



Payal Choudhary
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Indian Institute of Technology Bombay

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B.Tech.
Gender: Female
DOB: 10/26/2001

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2023	
Intermediate	CBSE	Ashok Hall Girls' Higher Secondary School, Kolkata	2019	93.40%
Matriculation	ICSE	St.Xavier's School, Jharkhand	2017	95.60%

Pursuing a **Minor Degree** in the department of **Computer Science and Engineering** with a CPI of **10.0**

AWARDS AND RECOGNITION

- Awarded with the title of **Institute Technical Freshmen Of The Year** (1 out of 1100+ students) for excellence in technical activities in the institute & significant contribution to the tech community of IIT Bombay [2020]
- Received a **letter of recommendation** for exemplary performance in Data analysis & interpretation course [2020]
- Honored with a **Special Mention** in the field of Social Services by **NSS, IIT Bombay** for helping the underprivileged children explore wonders of science by conducting experiments & explaining related concepts [2019]
- Felicitated with the **Annual Excellence Award** at St.Xavier's School for the Academic Year 2016-2017 [2017]
- Awarded by the **Government of Jharkhand** for innovative ideas in the field of **Wipe Out Poverty** [2016]

PROFESSIONAL EXPERIENCE

EntityVector | Sunnyvale, CA, USA

[Mar'21-Present]

- Overview**
 - Building a **Digital Investigator** to tackle financial crime compliance using machine learning techniques
 - Conducted exploratory data analysis of large databases comprising of **10K+** companies and **2L+** entries
- Fraud Detection**
 - Formulated a sequence of algorithms based on advanced mathematical & statistical models as well as **Time-Series** forecasting and **Seq2Seq Attention** models to detect **accounting frauds** in US companies
 - Used **Signal Extraction** techniques & implemented **LambdaMart** to rank companies on high fraud risk
 - Fetched news using **GoogleNews** library & applied **Sentiment Analysis** achieving an accuracy of **70%**
 - Scraped entity fundamentals data through API using **AWS Sagemaker** and stored data in **S3** bucket
- Development**
 - Developed a user-friendly website of the company from scratch and engaged in product design of the MVP
 - Fabricated a dynamic **dashboard** for deploying the models using **StreamLit** and **NgRok** for hosting

TimeMarks | Jaipur, India | Awarded a **LOR** for exemplary work

[Dec'20-May'21]

- Technical Supervisor**
 - Member of the **core** technical team responsible for development and maintenance of android application
 - Providing strong leadership & interdepartmental communication to meet timelines and budgetary goals
 - Supervising the developers while managing the design, development, integration and testing of products
- Software Developer**
 - Customized and developed **cross-platform** app on **Flutter** and integrated it with the main application
 - Revamped the User Interface of the app by writing high quality **XML** code to convert **Figma** designs
 - Worked on **bottlenecks** and fixed bugs to ensure high performance and responsiveness of the app

KEY PROJECTS

Gold Price Prediction using Machine Learning

[Mar'21-May'21]

Guide: Prof. Biplab Banerjee | Course Project | Introduction to Machine Learning | Grade: 10/10

- Leveraged Machine Learning models for **predicting** the commodity price of gold using the **historical** price dataset
- Conducted **Exploratory Data Analysis** and feature engineering; analysed data using **fourier transformation**, **candlestick patterns** to determine correlations & implemented **Recursive feature elimination** to find the best parameters
- Used a statistical model **ARIMA**; deep learning forecasting model: **LSTM** and pre-trained **Facebook's Prophet** model
- Obtained the best result using the LSTM model with root mean squared error of about **1%** of the average gold price

Parallelized Scientific Computing

[Mar'21-May'21]

Guide: Prof. S. Gopalakrishnan | Course Project | High Performance Scientific Computing | Grade: 10/10

- Optimized the **Monte-Carlo** and the **Trapezoidal** rules of integration using **OpenMP** to achieve a speedup of **1.6X**
- Compared shared memory (OpenMP) & message passing (MPI) systems by parallelizing Matrix Multiplications (GEM)
- Contrasted the Serial, OpenMP and CUDA (for GPUs) implementations of path planning - A* and D* Lite algorithms
- Simulated the algorithms on a supercomputer: **PARAM Sanganak** and attained a speedup of **212X** (Serial-to-CUDA)

SAFE: Smart Authenticated Fast Exams

[Aug'20-Dec'20]

Research and Development project | Prof. Bhaskaran Raman | Computer Science Department | IIT Bombay

Context of Project : Safe is an **android application** having **10,000+** downloads that caters to secured assessments, proxy-free attendance, and offline quizzes in IIT Bombay

- Developed algorithms to ensure **time synchronization** and prevent **time-based attacks**
- Extensive involvement in **usability testing** and detecting **logical vulnerabilities** of the application

Picture Editing App

[Jun'20-Aug'20]

Internship at ABSTech | Rajasthan, India

- Conceptualized and developed an **android application** that enables users to edit pictures from camera and gallery
- Made the code robust by incorporating features such as **Dagger**(Dependency Injection) and **Butterknife**(View Injection)
- Integrated third-party libraries like **Dexter** and **ImageFilters** and tested application using the **JUnit** framework
- Received a **Letter of Appreciation** from the Military Intelligence for significant contributions to IT solutions

