Laxman Desai

(+91) 820-807-8914 | desai.laxman2001@gmail.com | LaxmanDesai | relaxxpls

Education

Indian Institute of Technology, Bombay Mumbai, India
Bachelor of Technology *2019 – Present*
- Majoring in Chemical Engineering *(CGPA 8.19/10)*
- Minoring in Machine Learning & Data Science *(CGPA 10.0/10)*

Experience

Software Development Intern (May. 2021 - Ongoing)
Pay1 *Mumbai, India*
- Worked in an **Agile** team to increase onboarding speed by digitalizing the original seen & verified service
- Built a Python **Flask** backend server with **Redis** cache for securely managing and storing the requests
- Utilized **Selenium** WebDriver to interact with the govt portals & **Postman** to test the RESTful APIs
- Develop a CAPTCHA breaker using **PyTorch** CNNs & **Tesseract** OCR to reduce API requests by **20%**

Tech Leaders Summer Fellow (Jun. 2020 – Aug. 2020)
Camp K12 *Mumbai, India*
- Taught coding in an intuitive manner to **100+**students aged 14 - 18 years using **Python** and **JavaScript**
- Spearheaded the redesign & diversification of the existing curriculum leading to **15%** increase in revenue
- Covered curriculum spanning from basics such as Iterators to complex algorithms like Divide & Conquer
- Utilized AI Playground, Repl.it, Hatch XR, and MIT App Inventor

Projects

ResoBin | *ReactJS, Redux, Python, Django Rest Framework, PostgreSQL* (Mar. 2021 - Present)
Summer of Code, IIT Bombay
- Developed a web app MVP to be the one stop destination for sharing course notes and question papers
- Designed an intuitive and elegant frontend interface using **Figma** and built it using **React** and **Redux**
- Built a **Django** backend server with a **PostgreSQL** database and utilised **JWT** for user authentication
- Tested the frontend functionality using the **Fetch** API and deployed it on **Netlify**

NIFTY 50 Prediction | *Python, TensorFlow, statsmodels, pandas, sklearn* (Feb. 2021 - Apr. 2021)
Course: Machine Learning, IIT Bombay *Prof. Biplab Banerjee, C-MInDS*
- Analysed multiple time series forecasting models on the NIFTY 50 dataset aquired from Yahoo Finance
- Trained models on 14 day windows and predicted the outcome of the 15^{th} day using past data
- Utilised **statsmodels** for creating the **ARIMA** model which achieved the best accuracy
- Compared various **RNNs** such as stacked and bidirectional **LSTMs** built using **TensorFlow** framework

Optimize Heating Indoors | *Python, SymPy, NumPy, Matplotlib* (Feb. 2021 – Apr. 2021)
Course: Heat Transfer, IIT Bombay *Prof. P. Sunthar, ChE*
- Studied & analysed methods to lower energy consumption in large buildings situated in hot & dry places
- Facilitated evaporative cooling by utilising a thin layer of water which reduced the cooling load by **5%**
- Solved the PDEs in Python with **NumPy** & **SymPy** and visualised the result data using Matplotlib

CPPMatrixLib | *C++, CMake, GTest, TravisCI* (Jan. 2021 – Mar. 2021)
- Designed and implemented a lightweight, dependency-free, templated numerical analysis library for C++
- Implemented algorithms such as LU & QR Decomposition, Prime Tests, ModInt, BigInt, FFT and NTT
- Setup build and testing using CMake and GTest and CI/CD pipeline with Github Actions and TravisCI

TeXURL | *Python, Requests, LaTeX, Regex* (Mar. 2021 - Ongoing)
- 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, RViz* (Mar. 2020 - Jul. 2020)
Institute Technical Summer Project, IIT Bombay

- Designed a suitcase that follows its owner, thus eliminating the trouble of carrying it around
- Tested its functioning through virtual simulation by deploying it on a user controlled test target
- Implemented image processing through **Python** & **OpenCV** to scan the surroundings and lock down on the target through the **HSV** color range and used centroid tracking for mimicking the targets motion
- Accurately & efficiently simulated the bot and the control target using **Gazebo**, while using **ROS** to facilitate low-level device control and communication between various sub-processes

Achievements

- **4**$\star$ at CodeChef (relaxxpls) and **1048$^{\text{th}}$** amongst **9000+** 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 **10,000** other applicants *(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, SASS, Perl, TEX, BASH, Java, Matlab, R
Development: ReactJS, Redux, Django Rest Framework, Flask, Selenium, Requests, Redis, PostgreSQL
Libraries: TensorFlow, Keras, Torch, Pandas, OpenCV, Pillow, NumPy, SKLearn, SymPy, SciPy, seaborn
Tools: Git, Postman, PowerShell, Jupyter, VSCode, CMake, SolidWorks, Ansys, Google Test, Adobe CC

Position of Responsibility

Design Secretary (Apr. 2020 – Apr. 2021)
Chemical Engineering Association, IIT Bombay *Mumbai, India*

- Part of a **9** member team, selected out of **50+** students on the basis of manifesto, assignment & interview
- Co-organised and coordinated **10+** departmental events, managing **1000+** unique students in total
- Crafted posters, curated content, designed innovative department magazines, tshirts and hoodies
- Utilized **Adobe Creative Cloud** (Illustrator, InDesign, Photoshop, Premiere Pro and After Effects)

Institute Cultural Mentor (Jun. 2020 – May. 2021)
Culturals, IIT Bombay *Mumbai, India*

- Nominated (**4** out of **100+**) by Institute Fashion Nominee to promote fashion & other cultural activities
- Spearheaded a team of **20+** freshmen to manage the media and publicity for ShowStopper '21 – the institute's largest fashion show attaining a staggering attendance of **300+** even during an online semester
- Conceptualized and spearheaded Style Saturday, a monthly blog aimed at promoting style, grooming and personal well being amidst the COVID lock down resulting in **2**$\times$ monthly engagement
- Led the ideation & execution of various genre related events, targeting **300% increase** in participation by introducing mixed themes, using innovative publicity, and introducing large scale never before seen online events such as Glamour Grande, an online fashion show

Key Courses

Computer Science: Machine Learning, Data Analysis, Computer Vision (Summer of Science '21)
Chemical Engg.: Process Fluid Mechanics, Heat Transfer, Thermodynamics, Computational Methods Lab
Mathematics : Numerical Analysis, Calculus, Linear Algebra, Differential Equations, Discrete Structures
MOOCs: DSA Specialization (UCSD), Machine Learning (CS50 Harvard), Deep Learning Specialization

Extracurricular

- Mentored **200+** UG & PG freshers and introduced them to various cultural activities *(Sept. 2020)*
- Successfully completed a Finance Bootcamp organised by Finance Club, IIT Bombay which taught and tested the knowledge of Financial Statements, Capital Markets & Ratio Analysis *(Apr. 2020)*
- Produced a song and released it on Spotify as a part of Institute Cultural Summer Project *(Aug. 2020)*
- 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 **3$^{\text{rd}}$** Prize winning comedy video *Area 51 Leaks*, made as an entry for the freshmen festival (Freshiezza) *(Sep. 2019)*
- Played football (midfielder) for Sharada Mandir School team at state level *(2015 - 2016)*