Laxman Desai   190020066

Chemical Engineering   **B.Tech.**

Indian Institute of Technology Bombay   **Gender: Male**

DOB: 02-05-2001

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2023	8.18
Intermediate	SSC	Mushtifund Aryaans HSS	2019	86.00%
Matriculation	ICSE	Sharada Mandir School	2017	90.60%

Pursuing a **Minor** in **Artificial Intelligence and Data Science** at IIT Bombay (CPI 10/10)   *(2021 - Present)*

EXPERIENCE

Frontend Developer Intern | *Board Infinity*   (Jul. 2021 - Present)
- Working in an **agile** team to provide each new customer a personalized onboarding experience
- Building a **Next.js** and **Typescript** web page that can dynamically load forms using a **JSON Schema**

Software Developer Intern | *Pay1*   (May. 2021 - Jul. 2021)
- Designed a CAPTCHA Solver library and utilized it to fully automate various services used by the company
- Built a Python **Flask** webserver with **Redis** cache that automated the Aadhaar eKYC process, reducing the operating costs by about **50%** and provided a seamless onboarding experience for the new customers
- Utilized **Selenium** WebDriver to interact with the various portals & tested the RESTful API using **Postman**
- Hand built and labeled **5** datasets containing **1500+** sample images and preprocessed them using **OpenCV**
- Extracted the features using a convolution-based algorithm in NumPy and trained a CNN **PyTorch** model to make predictions, achieving an average accuracy of **92%** on the 5 different text CAPTCHA datasets analyzed
- Awarded a **Letter of Recommendation** by the company's CTO for the exceptional impact of the project

PROJECTS

ResoBin | *ReactJS, Redux, Python, Django Rest Framework, SQLite*   (Mar. 2021 - Present)
Seasons of Code '21, IIT Bombay
- Developed a fully responsive website for students to share the course material, lecture notes, and quiz papers
- Designed an intuitive and elegant frontend interface using **Figma** and then built it on the **ReactJS** framework
- Utilised **Redux** for globally managing the application's state and **Axios** for making asynchronous API calls
- Created pagination alongside a debounced async search that provided a pleasant course browsing experience
- Built a **Django** backend server with **SQLite** database and utilised **JWT** authorisation for user sign up & login

NIFTY 50 Stock Prediction | *Python, TensorFlow, statsmodels, pandas, sklearn*   (Feb. 2021 - Apr. 2021)
Course Project: Machine Learning, IIT Bombay   *Prof. Biplab Banerjee, C-MInDS*
- Analysed the prediction capabilities of time series forecasting models on the daily opening price of stocks
- Performed the analysis on the NIFTY 50 stock's 8 year long dataset acquired from Yahoo Finance
- Utilised a sliding window approach to predict the outcome of the 15th day by training on the previous 14 days
- Built an **ARIMA** model using the **statsmodels** package, which achieved the lowest testing Mean Square Error
- Studied various **RNN** models such as stacked & bidirectional **LSTMs** built using the **TensorFlow** framework

Optimize Heating Indoors | *Python, SymPy, NumPy, Matplotlib*   (Feb. 2021 – Apr. 2021)
Course Project: Heat Transfer, IIT Bombay   *Prof. P. Sunthar, ChE*
- Studied & analysed methods to reduce energy consumption in large buildings situated in hot & dry places
- Implemented a solution comprising of a thin water layer that causes evaporation resulting in a 5% heat drop
- Solved resulting PDEs in Python with **NumPy** & **SymPy** and visualised the result data using **Matplotlib**

CPPMatrixLib | *C++, CMake, GoogleTest*   (Jan. 2021 – Mar. 2021)
Seasons of Code '21, IIT Bombay
- Designed and implemented a lightweight, dependency-free, templated numerical analysis library for C++
- Led the implementation of algorithms such as LU & QR Decomposition, Prime Tests, ModInt, and the FFT
- Mentored students to setup unit testing for the library using **CMake** and the GoogleTest framework

TeXURL | *Python, Requests, LaTeX, RegEx* (Mar. 2021 - Ongoing)
Self Project
- Created a Python package to allow LaTeX to render images from links similar to HTML or Markdown
- Utilised **RegEx** to search LaTeX code for valid URLs and **Requests** to download & link the local version
- Optimized by identifying and avoiding duplicate downloads through file hashing with the **Adler-32** hash

