Preetam Pati

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Education

- **Indian Institute of Information Technology Kalyani** — Kolkata, India
  Bachelor of Technology - Computer Science and Engineering; CGPA: 9.5 — *2021 - 2025*
  Courses: *Operating Systems, Data Structures, Analysis Of Algorithms, Artificial Intelligence, Compiler Design, Databases*

Skills Summary

- **Languages**: Python, Matlab, Scilab, C#, C/C++, JavaScript, SQL, Java, HTML, CSS, Latex
- **Web Dev**: ReactJS, Django, NodeJS, Express, Azure, MongoDB, CosmosDB, Elastic Search, mySQL, Kafka, Tailwind
- **Tools**: Linux, Unity, Docker, GIT, Dobot Studio, Microsoft Hololens2, HTC Vibe Pro, Opti Tracker, Rashberry PI
- **ML**: SkLearn, NLTK, SpaCy, TensorFlow, Keras, Pytorch, HuggingFace, Opencv, Azure AI, OpenAI APIs
- **Domains**: Software Engineering, Natural Language Processing, Backend Web Development, Reinforcement Learning

Experience

- **Superbolter Private Limited, Bangalore** — Remote
  Software Developer Engineer Intern — *Nov 2023 - Present*
  - **Working On**: Working on Copilot Backend Integrations, recommendation systems and Copilot Chat frontend.
  - **Tech Stack**: React JS, Redux, Azure Cosmos DB, Django, Elastic Search, Docker, Apache Kafka, Mongo DB, Tailwind
- **Superbolter Private Limited, Bangalore** — Remote
  Machine Learning Engineer Intern — *July 2023 - Nov 2023*
  - **Worked On**: Developing a copilot for improving interior recommendations and personalized design ideas based on user preference and realtime user room interiors, helping customers design their 3D room, placing furnitures and luxuries.
  - **Tech Stack**: Microsoft Copilot, Semantic Kernel, Python, Langchain, Pytorch, LLMs, Flask, Azure OpenAI, cromadb
- **Indian Institute of Science (IISc), Bangalore** — Onsite
  Machine Learning Research Intern (Full-time) — *Dec 2022 - Jan 2023*
  - **Work Done**: Used Inverse Reinforcement Learning (SMEIRL) for Pointing Task Prediction in Mixed Reality (MR) and Virtual Reality (VR), achieved 88.21% accuracy in VR and 90.37% accuracy at MR.
  - **Tech Stack**: Pytorch, C#, Unity Game Engine, Microsoft Hololens2, HTC Vibe Pro, Opti Tracker, Motive, Dobot

Projects

- **Dobot Realtime Obstacle Avoidance via Mixed Reality App (Mixed Reality, Dobot, Inverse Reinforcement Learning, Opti Tracker)**: Research oriented, Realtime Mixed Reality Application for Dobot Obstacles Avoidance learning from Hand Guided Trajectories using Inverse Reinforcement Learning.
  Tech: Python, Pytorch, Mixed Reality Toolkit, C#, Unity, Microsoft Hololens2, Opti Track (Feb '23) (Video Link)
- **Pointing Task Mixed Reality Application (Mixed Reality, Inverse Reinforcement Learning)**: Mixed Reality Application for Pointing Task Prediction ISO 9241 which records and learns from the Expert demonstration via Inverse Reinforcement Learning, shows an accuracy of 90.37% for prediction task in Mixed Reality.
  Tech: Python, Pytorch, Mixed Reality Toolkit, C#, Unity, Microsoft Hololens2 (Jan '23) (Video Link)
- **Question and Answering Task Classifier (Natural Language Processing, Deep Learning)**: AI model finetuned on transformers to predict the answer type into answerable or not, yes or no type answers, extractive answers, abstractive answers given the context and question, shows an accuracy of 90.07% over qasper dataset.
  Tech: Python, Pytorch, NLTK, HuggingFace, Transformers, Bert, Roberta (July '23) (Repo Link)
- **Guided Player Tetris Game (Reinforcement Learning, Deep Learning)**: Tetris Game designed in Pygame using Python consisting of 3 levels of difficulty, provisions to guide the user using Reinforcement learning in progress.
  Tech: Python, Pygame, Pytorch, PyInstaller (May '23) (Repo Link)

Publications

- **Research Paper: Comparison of Target Prediction in VR and MR using Inverse Reinforcement Learning (Published in IUI, ACM)**: Used Sample Based Maximum Entropy Inverse Reinfocement Learning(SMEIRL) for Pointing Task Prediction in MR and VR. Achieved 88.21%accuracy in VR and 90.37% accuracy at MR which beats Neural Network and Quadratic Extrapolation approaches for Late State. (Feb '23)
  Supervisors: Pradipta Biswas, IISc Bangalore; Partha Pratim Chakrabarti, IIT Kharagpur (Paper Link)

Achievements

- Top 16% in LeetCode Contests, solved 300+ DSA Problems in LeetCode, 2023 (LeetCode Link)
- Ranked 1079 in ACM ICPC preliminary Round, ACM ICPC - 2023 (Codechef Link)
- Secured Top 2 positions in Round 1 & 2 and 8th position in Final Round, Codacharya - 2022
- Secured Max CP Rating of 1676 at Codechef Contests - 2023

Recent Certifications

- **Accelerating the Pace of Engineering and Science using MATLAB (Cert Link)** — Online Mode
  This workshop training program is conducted by SENSORS, NIT Trichy — *Jan 2022*
- **Codathon Chimera - The Student Conclave (Cert Link)** — Online Mode
  This Inter NIT Coding Competition was conducted by ISTE SC MANIT — *Feb 2022*