

# ARYAN BHAKE

📍 IIT Indore, India | 📞 +91-7263984135 | ✉ [aryan.bhake01@gmail.com](mailto:aryan.bhake01@gmail.com) | in [LinkedIn](#)

## EDUCATION

---

- **Indian Institute of Technology Indore** *July 2023 - May 2025*  
M.Sc Astronomy CPI : 8.57 (current)/10
- **M.S. Ramaiah University of Applied Sciences** *Oct 2020 - May 2023*  
B.Sc (Hons) Physics CPI : 8.83/10
- **G.H. Rasoni Vidyaniketan, Nagpur** *May 2018 - June 2020*  
Class: 12<sup>th</sup> Percentage: 87.2%
- **Bhavan's B.P. Vidya Mandir, Nagpur** *May 2008 - June 2018*  
Class: 10<sup>th</sup> Percentage: 91.4%

## RELEVANT COURSES

---

1. **Physics and Astronomy**  
General relativity & cosmology, Astrophysical fluids & plasma, Electrodynamics, Quantum mechanics, Heat & thermodynamics, Waves & Oscillations, Solid state physics, Galactic & extragalactic astronomy, Computational astrophysics, Astrostatistics, Radio astronomy, Electronics
2. **Mathematics**  
Complex Analysis, Multivariable Calculus, Advanced Linear Algebra, Tensor Calculus, ODEs & PDEs

## WORK/RESEARCH EXPERIENCE

---

- **Research Consultant at WorldQuant** *May 2024- present*  
**Key work:** Developed quant algorithms 'Alphas'  
Gold certificate in IQC alpha competition
- **M.Sc Thesis** *May 2024- May 2025 (expected)*  
**Title:** Numerical modelling of binary black hole dynamics in Active Galactic Nuclei discs.  
**Supervisor:** Dr. Bhargav Vaidya  
**Key work:** Hydrodynamical simulation of binary system with PLUTO code.  
Calculation and analysis of torque exerted on the system.  
Analysis of inspiral phase of binary merger and generation of corresponding GW waveforms.
- **B.Sc Dissertation** *Jan 2023- May 2023*  
**Title:** Exploring the correlation between Black Hole Mass, Radio luminosity and X-ray luminosity.  
**Supervisor:** Dr. Abhijeet Borkar  
**Key work:** Studied Fundamental Plane relation of Black holes.  
Analysed data from SDSS, VLA and XMM-Newton using Python and Topcat to check FP relation.
- **Science Project** *Mar 2021- May 2021*  
**Title:** Comparative Study of Pulsars Based On Emission Mechanism  
**Supervisor:** Dr. Sundar M N  
**Key work:** Studied various emission models for Pulsars.  
Analysed data from ATNF catalogue and SIMBAD to classify pulsars according to measured spectra.

## PUBLICATIONS

---

- **Scientific Article** *April 2022*  
**Title:** Possible Relations between Fast Radio Bursts and Gamma Ray Bursts DOI

## CONFERENCE/WORKSHOPS

---

- **Recent Trends in the study of Compact Objects :Theory and Observation (RETCO-VI)**  
**Poster\*:** Numerical modeling of binary black hole dynamics in Active Galactic Nuclei discs.  
**Conducted by:** IIT Indore *10th - 12th Mar 2025*
- **33rd meeting of Indian Association for General Relativity and Gravitation (IAGRG)**  
**Talk:** Numerical modelling of binary black hole dynamics in Active Galactic Nuclei discs.  
**Jointly conducted by:** IAGRG and BITS Pilani *02nd - 04th Jan 2025*
- **8th Aditya-L1 Science Support Cell (AL1SSC)-2024 Workshop**  
**Member of Organizing committee**  
Learnt about different payloads aboard Aditya L-1 satellite such as ASPEX, PAPA and MAG.  
**Jointly conducted by:** ISRO, ARIES and IIT Indore *27th - 29th Sept 2024*
- **DST- National Science Camp held at Amravati 2018** *9th-11th Dec 2018*

## KEY SKILLS

---

**Programming:** Python, PLUTO, C/C++, Matlab  
**Softwares and Frameworks:** MS Office, Latex, Sci-server, CLEA, VisIt  
**Language:** English, Hindi, Marathi

## ACHIEVEMENTS

---

- **Joint Admission for Masters in IIT (JAM)-2023** Qualified All India Rank (AIR) 490  
Conducted by IITs on behalf of  
Ministry of Education (MoE), Government of India
- **Graduate Aptitude Test in Engineering (GATE)-2023 PHYSICS** Qualified AIR 1531  
Conducted by National Coordination Board-GATE,  
The Department of Higher Education, Ministry of Education (MoE),  
Government of India.
- **Joint Entrance Examination Advanced (JEE Advanced)-2020** Qualified  
Entrance examination for IITs and IISERs
- **Apoorva Joshi Best All-rounder Student Award** 2018

## EXTRA-CURRICULAR

---

1. **Chief Editor, Astroria Magazine, Astronomy club, IIT Indore**
2. **Sports:** Football, Cricket, Chess
3. **Hobbies:** Quizzing, Board games, Movies

## REFEREES

---

**Dr. Bhargav Vaidya**

Associate Professor

Department of Astronomy, Astrophysics

& Space Engineering

IIT Indore, India

Email:- [bvaidya@iiti.ac.in](mailto:bvaidya@iiti.ac.in)

**Dr. Abhijeet Borkar**

Research Scientist

Astronomy Institute of the Czech Academy  
of Sciences

Prague, Czech Republic

Email:- [abhijeet.borkar@asu.cas.cz](mailto:abhijeet.borkar@asu.cas.cz)

**Dr. Premakumar H.B**

Professor

Department of Physics

M.S. Ramaiah University of Applied Sciences

Bengaluru, India

Email:- [premakumar.pi.mp@msruas.ac.in](mailto:premakumar.pi.mp@msruas.ac.in)