InFi: Interest Finder

[May'20-July'20]

Institute Technical Summer Project | IIT Bombay

- Conceptualized an **android application** aimed at connecting people having similar **interests, hobbies and tastes**
- Deployed the backend of the app in **Firebase**, frontend in **Android(Java)** and **XML**, used **Google API** for location
- Implemented **Collaborative Filtering** to suggest people based on shared interests, proximity, and in-app activity
- Incorporated features such as **Paging** and **ViewModel** thus resulting in a **+10%** increase of the overall efficiency

Algorithmic Trading

[July'21-Present]

FinSearch | Finance Club | IIT Bombay

- Studied types of market and basics of trading systems like Delta Hedging, Momentum Portfolios and Calendar Spreads
- Analysed a statistical arbitrage strategy using ARMA and backtested the Cointegration approach to optimize alphas

OTHER PROJECTS

- **HappieFlo** - Built an android app for **StarHacks** hackathon aimed at relieving mental stress during menstruation [2021]
- **CocoGrato** - Designed a **3D CAD** prototype of a semi-automatic coconut scraper using **Solidworks** & **Adams**; conducted FMEA & prepared sales pitch highlighting market requirements, existing competition and cost analysis[2021]
- **FaceCount** - Devised a model to detect any misconduct by counting no. of faces in real-time by using **YOLOv3** [2021]
- **Summarizer** - Implemented a pre-trained **T5 - Transformer** for abstractive summarization of school textbooks[2021]
- **ThermoPy** - Programmed finite-difference schemes in python to solve partial differential equations involved in modeling a transient heat conduction problem to visualise time-evolution of surface temperature of the system[2021]
- **Noter** - Developed a cross-platform note-keeping app using **Flutter** as frontend & **SQLite** database in backend[2020]
- **XLR8** - Engineered and built a bluetooth controlled (**HC-05**) obstacle manoeuvring bot with a differential mechanism for turning; used **AT-TINY** micro-controller, **IC7805** as voltage regulator & **L293D** as motor driver[2019]

POSITIONS OF RESPONSIBILITY

Convener | Web And Coding Club

[Mar'20-May'21]

Selected out of **100+** applicants to be part of a team representing the interests of **5000+** students

- Coordinated one of the largest coding clubs in India aimed at promoting and diversifying coding culture in the institute
- Conducted workshop on **Web Development & Hosting** and organized hackathon indulging about **100+** participants
- Volunteered to make detailed resources on **Probabilistic Algorithms** for Code in Quarantine and Algos-Simplified
- Contributed towards **maintaining** the WnCC **WIKI** by writing articles on **Android Studio**, **SQL**, **Web Hosting**
- Mentored and handled logistics of **300+** students in building a Personal Website and developing a Food Delivery App
- Prepared weekly tutorials and assignments on topics like **Git**, **HTML**, **CSS**, **Bootstrap**, **JavaScript**, and **Django**

Mentor & Team Leader | Seasons of Code

[Mar'21-July'21]

- Guiding a team of 8 sophomores in building a mobile app: **Social@IIT** which aims to connect students from all IITs
- Leading a team in building BriefKing: A Video-to-Text Summarizer to brief lectures/webinars/meetings from videos/audios
- Involved in research and implementation of Speech-to-Text models like **Wav2Vec2.0** and abstractive summarization techniques like **pretrained T5** with **transfer learning** and cloud deployment of the models using **streamlit** and **heroku**
- Responsible for the overall maintenance of the repositories and actively managing different sub-systems of the project

Teaching Assistant | Computer Programming and Utilization

[Jan'21-May'21]

- Among the 5 students aiding the course instructor in invigilation and fair conduction of examinations and evaluations
- Conducted quizzes, prepared assignments for 100+ students and was responsible for clearing conceptual doubts and queries

TECHNICAL SKILLS

Languages	C++ C JAVA Python R MATLAB Android Dart JavaScript SQL
Softwares	Git Android Studio AWS ArduinoIDE AutoCAD SolidWorks Adams RStudio
Frameworks/Libraries	Flutter Seaborn NumPy Matplotlib Scikit-Learn OpenCV Selenium Tensorflow

EXTRA CURRICULAR ACTIVITIES

- Led a **10 member team**, ideated how to blacklist vehicles that overstep the allowed time inside campus as a part of **Think in the Box General Championship** organized by the Electronics and Robotics Club, IIT Bombay [2020]
- Bagged **7th** position out of **15k+** participants in **Virtual Stock Market** competition by Entrepreneurship-Cell,IITB [2020]
- Awarded Certificate of Merit for successful completion of **L^AT_EX** BootCamp under Learners' Space by UGAC, IITB [2020]
- Coded for a **Surface-Following** drone in the **Pluto-X Hackathon**, conducted by the Aeromodelling Club, IITB [2019]
- Stood **12th** among **1100+** participants in **Sarcasm** a two-day online cryptic hunt competition by SARC, IITB [2019]
- Ranked **7th** in Entrepreneurship Buzz competition; pitched a start-up business model for given problem statement [2019]
- Volunteered for Paathshaala, a social initiative by Abhyuday, IITB; interacted with needy children at Dreamz Home[2019]
- Organized socio-campaigns like **clothing drive** and **sunday lectures** for the slums and unprivileged children [2017]