



Prayash Kumar Sahu
Electrical Engineering
Indian Institute of Technology Bombay

22B1261
B.Tech.
Gender: Male
DOB: 13/10/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	
Intermediate	CBSE	AKLANK PUBLIC SCHOOL	2022	96.60%
Matriculation	ICSE	ST.PAUL'S SCHOOL	2020	97.67%

Pursuing a **Minor** degree in **Computer Science and Engineering**, IIT Bombay

SCHOLASTIC ACHIEVEMENTS

- Selected among **Top 20** students from **1K+** applicants for **P&G Spotlight**-Information Technology (2024)
- Secured **All India Rank 1878** in **JEE Advanced** among **0.15M+** candidates across the nation (2022)
- Attained **99.80** percentile in **JEE Mains** examination, surpassing over **1M+** candidates nationwide (2022)
- Scored a perfect **AA** grade in CS101, a **C/C++** course offered in the 2nd semester at IIT Bombay (2023)
- Ranked **Pupil** on **Codeforces**, a competitive programming platform with current rating being **1287** (2024)
- Secured rank **5** in **Talent Search Exam** conducted by ICSE in the **Odisha-Chhattisgarh** Region (2020)
- Ranked **1st** in **Computer Science** quiz conducted by Computer Society of India, Rourkela Chapter (2019)
- Zonal Rank **7** in International Mathematics Olympiad conducted by Science Olympiad Foundation (2017)

INTERNSHIP EXPERIENCE

Trainee| Tata Power, Bhubaneswar, India (May'24 - Jun'24)

- Tested different equipments like **vacuum circuit breaker** & **oil breakdown voltage** of transformer
- Figured out the type of **electric poles** & **conductors** to be installed based on geographical location
- Improved **fault current** calculation method to activate **fault passage indicators** in transmission lines

Doubt Solver| Kunduz.com (Jul'23 - Aug'23)

- Worked as **doubt solver** in Physics for **higher secondary** students of India for different examinations
- Mentored **250+** students to achieve excellent performance in school as well as competitive examinations

KEY PROJECTS

Flow Along With The Stream| Course Project| Prof.Abir Dey (Apr-May'24)

- Implemented stock prediction model using **SGDRegressor** & **StandardScaler** to analyze real-time data
- Developed a system for **fetching**, **processing** and **predicting stock price** changes at specified intervals
- Utilized libraries like **NumPy**, **Pandas** & **Matplotlib** for data handling, visualization & model training

AI-Phabet| Self Project (Jan'24)

- Developed a neural network in NumPy for classifying EMNIST datasets, employing linear layers and Sigmoid activation functions, trained it using SGD with mini-batch optimization & MSE loss over 30 epochs
- Acquired expertise in **supervised learning** and mastered key concepts such as **forward propagation**, **activation functions**, **loss functions**, **mini-batch gradient descent** and **backpropagation**
- Learned about various **image preprocessing** and **contouring techniques** using **OpenCV** and applied the above skills to **preprocess** custom handwritten data and **test** the trained model on it

Image Classifier| Self Project (Jun-Jul'23)

- Implemented binary image classifier using Neural Networks which included data loading, data preprocessing, designing **neural network architecture**, **calculating loss function**, **training** & **saving the model**
- Calculated **accuracy** of **Neural Network** by comparing the model predictions with ground truth tables

Budget Tracker App| Self Project (Jun-Jul'23)

- Created a **Dart** & **Flutter-based** budget tracking app focusing on sleek and user-friendly frontend design
- Designed a **3 screen app** with push-button navigation, featuring a profile & total expense overview screen
- Developed functionality to add **expense categories** & **amounts**, with list of expenses displayed as **cards**

Competitive Coding Enclave| Codeforces Project| IIT Madras (Jul-Aug'23)

- Developed expertise in solving competitive coding problems involving **data structures** & **algorithms**
- Solved **100+** questions and took part in **3** contests which were conducted by the club on **Codeforces**

OTHER PROJECTS

Pipelined RISC processor| Course Project| Prof. Virendra Singh (Apr-May'24)

