Priyanshu Sivamurthy Gangavati | **22B2165**
Mechanical Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 24/11/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	
Intermediate	HSC	KPC Junior College of Science and Commerce	2022	92.17%
Matriculation	ICSE	Ryan International school Navi Mumbai	2020	97.83%

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

SCHOLASTIC ACHIEVEMENTS

- Secured All India Rank **3465** in **IIT-JEE Advance 2022**, out of **0.15+** million aspirants [2022]
- Achieved **99.57** percentile in **IIT-JEE Mains 2022**, outperforming over **1.03+** million aspirants [2022]
- Secured **99.96** percentile overall in **MHT-CET 2022** exam, out of **0.43+** million aspirants [2022]
- Awarded **AA** grade in **Computer Programming and Utilization** (CS101) among **600+** students [2023]
- Achieved overall **1st** rank in class 12th in KPC Junior College of Science and Commerce [2022]
- Recipient of Maharashtra State Govt. Educational Scholarship as the **Merit holder** in XII boards [2022]

PROFESSIONAL EXPERIENCE

Generative AI Intern | Bintix Research, Hyderabad, Telangana [May'24 - Jul'24]
*Bestowed a **Letter of Recommendation** for excellent performance, strong work ethic and analytic skills*

- Evaluated various OCR models including **EasyOCR**, **PaddleOCR**, **Gemini-Pro-Vision**, **Gemini-Flash**, and **Microsoft AzureOCR**, to extract text from high and low-resolution Bintix images
- Automated Bintix profiling portal by predicting brand and category using OCR text and images of FMCG products, with LLMs such as **Meta Llama3 (8b and 70b)**, Gemini-Flash, Gemini-Pro, **ChatGPT-4o**
- Utilized **Langchain** for custom **prompt templates** and **JSON** schema output compatible with any LLM
- Implemented **RAG** (Retrieval Augmented Generation) based prompting using **HuggingFace** text embedding models improving **brand accuracy** from **60%** to **90%** and category accuracy from **60%** to **80%**
- Initiated a project to predict outer packaging recyclability of FMCG products using multi-modal LLMs like Gemini-Flash, Gemini-Pro-Vision and Llava, setting an impressive initial accuracy benchmark of **82%**

KEY PROJECTS

Image classification and Image Deblurring | *Course Project* [Mar'24 - Apr'24]
Remote Sensing in Machine Learning II | Guide: Prof. Biplab Banerjee

- Developed a custom CNN architecture for the TrashNet dataset, achieving an initial accuracy of **30%**, and enhanced model performance using **transfer learning** with **ResNet50**, increasing test accuracy to **42%**
- Improved the accuracy to **87%** by utilizing the multi-modal AI (Gemini-Flash) for the classification task
- Trained an **Autoencoder** to successfully remove Gaussian blur applied on sharp images using **OpenCV**
- Implemented **ResNet blocks** with skip connections, training an architecture further improving deblurring performance, surpassing the results of the standard autoencoder and achieving superior image clarity

Natural Language Processing (NLP) | *Summer of Science, IIT Bombay* [Jun'24 - Jul'24]
Maths and Physics Club (MnPC)

- Deeply analyzed the **Attention is All You Need** paper along with **Transformers** architecture implementation code, and documented comprehensive notes to serve as a valuable reference for future projects
- Implemented and studied in detail the **End-To-End Memory Networks** paper using **TensorFlow**
- Trained the model on the **bAbI dataset** from Facebook AI Research, achieved **80%** validation accuracy
- Acquired knowledge in text embeddings and their application in **semantic search** and text classification
- Studied various NLP topics including lemmatization, tokenization, and Named Entity Recognition (NER)

Improving LLMs: Finetuning and RAG | *Self Project* [Jun'24 - Jul'24]

- Implemented RAG using **Llama-index** to provide enhanced context, resulting in improved LLM responses
- Employed **PEFT/LoRa** techniques to effectively fine-tune Microsoft phi-2 LLM, enhancing its performance
- Evaluated RAG and fine-tuning methodologies, and explored cloud platforms like **Gradient** for fine-tuning

