



Kandarp Solanki
Engineering Physics
Indian Institute of Technology Bombay

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B.Tech.
Gender: Male
DOB: 13/11/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2025	
Intermediate	CBSE	Bright Day School	2021	96.40%
Matriculation	CBSE	Bright Day School	2019	98.00%

Pursuing a **minor** in **Machine Intelligence & Data Science** at **CMinDS, IIT Bombay**

Minor CPI: 10/10

SCHOLASTIC ACHIEVEMENTS

- Currently **ranked 8th** out of 62 junior undergraduates in IIT Bombay's Engineering Physics batch of 2025 ['23]
- Secured an **AP** grade in the course DS303 (Introduction to Machine Learning), only **1** out of **173** students ['23]
- One of 2 nominated for **AUA-THU Global Summer School** held at Tsinghua University, Shenzhen, China ['23]
- Secured **96.1** percentile in Joint Entrance Examination (**JEE**) **Advanced** and **99.78** percentile in **JEE Mains** ['21]
- One of 65 selections nationwide for **NIUS Physics** program conducted by **HBCSE - TIFR, Mumbai** ['21]
- Secured **State Rank 75** in Gujarat Common Entrance Test (**GUJCET**) out of over **1** lakh candidates ['21]
- Awarded **Certificate of Merit** in **2** subjects given to **top 0.1%** meritorious students in Class X by **CBSE** ['19]

KEY PROJECTS

Convolutional Network Segmentation using U-Net

[Spring '22]

Course Project | Guide: Prof. Biplab Banerjee, Centre for Machine Intelligence and Data Science, IIT Bombay

- Extended the idea of **U-Net** model which uses symmetric contraction and expanding paths to capture contexts
- Designed & trained a deep learning model on **CARVANA** dataset with **>98%** accuracy for image segmentation
- Improved the results by **~10%** using advanced techniques like **data augmentation** & **batch normalization**

Statistical Analysis of Random Pattern Detection

[Spring '22]

Course Project | Guide: Prof. Pradeep Sarin, Department of Physics, IIT Bombay

- Designed an experiment to verify the **Central Limit Theorem** from statistics through **digital electronics**
- Developed a circuit generating **pseudo-random** bits & pattern checking using a self-designed **Finite State Machines**
- Visually analysed & verified the results using **Matplotlib** illustrating the **normally distributed** nature of the data

Cryptocurrency: Analysis, Visualization and Prediction

[Autumn '22]

Course Project | Guide: Prof. Amit Sethi, Department of Electrical Engineering, IIT Bombay

- Cleaned and analysed a cryptocurrency dataset with **10+** cryptos spanning over **7** years using **Pandas** library
- Examined **correlation** between various cryptocurrencies and studied the influence of financial markets on them
- Built machine learning models based on **Recurrent Neural Networks (RNN)** using **Keras LSTM** model, trained them with the dataset and accurately predicted prices of 3 major cryptocurrencies, **Bitcoin, Ethereum & Litecoin**

Dependence of parameters on charge asymmetry in p-p collisions at 13 TeV

[Autumn '22]

Course Project | Guide: Prof. Sadhana Dash, Department of Physics, IIT Bombay

- Statistically analyzed datasets generated by the **Pythia 8 Monte Carlo** simulator using the **ROOT** software containing fluctuations of **2 million+** charged particle multiplicities in **proton-proton collisions**
- Checked the dependence of parameters like charge particle multiplicity distribution and other kinematic variables
- Studied the distribution of **charge asymmetry in different multiplicity classes** to observe trends in standard deviation and analysed the multiplicity distribution in charge symmetric and asymmetric regions

Factors Affecting the Stock Market | Finsearch

[Summer '22]

Finance Club, IIT Bombay

- Studied various types of **mergers, acquisitions, insolvencies, bankruptcies**: compared and contrasted them
- Carried out multiple case studies like **Reliance Comm.** bankruptcy, acquisitions of **MTS India** and **Digi Cable**, **Vodafone** and **Mannesmann**, **Mindtree's** acquisition by **L&T**, defence strategies like **White Knight**, etc.
- Analyzed the impact on stock market due to these along with long term and short term effects of takeovers

WORK EXPERIENCE

Advisor | INPhO, OCSC, PDC

[Feb '23 - Present]

Involved in the selection of a team of 5 representing India at **IPhO 2023**, who bagged **3 gold** and **2 silver** medals

- Reviewed answer scripts of **100+** applicants nationwide for **Indian National Physics Olympiad (INPhO)**
- Contributed to student shortlisting for **OCSC** camp and question paper preparation, selecting **35** students
- Developed highly challenging problems with **model solutions** for the **Indian team** participating in the **International Physics Olympiad (IPhO) 2023, Tokyo, Japan**, during the Pre-Departure Camp (**PDC**)

