pp. 393–405. *arXiv*, arxiv.org/abs/2501.09133, https://doi.org/10.1038/s41550-024-02452-z.

3. **Uttarkar, Pavan A.**, Ryan M. Shannon, Kelly Gourdji, Adam T. Deller, Tyson Dial, Marcin Glowacki, Apurba Bera, Alexa C. Gordon, Stuart D. Ryder, Nicolas Tejos, Shivani Bhandari, and Yuanming Wang. "A depolarisation census of ASKAP fast radio bursts". *arXiv e-prints*, Mar. 2025, arXiv:2503.19749. *arXiv*, arxiv.org/abs/2503.19749, https://doi.org/10.48550/arXiv.2503.19749.

4. Wang, Yuanming, **Uttarkar, Pavan A.**, Ryan M. Shannon, Yu Wing Joshua Lee, Dougal Dobie, Ziteng Wang, Keith W. Bannister, Manisha Caleb, Adam T. Deller, Marcin Glowacki, Joscha N. Jahns-Schindler, Tara Murphy, Reshma Anna-Thomas, N. D. R. Bhat, Xinping Deng, Vivek Gupta, Akhil Jaini, Clancy W. James, and John Tuthill. "The Discovery of a 41 s Radio Pulsar PSR J0311+1402 with ASKAP"., vol. 982, no. 2, Apr. 2025, p. L53. *arXiv*, arxiv.org/abs/2503.07936, https://doi.org/10.3847/2041-8213/adbe61.

5. *Shannon, R. M., K. W. Bannister, A. Bera, S. Bhandari, C. K. Day, A. T. Deller, T. Dial, D. Dobie, R. D. Ekers, W. -f. Fong, M. Glowacki, A. C. Gordon, K. Gourdji, A. Jaini, C. W. James, P. Kumar, E. K. Mahony, L. Marnoch, A. R. Muller, J. X. Prochaska, H. Qiu, S. D. Ryder, E. M. Sadler, D. R. Scott, N. Tejos, **Uttarkar, P. A.**, and Y. Wang. "The Commensal Real-time ASKAP Fast Transient incoherent-sum survey". *arXiv e-prints*, Aug. 2024, arXiv:2408.02083. *arXiv*, arxiv.org/abs/2408.02083, https://doi.org/10.48550/arXiv.2408.02083.

6. *Wang, Z., K. W. Bannister, V. Gupta, X. Deng, M. Pilawa, J. Tuthill, J. D. Bunton, C. Flynn, M. Glowacki, A. Jaini, Y. W. J. Lee, E. Lenc, J. Lucero, A. Paek, R. Radhakrishnan, N. Thyagarajan, **Uttarkar, P.**, Y. Wang, N. D. R. Bhat, C. W. James, V. A. Moss, Tara Murphy, J. E. Reynolds, R. M. Shannon, L. G. Spitler, A. Tzioumis, M. Caleb, A. T. Deller, A. C. Gordon, L. Marnoch, S. D. Ryder, S. Simha, C. S. Anderson, L. Ball, D. Brodrick, F. R. Cooray, N. Gupta, D. B. Hayman, A. Ng, S. E. Pearce, C. Phillips, M. A. Voronkov, and T. Westmeier. "The CRAFT Coherent (CRACO) upgrade I: System Description and Results of the 110-ms Radio Transient Pilot Survey". *arXiv e-prints*, Sept. 2024, arXiv:2409.10316. *arXiv*, arxiv.org/abs/2409.10316, https://doi.org/10.48550/arXiv.2409.10316.

7. **Uttarkar, Pavan**, Ryan M. Shannon, Marcus E. Lower, Pravir Kumar, Danny C. Price, A. T. Deller, and K. Gourdji. "Towards solving the origin of circular polarisation in FRB 20180301A". *arXiv e-prints*, May 2024, arXiv:2405.11515. *arXiv*, arxiv.org/abs/2405.11515, https://doi.org/10.48550/arXiv.2405.11515.

8. **Uttarkar, Pavan A.**, R. M. Shannon, K. Gourdji, A. T. Deller, C. K. Day, and S. Bhandari. "Searching for the spectral depolarization of ASKAP one-off FRB sources"., vol. 527, no. 2, Jan. 2024, pp. 4285–96. https://doi.org/10.1093/mnras/stad3437.