- Implemented microarchitecture for 16-bit 6-stage pipelined processor in VHDL consisting of 26 instructions
- Developed controller & datapath consisting of custom **ALU**, **register file**, **memory** & **pipeline registers**
- Implemented **hazard detection**, **data forwarding** & **pipeline stalling** to ensure high design throughput
- Created an **assembler** in Python to facilitate fast binary conversion & memory initialisation of instructions

8051 Programming| Course Project| Prof. Nikhil Karamchandani (Jan-Mar'24)

- Coded the **8051 microcontroller** with both assembly and embedded **C language** in Keil Vision 5 IDE
- **Interfaced 8051** with peripherals like keypad, LCD, ADC, DAC, speaker & USB-UART serial module
- Deployed a Low-Pass Digital FIR filter on 8051 interfaced over serial UART with computer to plot data

Digital Design| Course Project| Prof. Siddharth Tallur (Aug-Oct'23)

- Understood concepts of **digital design & modelling hardware** in **HDL** for implementation of designs
- Designed circuits like Adder-Subtractor, customALU, **Tone Generator**, **Multi Sequence detector**
- Implemented hardware logic on Altera MAX FPGA using **UrJTAG**, **ScanChain** & Intel **Quartus Prime**

Multicycle RISC processor| Course Project| Prof. Virendra Singh (Dec'23)

- Implemented a RISC processor on FPGA with flow charts for **datapath** & **FSM** implementing controller
- Developed **combinational logic** to execute **15** different **16-bit** instructions from the provided ISA
- Worked on extensive testing and debugging of design by running timing simulations on **Multisim**

Analog Circuit Design| Course Project| Prof. Anil Kottantharayil (Jan-Mar'24)

- Designed circuits like **active filters**, **differential** & **logarithmic amplifiers** using different OpAmp ICs
- Plotted & analyzed the readings obtained & verified with **LTspice** simulator for basic circuit simulations
- Operated the **Digital Storage Oscilloscope**, **Arbitrary Function** generator and **DC power supply**

POSITION OF RESPONSIBILITY

Institute Badminton Secretary|IIT Bombay (Apr'24-Ongoing)

- Managing a budget of **INR 0.5M+** for the Institute Badminton team & maintaining the facilities
- Conducted **Aavhan**, IIT Bombay Sports Fest, with participation of **2.5K+** & prize pool of **600K+**
- Initiated various infrastructural changes of badminton hall & equipment purchase for institute team

TECHNICAL SKILLS

Languages	Python, C/C++, Java, VHDL, Arduino IDE, LaTeX, Dart
Data Science	NumPy, Matplotlib, Pandas, Seaborn
Development	HTML, CSS, AutoDesk Fusion360, Flutter, ModelSim

MAJOR COURSES UNDERTAKEN

Electrical Core	Microprocessors, Control Systems, Electronic Device, Analog Circuits, Power Engineering, Probability & Random Processes, Signal Processing - I, Digital Systems
Computer Science	Computer Programming and Utilization, Computer Networks, Data Structures & Algorithms(Udemy), Introduction to Machine Learning
Others	Introduction to Classical & Quantum Mechanics, Calculus, Linear Algebra, Differential Equations, Introduction to Management, Design Thinking for Innovation

EXTRACURRICULAR ACTIVITIES

- Bagged **1st** position at the **Freshmen Badminton** open out of **1000+** students at IIT Bombay (2023)
- Completed the year long NSO Badminton Programme and a part of Inter IIT Badminton Camp (2023)
- Part of Table Tennis team which represented Hostel 6 and won **Bronze** in General Championships (2023)
- Part of Badminton team which went to **IIT Kanpur** to represent IIT Bombay in **Udghosh** (2023)
- **2nd** in **Table Tennis** in ICSE Council's National Sports & Games at Regional Level in Under 17 (2019)
- 4 time **Gold Medalist** in **Intraclass Badminton** Championship at St.Paul's School,Rourkela (2014-17)
- Recognised as the **Best Boy 3** times among **200+** students at St.Paul's School, Rourkela (2013-16)