Self Navigating Suitcase | *Python, OpenCV, ROS, Gazebo* (Mar. 2020 - Jul. 2020)
Institute Technical Summer Project, IIT Bombay
- Designed a smart suitcase that can visually recognise and follow an **ArUco** marker carried by its owner
- Implemented computer vision using Python & OpenCV to scan the surroundings and lockdown on the target through the HSV color range and used centroid tracking for mimicking the motion of the target

ACHIEVEMENTS

- **4⋆** at CodeChef (relaxxpls) and **1048th** amongst **15k+** participants in Googe Kickstart Sept. '20 *(2020)*
- Secured **AIR 1448** amongst **15lakh** other candidates in JEE Advanced *(2019)*
- Secured **AIR 1063** amongst **10lakh** other candidates in AIIMS Entrance Test *(2019)*
- Secured **99.6%ile** in JEE Mains and **98.7%ile** in NEET amongst **18lakh** candidates *(2019)*
- Physics **topper** and overall **2nd** ranker in GCET among **20k+** other candidates *(2019)*
- Scored **396/450** in BITSAT placing in top **0.1%ile** of applicants *(2019)*
- Goa State Talent Search Examination scholar for **2** consecutive years *(2018 – 2019)*

TECHNICAL SKILLS

Languages: C++17, Python, JavaScript/TypeScript, HTML, CSS/SASS, TEX, Java, Matlab, Powershell, Bash
Development: ReactJS, Redux, Next.js, Django, Flask, Selenium, Redis, Git, Postman, VSCode, PostgreSQL
Machine Learning: Torch, OpenCV, TensorFlow, Keras, Jupyter, Pandas, NumPy, SKLearn, SciPy, Matplotlib

POSITION OF RESPONSIBILITY

UI Development Lead | *Developers Community, IIT Bombay* (Jun. 2021 – Present)
- Mentored the junior developers in the ideation and development of various institute-wide web projects
- Contributed to the development of Creddit, a course related opinions and Q&As website

Design Secretary | *Chemical Engineering Association, IIT Bombay* (Apr. 2020 – Apr. 2021)
- Crafted posters and curated content for promoting **10+** departmental events, totaling a 200+ attendance
- Designed Chemical Gazette, the annual magazine alongside the Freshmen Newsletter & the department hoodie
- Utilized **Adobe Creative Cloud** (Illustrator, InDesign, Photoshop, Premiere Pro, and After Effects)

Institute Cultural Mentor | *Culturals, IIT Bombay* (Jun. 2020 – May. 2021)
- Led a team of **20+** students to manage the media and publicity of Showstopper, gathering an audience of **500+**
- Conceptualized Style Saturday, a blog aimed at promoting personal well being resulting in 2× engagement

KEY COURSES

Computer Science: Machine Learning, Deep Learning†, DSA (Summer of Science '20), Digital Image Processing†
Chemical Engg: Chemical Reaction Engineering†, Mass Transfer†, Heat Transfer, Computational Methods, Fluid Mechanics, Solid Mechanics†, Thermodynamics   [† : to be completed by Nov. '21]
Mathematics: Data Analysis, Numerical Analysis, Calculus, Linear Algebra, Differential Equations

EXTRACURRICULAR

- Successfully completed a 2 week long internship program at the Proteomics Lab, IIT Bombay *(Jun. 2021)*
- Produced an EDM song and released it on Spotify as a part of Institute Cultural Summer Project *(Aug. 2020)*
- Successfully completed a finance bootcamp organized by the Finance Club, IIT Bombay which *(Apr. 2020)* taught and tested the knowledge of Financial Statements, Capital Markets & Ratio Analysis
- Participated in StyleUp's Showstopper 2020 and performed to an audience of **1000+** *(Jan. 2020)*
- Professionally trained in table tennis through the National Sports Organization (NSO) *(2019 - 2020)*
- Directed, edited, and starred in a **3rd** prize-winning comedy video *Area 51 Leaks*, made as an *(Sep. 2019)* entry for Freshiezza '19, the freshmen festival
- Built a remote controlled car and competed in navigating an obstacle race course - XLR8 '19 *(Sep. 2019)*
- Competed in inter-school football tournaments as a midfielder for Sharada Mandir School *(2015 - 2016)*