

CHAYAN CHATTERJEE

CONTACT DETAILS

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CURRENT POSITION

A.I. for New Messengers Postdoctoral Research Fellow December 2023 - present

Joint appointment with the Department of Physics and Astronomy and The Data Science Institute, Vanderbilt University, United States of America.

EDUCATION

- **Doctor of Philosophy in Physics** February 2020 - November 2023
The University of Western Australia, Australia
Thesis title: [Enabling rapid discovery of gravitational waves using machine learning.](#)
Supervisors: Prof. Linqing Wen, Prof. Amitava Datta.
- **Master of Science in Physics** 2016 - 2018
Presidency University, Kolkata, India
Specialization: Astrophysics and Cosmology
Thesis: Dark matter self interaction and its impact on large scale structures.
List of Courses: http://www.presiuniv.ac.in/web/Physics_MSc.pdf
- **Bachelor of Science (Hons) in Physics** 2013 - 2016
Presidency University, Kolkata
Thesis: The Hertzsprung-Russell diagram of stars in the SDSS Stripe-82 Catalog.
List of Courses: http://www.presiuniv.ac.in/web/Physics_BSc_Major.pdf

PUBLICATIONS

Citations from Google Scholar

1. “Pretrained Audio Transformer as a Foundational AI Tool for Gravitational Waves” - Chayan Chatterjee *et al* (2024) [[ArXiv:2412.20789](#)].
2. “No Glitch in the Matrix: Robust Reconstruction of Gravitational Wave Signals Under Noise Artifacts” - Chayan Chatterjee and Karan Jani (2024)[[Astrophys. J, 982 102](#)].
3. “Navigating Unknowns: Deep Learning Robustness for Gravitational Wave Signal Reconstruction” - Chayan Chatterjee and Karan Jani (2024)[[Astrophys. J, 973 112](#)] - Citations: 2.
4. “Reconstruction of binary black hole harmonics in LIGO using deep learning” - Chayan Chatterjee and Karan Jani (2024) [[Astrophys. J, 969 25](#)] - Citations: 3.
5. “Pre-merger sky localization of gravitational waves from binary neutron star mergers using deep learning” - Chayan Chatterjee and Linqing Wen (2023) [[Astrophys. J, 959 76](#)] - Citations: 16.

6. “*Rapid localization of gravitational wave sources from compact binary coalescences using deep learning*” - Chayan Chatterjee, Linqing Wen, Damon Beveridge, Foivos Diakogiannis, Kevin Vinsen (2023) [[Astrophys. J, 959 42](#)] - Citations: 20.
7. “*Rapid mass parameter estimation of binary black hole coalescences using deep learning*” - Alistair McLeod, Daniel Jacobs, Chayan Chatterjee, Linqing Wen, and Fiona Panther (2022). [[ArXiv:2201.11126](#)] - Under review in *Physical Review D*.
8. “*Extraction of binary black hole gravitational wave signals from detector data using deep learning*” - Chayan Chatterjee, Linqing Wen, Foivos Diakogiannis, Kevin Vinsen (2021) [[Phys. Rev. D 104, 064046](#)] - Citations: 51.
9. “*Enhancing gravitational-wave science with machine learning*” - Elena Cuoco et al. (2020) [[2021 Mach. Learn.: Sci. Technol. 2 011002](#)] - Citations: 218.
10. “*Using deep learning to localize gravitational wave sources*” - Chayan Chatterjee, Linqing Wen, Kevin Vinsen, Manoj Kovalam, Amitava Datta (2019) [[Phys. Rev. D 100, 103025](#)] - Citations: 53.

SCHOLARSHIPS AND AWARDS

1. **A.I. for New Messengers Postdoctoral Fellowship 2023** - Postdoctoral Fellowship by Vanderbilt University (2023-2026).
2. **UWA Postgraduate Student Association Travel Award** - for international academic visits and conference participation (2023).
3. **OzGrav Travel Award** - for international academic visits and conference participation (2022).
4. **UWA Postgraduate Student Association Research Week Best Talk Award** - Runner-Up (2022).
5. **J-P Macquart Best Student Talk Award** - The Australian National Institute for Theoretical Astrophysics Conference - Runner-Up (2022) and Winner (2021).
6. **Australian Mathematical Sciences Institute Summer School - Best Student Talk Award** - Winner (2022).
7. **OzGrav Outreach Superstar Award (UWA)** - Winner (2021).
8. **The University of Western Australia Three Minute Thesis (3MT) Competition Award** - Winner (2020) and **People’s Choice Award** - Winner (2020).
9. **Scholarship for International Research Fees and International Living Allowance Scholarship for 2020** - Awarded by The University of Western Australia.

