ATHARVA HONPARKHE

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Education

Indian Institute of Technology, Jodhpur ⟶ **Expected Graduation: 2027**
B.Tech in Electrical Engineering   CGPA: 7.84/10 ⟶ *Jodhpur, Rajasthan*

D.A.V Public School, Ludhiana ⟶ **2023**
Class 12 – PCM   94.2% ⟶ *Ludhiana, Punjab*

Experience

Indian Institute of Technology Jodhpur ⟶ **August 2024 – November 2024**
Research-Based Project under Dr. Pratik Mazumder ⟶ *Jodhpur, Rajasthan*

- Devised a Q-learning-based GridWorld simulation for autonomous agents in stochastic environments; **realized a 94% step reduction** and **3.7× reward improvement** over random baselines.
- Constructed an interactive simulation interface using **Tkinter**, featuring Q-value heatmaps and episodic graphs to monitor agent performance over **100+ training episodes**.

Technical Projects

Linguistix — Speaker Identification, MFCC, PCA/LDA, GMM Clustering 🐙
Course Project (PRML) mentored by Dr. Anand Mishra ⟶ *February 2025 – April 2025*

- Engineered a robust speaker recognition system by extracting **MFCC acoustic features** and applying **PCA/LDA** to project high-dimensional speech data into a lower-dimensional discriminative space, enhancing cluster separability in noisy environments.
- Surpassed traditional clustering methods by achieving **100% accuracy with ANN+LDA** and **99.67% with GMM** on **2.5K+ samples** from 50 speakers, demonstrating the efficacy of supervised dimensionality reduction.
- Designed a modular benchmarking suite enabling plug-and-play evaluation of ANN, SVM, and GMM classifiers — inspired by scalable model validation workflows at **Google Research**.

PlaWorDet — Deep Learning, Streamlit, MLP Architectures, Positional Embeddings 🌐 🐙
Club Project (RAID) mentored by Dr. Angshuman Paul ⟶ *January 2024 – April 2024*

- Developed a deep learning-based valuation model trained on **100K+ FIFA player records**, integrating team chemistry, performance metrics, and role-based features using **custom positional embeddings** and MLPs.
- Deployed a modular **Streamlit dashboard** supporting **real-time inputs from 25+ users** during live demos, rendering valuation predictions and performance graphs within **sub-0.5s latency**.
- Integrated an auction-style bid recommendation engine influenced by **Amazon's pricing strategies**, enabling simulated transfer scenarios aligned with player market trends.

Track Tracer — C, TCP Socket Programming, Authentication, File Systems 🐙
Course Project (IC) mentored by Dr. Mayank Vatsa ⟶ *February 2024 – April 2024*

- Built a scalable train reservation system in **C** using **multi-threaded TCP sockets** to serve **50+ concurrent clients**, with a shared seat matrix and sub-**200ms response latency** validated through stress testing.
- Designed and integrated **OTP-based authentication** and file-backed persistence modules to maintain session integrity and enable reliable offline retrieval across multiple train schedules.

Technical Skills

- **Languages:** Python, C++, C, SQL, HTML/CSS, JavaScript, Verilog, VHDL
- **Technologies:** TensorFlow, PyTorch, scikit-learn, NumPy, Pandas, OpenCV, MongoDB, Gemini LLM, Streamlit, Flask, React, Android Studio, Pygame, Firebase
- **Utilities:** Git, GitHub, VS Code, LaTeX, Linux, Docker, Arduino IDE

Relevant Courses

- **IITJ Coursework:** Pattern Recognition and Machine Learning, Data Structures and Algorithms, Probability Statistics & Stochastic Processes
- **Online:** Deep Learning Specialization (Coursera), Introduction to Networking (Udemy)

Awards & Achievements

- Earned an **A- (Top 10%)** in Introduction to Computer Science Engineering, demonstrating strong grasp of algorithms and programming logic.
- Ranked in the top **0.77%** among **1.2M+ candidates** in JEE Main 2023, reflecting national-level academic excellence.

Leadership & Extracurricular

Student Guide, Student Wellbeing Committee, IITJ ⟶ **2024 − 2025**
Mentored 12 freshmen, supporting academic and emotional growth; contributed to 5+ wellness drives.

State-Level Handball Player ⟶ **2017 − 2023**
1st in Zonals, 2nd in District, qualified for State Tournaments.