Shyam Iyer
Engineering Physics
Indian Institute of Technology Bombay

190040116
UG Second Year
Male
DOB: 18/10/2001

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2021	8.86
Intermediate/+2	HSC	Pace Junior Science College	2019	92.00
Matriculation	ICSE	G. D. Somani Memorial School	2017	97.60

Pursuing **Honours** in **Physics**

ACADEMIC ACHIEVEMENTS

- Awarded a **Change of Branch** to the department of **Engineering Physics** among 8 out of 1000+ students owing to exemplary academic performance in the first year of study *(2020)*
- Conferred with an **AP Grade** in the course BB 101 Biology for Engineers given to the **top 2%** (8 out of 565) in the entire freshman batch for exceptional performance in the course *(2019)*
- Secured **98.46 percentile** in JEE Advanced Examination 2019 among 0.16 million candidates *(2019)*
- Achieved **99.43 percentile** in JEE Main Examination 2019 among 1.1 million candidates *(2019)*
- Awarded **School Runner-up Topper** and **Highest Marks in Science** for the ICSE Examinations *(2017)*

PROJECTS

Strange Attractors | Non-Linear Dynamics   *Course Project*, Sep '20 - Dec '20
- Conducted a **literature review** on the origin of strange attractors, their fractal geometry and characterisations
- Applied the **Euler method** in Python to simulate trajectories of the Lorenz, Rossler, Henon and Ueda systems

Arithmetic Logic Unit | Digital Systems   *Course Project*, Nov '20 - Dec '20
- Designed a 16-bit Arithmetic Logic Unit using **structural VHDL** and verified the design using a testbench
- Implemented the code for a fast, parallel prefix form carry look-ahead **Kogge-Stone** adder and subtractor

InstiDelivery | Institute Technical Summer Project   Mar '20 - Jun '20
Part of a 4-member team which designed and simulated a Drone Delivery system over the course of four months
- Completed a **four month** long project on developing an Autonomous **Drone Delivery** infrastructure for delivery of packages within IIT Bombay campus using **Robot Operating System (ROS)** in Ubuntu Linux
- Simulated three quadcopters in **Gazebo Simulator** to deliver packages over a maximum distance of **2.0 km**
- Constructed a complete **virtual model** of IIT Bombay campus as a testing ground for the drone simulation using satellite data from Open Street Maps in 3D rendering software **Blender**
- Designed a website using **Django** backend along with a real-time tracking system via **Bing Maps** in **JavaScript**
- Selected in the **Top 3** projects out of **64** teams after rigorous evaluation by the Institute Technical Council

Game Theory | Summer of Science   Apr '20 - Jun '20
Self learning project mentored by an experienced senior under the Maths and Physics Club of IIT Bombay
- Learned key concepts of Game Theory such as **Nash Equilibrium**, **Backward Induction**, Evolutionary and Behavioural Game Theory and their applications in decision making
- Studied lecture video content of the online course ECON 159 Game Theory offered by **Yale University**
- Documented my learnings in a **10,000** word report and analysed a **case study** on Discussion in Game Theory

Junior Dynamics Engineer | Team Hyperloop IITB   Jan '20 - Aug '20
Part of a 30 member team involved in designing and building a functioning prototype Hyperloop pod
- Worked on the **COMSOL Multiphysics** platform to develop simulations of **magnetic brake models**
- Pursued research on the high-velocity lateral control efficiency of **Electrodynamic Wheels** (EDW)
- Designed friction cum magnetic array brakes for the design packet submission which got shortlisted for the **final round** at the **Arizona DesertLoop** competition and symposium

KEY COURSES

- **Physics:** Basics of Electricity & Magnetism, Classical Mechanics, Special Theory of Relativity, Thermal Physics, Non-Linear Dynamics, Quantum Mechanics I*, Waves Oscillations & Optics*
- **Mathematics:** Calculus, Linear Algebra, Complex Analysis, Differential Equations II, Numerical Analysis*
- **Computer Science:** Computer Programming and Utilization, Introduction to Machine Learning*
- **Miscellaneous:** Biology, Economics, Digital Systems, Data Analysis & Interpretation

