



Shahu Patil
Mechanical Engineering
Indian Institute of Technology Bombay

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B.Tech.
Gender: Male
DOB: 27/11/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	

Pursuing a Minor degree in **Computer Science Engineering** at the Department of **CSE**, IIT Bombay

SCHOLASTIC ACHIEVEMENTS

- Secured **97.64** percentile in **JEE Advanced** examination among **0.15 million** students across India. [2022]
- Was among top **1.1** percent in **JEE Mains** examination among **1 million** students across India. [2022]
- Stood among top **0.1** percent to score 100/100 in Social Science in **CBSE Class X Examination** [2020]

PROFESSIONAL EXPERIENCES

Deep Learning Researcher | *KCDH, IIT Bombay* [May - Jul '24]
Guide- Prof. Kshitij Yadav, Koita Centre for Digital Health, IIT Bombay

- Achieved a groundbreaking **F1 score** of **0.75**, pioneering the first research paper on multi-class data of **IOPA** images
- Created a **custom preprocessing pipeline** with tailored **threshold** values in **Enhancement mmG** transform algorithm, upper and lower thresholds in **Canny EE** and **transparency blending ratios** for individual images
- Trained **YOLOv8** for object detection on **semantic labels**, **fine-tuning** hyperparameters for optimal performance
- DenseNet121** which outperformed YOLOv8 and CNN was equipped with **Focal Loss** to handle class imbalance

KEY TECHNICAL PROJECTS

Attacking LLMs with Projected GD | *Web and Coding Club, IIT Bombay* [May'24 - Present]
Optimization based Deep Learning project under Seasons of Code 2024

- Implemented research on **Adversarial Attacks** using **Projected Gradient Descent** (PGD) to identify vulnerabilities in Large Language Models (LLMs), generated adversarial prompts to evaluate and enhance model robustness
- Applied **relaxed one-hot encoding** for smooth gradient optimization, tested implementation on **Gemini LLM**
- Utilized **Simplex Projection** to ensure valid probability distributions, **Entropy Projection** to maintain diversity

Deep Carlsen | *Web and Coding Club, IIT Bombay* [April'23 - July'23]
Software project focusing particularly on Object Oriented Programming under Seasons of Code 2023

- Developed a complete **Chess Engine** in **Python** with engine and player vs. player modes using **Pygame**
- Hard-coded conventional **Min-Max algorithm**, and all game rules achieving a great **1900 elo** rating on testing
- Implemented **Forsyth-Edwards Notation** string conversion and integrated **Stockfish API** for move evaluation
- Created a user-friendly **GUI** for rendering pieces, validating moves, and enabling drag-and-drop functionality

Multiclass Dermoscopic Image Classification | *Course Project, ME228* [March'24 - April'24]
Guide: Prof. Shyamprasad Karagadde, Department of Mechanical Engineering, IIT Bombay

- Performed image segmentation using **Watershed Algorithm**, employed **CNN** and got an overall **F1 score** of **0.7**
- Utilized **OpenCV Preprocessing** including **Canny Edge Extractor** and **Alpha transparency blending**
- Applied **Keras** data augmentation techniques to address the **long-tailed** distribution from the **HAM10000** dataset

POSITIONS OF RESPONSIBILITY

Institute Web and Coding Manager | *Institute Technical Council* [April' 24 - Present]
An integral part of **25** membered team conducting **50+** events catering the technical interests of **10k+** students

Professional	<ul style="list-style-type: none">Superheading a team of 10 conveners to ideate and conduct 20+ programming eventsCoordinated Summer Coding Projects: 150+ projects, 200+ mentors, 1300+ menteesOrganized IT/Software Internship Preparation session helping 200+ IT Enthusiasts
Initiatives	<ul style="list-style-type: none">Conducted 3 courses in DSA, CV & Web Development enrolling 2000+ studentsIdeating PAN India Hackathons to promote projects in Deep Learning and Web 3.0Revamping WnCC website and Competitions portal streamlining the process

TECHNICAL SKILLS

- Languages:** Python | C++ | C | Dart | Javascript
- Data Science and Machine Learning:** OpenCV | Scikit-Learn | Tensorflow | YOLO | Scipy | Pygame | Pymoo | Beautiful Soup | Keras | Pandas | NumPy | Seaborn | Folium | Matplotlib | Pytorch | Imblearn | Math | Gspread
- Softwares and Frameworks:** Git | GitHub | Tableau | Flutter | React | Firebase | Android Studio | Jupyter