COMMITTEE AND ACADEMIC SERVICES

1. **Journal Referee** - *Nature Scientific Reports, Nature Communications Physics, The Astrophysical Journal Letters, International Journal of Modern Physics D, Astrophysics and Space Science, Science China Physics, Mechanics and Astronomy*.
2. **Program Chair** - Gravitational Wave Inference Research Program, OzGrav - ARC Center of Excellence for Gravitational Wave Discovery (2023).
3. **Committee Member** - Australian National Institute for Theoretical Astrophysics (2021 - 2022).
4. **Early Career Researcher Representative** - OzGrav, University of Western Australia (2021 - 2022).

5. **Postgraduate Student Research Representative** - Postgraduate Student Association, University of Western Australia Student Guild (2020 - 2021).
6. **Co-judge** - *Visualize Your Thesis Competition, The University of Western Australia (2024)*.
7. **Mentor and Organizer of NASA Space Apps Challenge, Perth** (2021).
8. **Co-ordinator of Presidency University Physics League** - Official Physics club run by students of the Department of Physics, Presidency University (2015 - 2017).

TEACHING/SUPERVISION

1. **Research Supervision** - Thesis advisor for several PhD, Masters and undergraduate students. 2020 - present.
2. **Lecturer** - Black Holes in Our Universe (ASTR-2190), Vanderbilt University. 2024- present.
3. **Lecturer** - Gravitational Wave Astronomy (PHYS4420), University of Western Australia. 2022-2023
4. **Teaching Facilitator** - Our Universe (SCIE1121), University of Western Australia. 2020 - 2023.

SELECTED INVITED TALKS

1. *"Towards A Foundational AI Model for Gravitational Wave Data Analysis"*
The University of Western Australia - Physics seminar talk April, 2025.
2. *"Decoding the Cosmic Orchestra: Reconstruction and Parameter Estimation of Gravitational Waves Using Deep Learning"*
University of Glasgow, Scotland - IGA seminar talk May, 2024.
3. *"Rapid Sky Localization and Waveform Extraction of Gravitational Waves Using Deep Learning"*
Vanderbilt University, USA - Department of Physics and Astronomy seminar talk February, 2023.
4. *"Rapid Sky Localization and Waveform Extraction of Gravitational Waves Using Deep Learning"*
Monash University, Australia - Gravitational Wave Astronomy group seminar talk March, 2023.

SELECTED INTERNATIONAL CONFERENCE PRESENTATIONS

1. Oral presentation, *"Towards A Foundational AI Model for Gravitational Wave Data Analysis"* at LIGO-Virgo-KAGRA meeting, Australia March, 2025.
2. Oral presentation, *"Decoding the Cosmic Orchestra: Reconstruction of Binary Black Hole Harmonics in LIGO Using Deep Learning"* at APS Global Physics Summit, USA March, 2025.
3. Oral presentation, *"Navigating Unknowns: Deep Learning Robustness for Gravitational Wave Signal Reconstruction"* at LIGO-Virgo-KAGRA meeting (online) September, 2024.
4. Oral presentation, *"Reconstruction of Binary Black Hole Harmonics in LIGO Using Deep Learning"* at LIGO-Virgo-KAGRA meeting, USA March, 2024.

SELECTED OUTREACH ACTIVITIES AND MEDIA RELEASES

1. Featured research [news article](#) from Vanderbilt University (2024).
2. Invited guest at talk show - *Curiosity Killed the Rat* (2021)
3. Invited guest at podcast - *Astrophiz: An Astronomy Podcast* (2021)
4. Invited guest at science talk show - *The Uncertainty Principle Presents: Science After Dark* - Perth Fringe Festival (2021).
5. Featured article - *"Algorithms now helping find Gravitational Wave sources"* - Space Australia (2019).