* to be completed by April 2021

TECHNICAL STRENGTHS

Programming Languages	C++, Python, ROOT, Java, JavaScript, MATLAB
Web Development	HTML, CSS3, Bootstrap
Software/Platforms	LaTeX, Git, ROS, Solidworks, AutoCAD, COMSOL, Premiere Pro

LEADERSHIP AND ORGANISATIONAL EXPERIENCE

Literary Arts Convener | Institute Cultural Council, IIT Bombay   May '20 - Present
Part of a 6-member council responsible for organising Literary Arts events for a 10,000 strong student community
- Created content for **60+** campaigns under LitBlitz increasing the club's online presence over **12 fold**
- Coordinated **15 events** under the flagship Battle of the Batches clocking **12+ hours** with **200+ participants**
- Ideated, curated and hosted the first ever Online General Quiz among **30 top quizzers** over a virtual medium
- Assisted in executing **750+** matches for the Inter-Institute Scrabble League, coordinating between **370+** participants from **6 IITs** and ensuring timely match completion and information dissemination.
- Presented the club to **2500+** PG & UG Freshmen at the Cultural Orientation by conceptualising a video and contributing a voice-over; interviewed **6** seniors to capture and convey their sentiments for the club
- Responsible for maintaining the college quizzing blog which amassed **80,000+ hits** in two months
- Conducted extensive research on **10+** college festivals throughout the country and prepared a report with fresh ideas in order to reinstate IIT Bombay's **Literarium** with a budget of **1.4 Lakh**

Publicity Coordinator | Techfest, IIT Bombay   May '20 - Dec '20
Working in a team of 8 to publicize Techfest and its various events to 2500+ colleges across India
- Managing and writing content for social media accounts namely Facebook (**3 million+** followers), Instagram (**42.5K+** followers), Twitter (**18.7K+** followers) and LinkedIn (**14K+** followers) for Techfest
- Led a team of **20+** CAs coordinating with over **2000** schools to bring in participation for the Techfest Olympiad
- Prepared a database of content creators on **YouTube** and contacted them for discussing a partnership proposal
- Directed a team of **20** organizers to maximise the online presence of Techfest across social media platforms

Deputy Head Boy | G. D. Somani Memorial School   May '16 - Mar '17
Part of a 10-member head council elected to represent the student community
- Managed a **40** member student council to redress grievances of the **1000+** student strong community and maintain decorum within the school campus

EXTRACURRICULAR ACTIVITIES

Quizzing and Literary Arts	• Awarded **Par Excellence in Quizzing** in 2016 and 2017 at G.D. Somani Memorial School for exceptional performance in representing the school at various quizzes • Stood **3rd place** at the **National Finals** of **Aqua Regia 2015**, certified by Guinness World Records in 2007 as **India's Largest Science Quiz** • Qualified to the quarterfinals in the **Institute Scrabble League** out of **80+** participants • Participated in the Jamnabai Narsee School Cascade **National Debate** in 2016
Social Work	• Raised funds for the Terry Fox Foundation towards **cancer research** at the Tata Memorial Hospital and participated in the **Terry Fox Run** for Cancer in 2014, 2015 and 2016 • Visited the **Leprosy Mission Trust** Vocational Training centre in Nashik, Maharashtra in 2016 to gain awareness about leprosy rehabilitation and **donated grains** to the centre
Culturals	• Performed in a group hip-hop exhibit at Institute Salsa Night 2019 for **500+** attendees • Played the Acoustic and Bass **Guitar** in multiple school bands over three years
Sports	• Completed a year-long training in **Athletics** through the National Sports Organization • Certified **Green Belt** holder by the Shotokan **Karate-Do** International Federation
Miscellaneous	• Moderated a three-day long **Astrophysics workshop** with **200+ attendees** *(2020)* organised by the Astronomy Club of IIT Bombay and Techfest • Attended a week long **Quantum Computing workshop** focused on implementing *(2020)* IBM Qiskit organised by the Maths and Physics Club of IIT Bombay • Attended a two-day long workshop on **Quantitative Trading and System** *(2019)* **Building using Python** organised by Quantify Capital, and won Best Report