

# Aravind Bharathi

Engineering Physics with Honours

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aravindbharathi



## 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	<b>Computational Geometry and Algorithms</b>	
Supervisor	<i>Professor A. Agrawal, Department of Computer Science and Engineering, IIT Madras</i>	
Spring 2021	<b>Quantum Imaging using Complex Degree of Coherence</b>	
Supervisor	<i>Professor Anshuman Kumar, Department of Physics, IIT Bombay</i>	

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](#)