9. *Kumar, Pravir, Rui Luo, Danny C. Price, Ryan M. Shannon, Adam T. Deller, Shivani Bhandari, Yi Feng, Chris Flynn, Jinchen Jiang, **Uttarkar, Pavan A.**, Shuangqiang Wang, and Songbo Zhang. "Spectropolarimetric variability in the repeating fast radio burst source FRB 20180301A". *arXiv e-prints*, Apr. 2023, arXiv:2304.01763. *arXiv*, arxiv.org/abs/2304.01763, https://doi.org/10.48550/arXiv.2304.01763.

* co-authored papers.

Conference talks and workshops

Contributed talk FRB 2024 (Thailand):	A burst cyclone in technicolor.
Contributed talk FRB 2023 (online):	Probing progenitor environments of FRBs using polarimetric properties.
Radio School 2023:	Australia National Telescope Facility Radio School 2023, ATCA, Narrabri
Astronomy Winter School (online):	The 2nd NCTS/UCAT/NTHU International Astronomy Winter School
Orange pulsar meeting 2022:	Searching for the spectral depolarization of ASKAP one-off FRB sources
Contributed talk IAUGA 2022 (online):	Spectral depolarisation of one-off ASKAP FRBs.
NRAO Summer School 2022 (online):	18th NRAO Synthesis Imaging Summer School

Skills

Coding (proficient)	Python, LaTeX, FORTRAN
Coding (intermediate)	C, C++
Coding (basic)	VHDL, CUDA
Misc.	CASA, Miriad, psrchive, tempo2
Languages	English, Kannada, Marathi, Hindi, and Sanskrith

Telescope proposals

GBT25A-240 (PI, regular proposal)	GBT - Solving an enigmatic long-period pulsar through timing and spectro-polarimetry
P1345 (CoI, regular proposal)	Murriyang - Follow up of rotating radio transients discovered in ASKAP CRACO
P1343 (PI, regular proposal)	Murriyang - Triggered wideband follow-up of repeating FRBs discovered by ASKAP-CRACO
P1344 (PI, regular proposal)	Murriyang - Wideband spectro-polarimetric follow up of ASKAP-CRACO FRBs
P1338 (PI, regular proposal)	Murriyang - Chasing the burst hurricane from FRB 20240114A
PX129 (CoI, ToO)	Murriyang - ASKAP-CRACO FRB 230216 Follow-up
PX127 (PI, ToO)	Murriyang - High-resolution FRB20240114A Follow-up
PX125 (PI, ToO)	Murriyang - ASKAP FRB 20230526A Follow-up
P1328 (PI, regular proposal)	Murriyang - Studying wideband spectro-polarimetric behaviour of FRB 20180301A
PX114 (PI, ToO)	Murriyang - ASKAP FRB discovery Follow-up
PX107 (PI, ToO)	Murriyang - Commissioning observations for CRACO
PX101 (PI, ToO)	Murriyang - Wideband follow-up of CHIME repeater FRB 20201130A.
P1158 (PI, regular proposal)	Murriyang - Probing the enigmatic environment of FRB20201124A with broadband observations
P1198 (CoI, regular proposal)	Murriyang - Capturing a Galactic fast radio burst analogue

Professional service

Referee	Monthly Notices of the Royal Astronomical Society

Awards and recognitions

Betty Bennett Award	Betty Bennett Award for research excellence at the Centre of Astrophysics and Supercomputing (CAS).
Engineering Gold medal	Gold medal for the class of 2019, Electronics and Instrumentation Engineering for academic excellence.

References

Prof. Ryan Shannon
Centre for Astrophysics and Supercomputing,
Swinburne University of Technology,
Hawthorn, VIC, Australia 3122

Prof. Adam Deller
Centre for Astrophysics and Supercomputing,
Swinburne University of Technology,
Hawthorn, VIC, Australia 3122

Dr. Kelly Gourdji
CSIRO Marsfield,
26 Pembroke Road,
Marsfield, NSW, Australia 2122