Research Intern | Centre for Nanoscience & Engineering (CeNSE), IISc Bangalore [May '23 - Jul '23]
Guide: Sreetosh Goswami | Worked with a team of 5 scholars working on world-class nanofabrication technologies

- Achieved >**90%** accuracy by developing **ML models** to automate MHz frequency prediction from SI5351 module
- Examined fast-data transfer upto **400kbps** by configuring SI5351 using Serial Data (SDA) & Serial Clock (SCL) lines
- Studied the memristor-based implementation of **Autoencoders** used for **intrusion and anomaly detection**

Market Research Intern & Web Developer | AgroEdge Pvt. Ltd. [Dec '22 - Jan '23]

- Scrutinized **20+** varieties and shortlisted **3-4** gourmet mushrooms for commercial cultivation by analysing data
- Formulated **research documents** catering to all factors required for commercial production of edible mushrooms
- Served **10K+** customers annually, designed & developed a fully functional website for a high-volume catering service

POSITIONS OF RESPONSIBILITY

Institute Sports Convener | Institute Sports Council, IIT Bombay [May '22 - May '23]
Appointed as one of **35** conveners out of **250+** applicants and part of a **3-tier** team consisting of **50+** members

- Developed an exclusive **Sports App** for the IITB Sports Community consisting of **5K+** people using **MEAN** stack
- Collaborated with **30+** team members to execute Freshiesta, engaging an audience of **200+** first-year undergraduates
- Ideated and executed the General Championship opening ceremony which saw an attendance of over **500** students

Joint Secretary | Students' Association of Physics Department [May '23 - Present]
Elected representative of **250+** UG students, managing a budget of **INR 1 lac+** for department events and activities

- Organised inter-department **e-Sports** week in coordination with **9** departments witnessing **500+** participants
- Planned an annual calendar involving execution of **10+** events in **sports, cultural**s, etc catering to **500+** people
- Collaborated on external client liaison, facilitating departmental trips and industrial visits with multiple stakeholders

Teaching Assistant

PH111 (Classical Mechanics), PH112 (Quantum Mechanics), MA108 (Differential Equations) [Mar '23 - Jun '23]
Department of Physics, IIT Bombay & Department of Mathematics, IIT Bombay

- Conducted interactively engaging weekly problem-solving tutorial sessions for **40+** first year undergraduate students
- Hosted a **Tutorial Service Centre (TSC)** session on Classical Mechanics (PH111) witnessing **100+** undergraduates
- Curated a comprehensive list of exam-preparation resources & slides for quick revision used by **60+** people monthly

TRAINING & WORKSHOPS

National Initiative on Undergraduate Sciences (NIUS) [29 Dec '22 - 4 Jan '23]
HBCSE-TIFR, Mankhurd, Mumbai

- Attended week-long series of lectures by eminent Indian professors on frontline physics research topics
- Worked on meticulous experimental lab problems, analysed the results & received felicitation certificate for the same

TECHNICAL SKILLS

Languages : C++, Python, HTML, CSS, JS, SQL, Bootstrap, ROOT
Data Science : NumPy, Pandas, Matplotlib, Seaborn, MATLAB, GNU Octave
Softwares : LTSpice, MSOffice, Canva

RELEVANT COURSES UNDERTAKEN

Physics	Special Theory of Relativity, Classical Mechanics, Thermal Physics, Basics of Electricity & Magnetism, Quantum Mechanics I
Mathematics	Linear Algebra, Complex Analysis, Ordinary and Partial Differential Equations, Numerical Analysis, Calculus
Other	Data Analysis & Interpretation, Programming for Data Science, Introduction to Machine Learning, Engineering Graphics & Drawing, Economics
Online Courses	Machine Learning by Andrew Ng (Coursera), Finance for Non-Finance Professionals

EXTRACURRICULARS

- Achieved **10,000+** **INR** sales with **self-published** book on CSS proficiency enhancement on **Gumroad** [Dec '22]
- Part of the **Inter IIT Camp** Cricket team with only **30** selections from the institute for **Inter-IIT 2022** [Dec '22]
- Participated and **won** the Aavhan's Revive Sports League (**RSL**) in Cricket out of **6** teams [Apr '22]
- Mentored **two** teams in IITB's CodeWars & **5** students under Summer of Science (SoS) in Machine Learning [Jun '23]
- Attended training sessions & learnt the basics of playing a guitar organized by Symphony, IITB's Music Club [Oct '22]
- Completed a yearlong training program in National Sports Organisation (**NSO**) for **Cricket** [Dec '22]
- Selected for a tour to **Madhya Pradesh** to represent **cricket team** of **15** for the district of **Baroda** [May '19]
- Awarded **3rd** rank in district for oratory competition in Sanskrit by Devsayujyam Sanskrit Pratishthan [Aug '17]