



Sahil Adane
Engineering Physics
Indian Institute of Technology Bombay

160260006
UG Third Year (B.Tech.)
Male
DOB: 16-01-1999

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2019	9.02
Intermediate/+2	Maharashtra State Board of Secondary and Higher Secondary Education	Pace Junior Science College, Andheri	2016	90.62
Matriculation	Maharashtra State Board of Secondary and Higher Secondary Education	Swami Vivekanand International School, Gorai	2014	96.00

ACADEMIC ACHIEVEMENTS

- Secured an **All India Rank** of **755** out of **0.2 million** candidates in **JEE Advanced**
- Awarded **National Talent Search Examination** (NTSE) Scholarship by the NCERT, given to around **1000** students in the country out of **500,000** appearing students

KEY PROJECTS

- Study of BTZ Blackhole and Green's Functions, General Relativity** May-July 2018
Supervisor: Prof. Urjit Yajnik, Dept. of Physics, IIT Bombay
 - Studied the structural and geometrical properties of 2+1 Dimensional (BTZ) Blackhole and the analogies with Kerr Blackhole following the original paper by M. Banados, C. Teitelboim, J. Zanelli
 - Explored Feynman's Path Integral Approach as an Introduction to applications of Green's function in Quantum Field Theory for scalar fields
 - Identified BTZ Blackhole background as a quotient space of covering space of Anti-DeSitter spacetime and used Method of images to relate the Green's function for both spacetimes as done by S. Carlip
- Weak Gravitational Lensing Surveys, Cosmology** (Course Project: Astrophysics) January-April 2018
Supervisor: Prof. S. Majumdar, Tata Institute of Fundamental Research, Mumbai
Instructor: Prof. Vikram Rantala, Dept. of Physics, IIT Bombay
 - Explored introductory literature on Weak Gravitational Lensing and its applications in improving constraints on cosmological parameters
 - Examined the usage of Fischer Matrices as a statistical method to get parameter values from the convergence power spectrum
- Self Balancing Cycle- Institute Technical Summer Project** May-June 2017
Electronics and Robotics Club, IIT Bombay
 - Objective :** To build a mechanism to balance a **riderless bicycle** in a stationary position
 - Researched extensively about the stability of a moving bicycle to fully understand the problem and employed a mechanism consisting of a counter-rotating third wheel to increase stability
 - Designed a custom Solidworks model for the mount and the wheel to get it manufactured
- Chaotic circuits in encryption** (Course Project: Nonlinear Dynamics) September 2017
Supervisor: Prof. Punit Parmananda , Dept. of Physics, IIT Bombay
 - Presented a paper on the implementation of simple **chaotic circuits** as random number generators for sound encryption
 - Simulated the circuit on Python employing built in functions based on RK4 algorithm and observed the system for different parameter values
- Remote controlled multi terrain bot - XLR8 Bot-racing competition** August 2016
Electronics and Robotics Club, IIT Bombay
 - Designed and engineered an application controlled 4-wheel bot using differential mechanism which completed the competition racetrack
 - Fabricated a ball picking and dropping mechanism on the bot to deliver a ball to a desired location

TECHNICAL SKILLS

- **Languages:** C++, HTML, CSS, Python
- **Software packages:** Arduino, AutoCAD, Solidworks, \LaTeX , Mathematica
- Familiar with Git and Jekyll

POSITIONS OF RESPONSIBILITY

- **Convener, Maths and Physics Club** *April 2017- March 2018*
 - Collaborated with a team of 5 other conveners and 1 manager to promote and inculcate curiosity in Maths and Physics in the institute
 - Helped design and ideate the question papers for various quizzes like Bazinga Physics and Logic GC and in smooth execution of club events
 - Learnt the necessary skills for managing and maintaining the club website such as HTML and basic CSS along with Jekyll and Git
- **Co-ordinator, Pronites Division, Mood Indigo** *July-December 2017*
 - Working in a team of 20 and responsible for execution of concerts with footfall 80,000
 - Lead a team of 20+ organisers to execute India's largest student organized concerts attended by a crowd of 20,000
- **Academic Mentor, D-AMP team, Department of Physics** *2018-2019*
 - Part of the D-AMP (Department Academic Mentorship Programme) team of the Physics department, responsible for mentoring sophomore students throughout the academic session
 - Involved in conducting course reviews, collecting internship experiences and curating questions for AMA (Ask Me Anything) sessions conducted to gain insight into lives of professors.
- **Teaching Assistant, Course: PH107 Quantum Physics and Applications** *May-July 2018*
Instructor: M.Aslam, Dept. of Physics, IIT Bombay
 - Responsible for conducting a tutorial session for a batch of 20 students throughout the course and involved in setting up and evaluation of exams and quizzes

COURSES UNDERTAKEN

- **Physics:** General Relativity, Special Relativity, Astrophysics, Data Analysis and Interpretation, Nonlinear Dynamics, Quantum Mechanics-I & II*, Classical Mechanics, Thermal Physics, Quantum Physics and Application, Photonics*, Basics of Electricity and Magnetism, Waves and Oscillations
 - **Maths:** Group Theory Methods*, Numerical Analysis, Linear Algebra, Calculus, Real Analysis, Complex Analysis, Differential Equations I & II
 - **Electronics:** Introduction to Electronics, Digital Systems, Electronics Lab I & II & III & IV*
 - **Miscellaneous:** Industrial Economics*, Introduction to Economics, Introduction to Flight*, Introduction to Psychology*, Introduction to Programming with C++, Engineering Drawing
- * - To be completed by November 2018*

EXTRACURRICULAR ACTIVITIES/ HOBBIES

- Conceptualized and edited the video that won the **3rd place in Music Video Competition, Freshiezza, 2016**
- Successfully completed one year of training in **NSO Volleyball**
- Part of the **School Cricket Team** that won **Under-14 Giles Shield Plate Division, Mumbai**
- Interested in **film appreciation** and **understanding cinema**, mainly **psychological thrillers**