

Aravind Bharathi

Engineering Physics with Honours

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Education

Present **B. Tech., Department of Physics, Indian Institute of Technology Bombay, Mumbai, India; Minor in Computer Science**

Research Interests

- General Relativity
- Cosmology
- Image Processing
- Astrophysics
- Computational Physics
- Satellite Technology

Publications and Awards

2021 Recipient of the IIT Bombay Undergraduate Research Award 01

2020 Katla V., Valluvan A. B. et al. "[An Approach to Star Tracker Design for Nano-Satellite Applications](#)" extended abstract presented in National Conference on Small Satellite Technology and Applications, Trivandrum, India, 2020

Research Experience

Present **Astrometric Microlensing with GAIA**



Supervisor *Professor Vikram Rentala, Department of Physics, IIT Bombay*

Investigating candidates for dark matter through gravitational lensing observations

Autumn 2021 **Black Hole Thermodynamics**



Supervisor *Professor Urjit Yajnik, Department of Physics, IIT Bombay*

A project taken as part of a seminar course on Black Hole Physics and Cosmology

2020 – 2021 **Canopy Height Estimation using drone-based RGB Images**



Supervisor *Professor J. Adinarayana, Institute Chair Professor, IIT Bombay*

Applying computer-aided approaches to support high-performance and sustainable agricultural systems in semi-arid tropics of India

Notable Projects

Present **IIT Bombay Student Satellite Program | Electrical Subsystem**



Building a CubeSat-compatible Star Tracker-based Attitude Determination System for celestial navigation to be tested onboard the PS4-OP

Present **Astronomy Animation Team | Co-Founder**



Advisor *Dr. Akshat Singhal, Department of Physics, IIT Bombay*

An all-student team of 20 developing physically accurate, space-based animations through procedural techniques

Summer 2021 **Computational Geometry and Algorithms**



Supervisor *Professor A. Agrawal, Department of Computer Science and Engineering, IIT Madras*

Spring 2021 **Quantum Imaging using Complex Degree of Coherence**



Supervisor *Professor Anshuman Kumar, Department of Physics, IIT Bombay*

A comprehensive list of all projects can be found [here](#)

Institute Positions

Present **Subsystem Head** | Electrical

Student Satellite Program, IIT Bombay

Present **Department Academic Mentor**

Student Mentorship Program, IIT Bombay

Summer 2021 **Panel Member** | Institute Technical Summer Project

Institute Technical Council, IIT Bombay

2020 – 2021 **Institute Technical Convener**

Maths and Physics Club, IIT Bombay

Technical Skills

Programming C++, Python, Matlab, C, VHDL, ROOT

CAD & Sim. Blender, EAGLE, SPICE, Quartus Prime

Dev. Tools Git, Docker, OpenCV, Pillow, GDAL

Courses Taken

List of courses taken can be found [here](#)

Miscellaneous

- Active public speaker and science communicator
- Long-distance cyclist and recreational triathlete
- Highest typing speed: 112 words-per-minute. Average: 99 words-per-minute
- Certified with the highest possible Grade 8 in music performance for piano

Complete CV available [on request](#)