

Ujjwal Surajkumar Pardeshi

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PROJECTS

Fitmon: AI-Powered Exercise Rep Detection (Godot 4.3, TensorFlow.js, JavaScript, BlazePose)

- Developed an **AI-powered fitness game** in **Godot 4.3** that detects and counts exercise repetitions in real-time using a webcam.
- Integrated **TensorFlow.js** for real-time **pose estimation**, supporting exercises like Bicep Curls, Squats, Lateral Raises, and Lunges.
- Utilized **JavaScriptBridge** to connect TensorFlow.js with **Godot's HTML5 export**, enabling seamless in-browser AI processing.
- Implementing a **leaderboard and authentication system** for secure login, score tracking, and global rankings (Coming Soon).

RAG-Based AI Chatbot with Real-Time Communication (LangChain, ChromaDB, Sockets, SendGrid, Firebase, HuggingFace)

- **Context-Aware Responses:** Uses ChromaDB to fetch relevant document sections for accurate answers.
- **Live WebSocket Chat:** Enables real-time AI-powered conversations.
- **Automated Lead Management:** Captures emails and sends automated mails via SendGrid.
- **Persistent Storage:** Saves chat history and user data in Firebase Firestore.

Emoji Sentiment Prediction (Python, TensorFlow, FastAPI)

- Curated a **custom emoji sentiment dataset** with 2700 samples, mapping emojis to sentiment scores.
- Trained multiple models, including **Neural Networks, Random Forest, LightGBM, and an Ensemble model**, achieving **86.18% accuracy**.
- Utilized **Emoji2Vec embeddings** to enhance sentiment prediction.
- Submitted findings to **IEEE Connect 2025** as part of the **Samsung PRISM Program** in collaboration with Samsung mentors.

EXPERIENCE

Undergraduate Researcher

SRMIST, Chennai, India

Project Advisor - Dr. Vaishnavi Moorthy

May 2024 - Present

- Developed the **Smart Lift Occupancy Detection and Visualization System** using **OpenVINO models** and **Unity3D** for real-time crowd visualization and informed elevator usage decisions.
- Integrated **Firebase Realtime Database** to update crowd data and alert system in real time, enhancing decision-making and monitoring.
- Utilized **Raspberry Pi** as a server, along with IP cameras connected through College WiFi, for a seamless and wireless system.
- Project funded by the Dean with **80k INR**.
- Won the **AIOT Project Expo 2024** for best innovative solution.

POSITION OF RESPONSIBILITY

Head of Research and Development, IEEE SRM

Chennai, India

IEEE SRM

April 2023 - Present

- Currently working on Monocular Vision-Based Autonomous Driving Assistance System Using **Self-Supervised Instance Segmentation**
- Successfully submitted a conference paper titled "**A Novel Detection of Autism Spectrum Disorder using Catboost algorithm with Deep Neural Network Classifier**" with my team in NetMAHIB 2025.
- Presented 4 research posters in the 2nd International Conference on Higher Education Institute's Challenges and Solutions for SDGs'23.

Convener [Board Member] Astrophilia

Chennai, India

Astrophilia

September 2022 – September 2024

- Acted as the liaison between Astrophilia and college administration, advocating for club interests.
- Conducted engaging Astronomy sessions to enhance knowledge among members.
- Organized and led team meetings to maintain project momentum and foster collaboration.
- **Awarded by the Directors of SRMIST** for exemplary leadership and contributions to the club.

SKILLS

- **Programming Languages:** Python, C++, C, HTML, CSS, JavaScript, SQL
- **Tools and Platforms:** Git, Firebase, Linux, Raspberry pi, Jetson Nano, A100
- **AIML:** TensorFlow, PyTorch, Keras, Sklearn, CNN, YOLO, U-NET, RAG, LLM, Langchain, ChromaDB, HuggingFace
- **Soft Skills:** Leadership, Team Management, Communication, Active Listening, Mentoring

EDUCATION

SRM INSTITUTE OF SCIENCE & TECHNOLOGY

Chennai, Tamil Nadu

Bachelor of Technology — Computer Science & Engineering

June 2022 - May 2026