Image Caption Generator | *Seasons of Code, IIT Bombay* [Jun'24 - Jul'24]
Web and Coding Club (WnCC)

- Developed image captioning system utilizing a deep learning model with LSTM, achieving accurate captions
- Leveraged **ResNet50** pre-trained model from Keras for **image feature extraction** for improved efficiency
- Performed **pre-processing** of captions for the system which involved removing numbers, punctuation, and stop words, and adding start and end tags to enhance the quality and coherence of generated captions

Fake News Classifier | *Course Project* [Mar'24 - Apr'24]
Applied Data Science and Machine Learning | Guide: Prof. Shyamprasad Karagadde

- Compared Logistic Regression, SVC, and LSTM models, with Logistic achieving the best performance
- Achieved accuracy of **85%** using Logistic Regression model and implemented **Sequence Modelling** using Bi-Directional LSTMs and Dropout Layers to prevent overfitting and increase efficiency of the model
- Implemented **data preprocessing** steps, including removal of stop words, numbers, punctuation, text normalization, tokenization, and vectorization, to prepare a comprehensive dataset for training
- Conducted extensive **model evaluation** and validation, employing cross-validation techniques and detailed **confusion matrix analysis** to ensure robust and reliable outcomes on the Kaggle dataset used

Python For Data Science | *Learners' Space, IIT Bombay* [Jun'23 - Jul'23]
Undergraduate Academic Council (UGAC)

- Conducted in-depth **Stock Data** analysis of TATA Consulting Servives (TCS) and built a **Multiple Linear Regresson** model using **Scikit** learn to predict the closing price of stocks from 10 years' data
- Developed a custom **Logistic Regression** model in **Python** using **Object Oriented Programming** (OOP) principles, without relying on **Scikit** learn python library to get a testing accuracy of **77.27%**
- Utilized **Pandas** and **NumPy** extensively to expertly preprocess and meticulously clean the raw data
- Achieved an exceptional **R-Squared** (R2) score of **0.998** on the testing data set using MLR model
- Leveraged the power of **Matplotlib** to skillfully visualize and analyze the relationship between the closing price and various individual features, thereby offering valuable insights to traders and investors

POSITION OF RESPONSIBILITY

Teaching Assistant (TA) | *Computer Programming and Utilization (CS 101)* [Jan'24 - Apr'24]
Prof. Shivaram Kalyanakrishnan

- Mentored first-year undergraduates, addressing students' course-related queries attentively
- Collaboratively organized labs, doubt sessions, and examinations with the instructor in charge

Project Mentor | *Seasons of Code 2024* [Jun'24 - Jul'24]
From Simple to Smart: Sentiment Analysis with tradition ML and a peek at Deep Learning

- Mentored 11 students in a sentiment analysis project, guiding them through traditional ML techniques and advancing to deep learning methodologies for enhanced results through hands-on assignments
- Mentored project team, teaching mentees how to use Git and GitHub, and write structured code

TECHNICAL SKILLS

- **Programming:** C++, Python, C, Java, SQL, LaTeX
- **Libraries:** TensorFlow, Langchain, HuggingFace, Scikit learn, OpenCV, NumPy, Pandas, Matplotlib, Tkinter
- **Software:** Git and GitHub, Google Colab, Excel, MATLAB, Android Studio

COURSES UNDERTAKEN

- **Machine Learning** Remote Sensing in Machine Learning II, Applied Data Science and Machine Learning
- **Maths** Linear Algebra, Calculus I, Calculus II, Differential Equation
- **Computer Science** Data Structures and Algorithms, Computer Networks, Computer Programming and Utilization,

EXTRACURRICULAR ACTIVITIES

- Selected for the **final round** in **Techfest Hack.AI** Hackathon by using uagents library in Python [Oct'23]
- Mentored class 12th students for **JEE Mains** under **Educational Outreach** programme in **NSS**, IIT Bombay and achived remarkable result with one student securing **97%** percentile [Aug'24]
- Completed **Python for Data Science** and **DSA** courses in Learner's Space, IIT Bombay 2023 [Jul'24]
- Secured **1st** place in **Inter-Wing Football** competition held in **Hostel 1** [Dec'22]