



Anubhab Ray
Computer Science & Engineering
Indian Institute of Technology Bombay

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B.Tech.
Gender: Male
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Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2024	
Intermediate	CBSE	Shiv Jyoti International School, Ranpur, Kota, Rajasthan	2020	
Matriculation	ICSE	Holy Cross School, Durjoynagar, Agartala, West Tripura	2018	

SCHOLASTIC ACHIEVEMENTS

- Secured All India Rank 2301 out of 0.15 million candidates in JEE Advanced examination [2020]
- Achieved 99.693 percentile in JEE Mains exam among 0.88 million candidates [2020]
- Pursuing a major in Computer Science and minor in Electrical Engineering [2020-Present]
- Recipient of the NTS Scholarship and KVPY Fellowship twice, in class 11 (SA) & 12 (SX) [2018, 2019]

POSITION OF RESPONSIBILITIES

- Mentored and guided 6 sophomores over a year to improve their academic performance [May 2022-23]
- Design Manager of Institute Technical Council; guided 2 Conveners (Sophomores), ideated & managed all Design Aspects of ITC Events over a year [May 2022-23]
- Design Nominee of Computer Science Dept.; created graphic content for all CSE events [May 2022-23]
- Mentored 8 students in their various Full-Stack Web Development Projects under Summer of Science initiative by Maths & Physics Club, Institute Technical Council, IITB [June-July 2022]

COURSE PROJECTS

- Campus Connect : An Insti'gram for peers** [March-April 2023]
completed under Prof. S. Sudarshan, Dept. of CSE
 - Spearheaded a team of 4 to create MERN web-app using React, Redux, Node, Express & MongoDB
 - Implemented user Auth., session cookies with JWT; encryp. with byCrypt, media Chat with Socket.io
 - Used ext. Image storage on Cloudinary, redux-store for global access to user models & db collections
 - Implemented recommendation system, search filtering & random discover using BFS & K-NN Algo.
- Credit Card Fraud Detection** [Oct' 2022]
completed under Prof. Abir De, Dept. of CSE
 - Implemented a Binary Classifier model with multi-layer Neural Networks using Tensorflow & Keras
 - Pre-processed data using StandardScalar Transform then used FeedForward NN with Dense layers
 - Compiled using Adam Optimizer & Binary Cross Entropy loss; used ReLU and Sigmoid activations
 - Resampled heavily skew'd data using OSS Undersampling (Tomek links,CNN) getting 95% F1 Score
 - Resampled by borderline-SMOTE with RandomUnderSampler of the majority class : 99.8% F1 Score
- Web-based Dynamic Learning Environment (Moodle)** [Oct- Nov' 2021]
completed under Prof. Amitabha Sanyal, Dept. of CSE
 - Implemented a full-stack web-application using Django, PostgreSQL, Graph.js, Bootstrap4 & Heroku
 - Made email Verifier for Reg., assignment Auto-grader, performance Graphs, Event Calendar & Chat
 - Students join courses, submit assignments, view deadlines & upcoming events, grades, Teacher's feedback, report query or recheck-issues, Classroom Statistics as graphs & Chat-room discussions
 - Teachers/TAs create courses, enroll students, upload material & assignments, notification of EODs, download submissions , upload grades, feedback & reply to Student's queries & requests

- **Networking : Socket Programming** [April-May 2022]
completed under Prof. Kameswari Chebrolu, Dept. of CSE
 - Implemented a P2P network for searching & downloading files up-to a specified **neighbor depth**
 - Created a client-server model of given Topology using **multi-threading** for file search & download
 - Established TCP connections with C++ socket library for file transfer and **MD5 hashing** for errors
- **Image Processing and Data Analysis in MATLAB** [Oct' 2021]
completed under Prof. Suyash P. Awate, Dept. of CSE
 - Implemented **Barycentric Subdivision** Algorithm for **uniform sampling** inside a given 2D-shape
 - Reduced dim. of 28x28 pixel img to 84-D hyperplane using **PCA** & reconstructed the **compressed img**
 - Generated random fruit imgs from originals using **PCA** & closeness measured by **Forbenius Norm**
- **Game with Java - Scotland Yard** [Oct' 2021]
completed under Prof. Amitabha Sanyal, Dept. of CSE
 - Simulated an 8x8 grid multiplayer console game with **Client-Server model** using **Java Concurrency**
 - Used **OS Process Scheduler** for player threads, **moderated** smooth entry & exit of new/old players
 - Achieved mutual exclusion, wait-list & synchronization using **locks, Mutexes and Semaphores**
- **Android Development - Personal Study Guide** [Dec' 2021]
completed under Prof. Amitabha Sanyal, Dept. of CSE
 - Created an Acad. Scheduler app for **day-time Segregation** into Exams, Self-Study & Assignments time
 - Hourly progress tracker with **goal statistics**, directive incentives & **Calendar** with daily highlights

SELF PROJECTS

- **Multi-PDF Querying using LLMs** [July 2023]
 - Developed a python **GUI** based application using **LangChain, Streamlit & HuggingFace LLMs**
 - Used **PyPDF2** for pdfs to mono-string, **CharacterTextSplitter** for chunks & **instructor-xl embedding**
 - Used non-persistent **FAISS** vector store in **conversation-chain** using free **Google's flan-t5-xxl LLM**
 - Reused chat history using **ConversationBufferMemory** of LangChain & Streamlit's **session variables**
- **Webcam-Draw** [August 2023]
 - Created a python **OpenCV** application to draw upon Web-cam window as canvas using **hand gestures**
 - Used **Google's MediaPipe** for hand-marker tracking, **cv2 module** for GUI buttons of brushes & eraser
 - Encoded bit-wise logic to draw **finger traced path** on diff. canvas & **mask** it over GUI webcam window

INTERNSHIPS

- **LEAP India Pvt. Ltd., Mumbai** [June-July 2022]
 - Created a Supply Chain multi-staged **Pricing Web-Portal** using **React front-end & Node back-end**
 - Commercial **data processing** on **SQL db** using python's **Numpy, Pandas & Graph.js** for visualization
 - Reduced manual Excel workbooks & provided **reliable, secure**, online bill access to major departments
- **Anya Consultancy Services, Bengaluru** [June-Aug' 2022]
 - Collaborated on E-Commerce project front-end using **React, BootStrap5 & Volt-React**
 - Worked on **API integration & testing** using Postman, Component Management and UI Media Queries

TECHNICAL SKILLS

Programming	C/C++, Python, Java, JavaScript, L ^A T _E X, Bash, Android Studio
Machine Learning	Numpy, Scikit-learn, Pandas, Mathplotlib, Tensorflow, Keras, Streamlit
Front End Dev	HTML5, CSS, SASS, Vanilla.js, AJAX, Redux & React.js, BootStrap5
Back End Dev	Django, Node.js, Express.js, Flask, MySQL, PostgreSQL, MongoDB

EXTRA CURRICULAR

- Recipient of **Cultural Talent Search Scholarship-2012** in **Painting** under CCRT, Min. of Culture, New Delhi
- Bagged **2nd Prize**, National Painting Award, under **Indian Council of Child Welfare** [2014]
- Participated in 4 International exhibitions; **Gold Medal** in 2 and **Jury Honor** in other 2 [2011, 12, 13, 14]
- Completed **Visharad (5th year)** in Painting with **1st-Division** [2015]