Parth Pundalik Pai | **22B3305**
Mechanical Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 07/11/2004

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	8.74

Pursuing **Minor** degree in **Data Science and Machine Learning, C-MInDS**, IIT Bombay

Scholastic Experience

- Received an **AP** grade in the MS101 course, achieved by only **7 individuals** out of **600+** students. *(2023)*
- Secured **Karnataka State Rank 46** among **2.16** lakh students who wrote **KCET** examination *(2022)*
- Achieved a **Change of Branch** to the department of **Mechanical Engineering** (B.Tech) among **31** out of **1300+** students owing to excellent academic performance *(2023)*

Key Technical Projects

Breakout Genius - AI game master using RL | Season of Code 2023 *(May'23 - July'23)*

Built a Reinforcement Learning game master to play Atari games *WnCC, IIT Bombay*

- Created **Atari Breakout Game** environment using **OpenAI's gym** package, NumPy and Pytorch
- Built a **DQNAgent** class having Convolutional Neural Networks to return relevant **q-values** and **sample-actions**
- Recorded **mean rewards** and **Temporal Difference(TD) losses** while training the model using Adam Optimiser
- Tested a pre-trained PyTorch model for **9M** steps and rendered the animation to output the gameplay as a video file

Language Translation model using NLP | Learner's Space 2023 *(June'23 - July'23)*

English to Italian Translation model using Natural Language Processing *UGAC, IIT Bombay*

- Built Language Translation model from English to Italian using **transformers, pipelines, and tokenizers**
- Preprocessed and tokenized data, splitting into 80-20 training and testing sets using transformers' **AutoTokenizer**
- Evaluated the accuracy of the model using **sacrebleu** score to check word matchings and give appropriate score
- Created an interactive app environment using **gradio** and tested the pre-trained model saved in Google drive

Mountain Cargo Challenge | Introduction to Makerspace *(May'23 - June'23)*

Guide: Prof. Ankit Jain and Prof. Joseph John | MS101 Course Project

- Developed an autonomous Line-follower robot climbing inclines up to **30 degrees** with a payload of **300 grams**
- Incorporated **3 IR sensors** into an Arduino UNO microprocessor, enabling it to **detect and track line**
- Appreciated as one of the best bots among a batch of **600+** students and awarded certificates

Technical Skills

Programming Languages	C++ | Python | LaTeX
Python Libraries	PyTorch | Pandas | Matplotlib | Numpy | Transformers | OpenAI's gym
Software	Autodesk Fusion 360, MATLAB

Key Courses Taken

Mathematics:	Linear Algebra, Differential Equations, Differential Calculus, Integral Calculus
Computer Science:	Computer Programming and Utilization, Programming in Data Science*, Statistical Machine Learning and Data Mining*

(* - to be completed by Nov 2023)

Positions of Responsibility

Class Representative | First Year B.S Mathematics *(Nov'22-June'23)*

- Handled classroom administration and mediated with professors for the smooth running of courses
- Organised Fresher's Party, Traditional Day, and Department Trip conducted by **Mathematics Association**
- Streamlined the doubts by making relevant **discussion groups** on online platforms like WhatsApp etc.

Extra-Curricular Activities

- Completed the **Junior Degree** in Hindustani Classical **Vocals** issued by **KSEEB**, Karnataka *('13-15)*
- Qualified to the State level Mathematics and Science Talent Search examination organized by **Karnataka Rajya Vijnana Parishat (KVRP)** *(2019)*
- Bagged the **Best Outgoing Student** award in Class 10th owning to overall excellence *('19-20)*