CHAITANYA JADHAV

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SUMMARY

AI Engineer with experience across traditional machine learning, generative AI, and full-stack systems development. Built and optimized recommendation systems, churn prediction pipelines, and Retrieval-Augmented Generation applications, delivering measurable performance gains and translating prototypes into reliable, user-facing tools.

SKILLS

Programming Languages	Python, JavaScript, C#, SQL
Machine Learning	PyTorch, Scikit-Learn, NumPy, Pandas
LLMs & NLP	LangChain, FastMCP, Pydantic AI
Computer Vision	OpenCV, Pose Estimation, Object Detection

EDUCATION

Nanyang Technological University *August 2021 – May 2025*
Bachelor of Computing, Computer Science

WORK EXPERIENCE

PhillipCapital Pte Ltd July 2025 – Present
AI Engineer

- Designed and implemented a NumPy-based collaborative filtering item-to-item recommendation system using historical transaction data, replacing a deprecated third-party library to improve maintainability and transparency.
- Refactored an ensemble-based customer churn prediction pipeline, reducing training time by 50% and inference time by 72% while preserving predictive performance.
- Contributed to the migration of an internal chatbot to an MCP-based architecture by modularizing tool functionality and auxiliary pre and post-processing services, improving extensibility and maintainability.

National Institute of Education, Physical Education & Sports Science August 2024 – June 2025
Part-Time Research Assistant

- Developed a pose-based fencing lunge detection system using annotated match videos and joint coordinates, experimenting with LSTM, BiLSTM, and Transformer models over temporally-windowed pose sequences.

Panasonic R&D Center Singapore January 2024 – July 2024
IP3D Intern

- Built an internal document Q&A chatbot for internal knowledge access using Retrieval-Augmented Generation with locally hosted LLMs and embedding models, supporting configurable document chunking, retrieval, and answer generation methods.
- Designed a configurable benchmarking framework to systematically evaluate RAG pipelines across embedding models, chunking strategies, re-ranking, and answer generation models. Implemented automated evaluation using LLM-as-a-Judge to enable scalable comparison of answer quality across configurations.

PUBLICATIONS

IEEE INFOCOM – IEEE Conference on Computer Communications 2026
Joint Optimization of Secure and Energy-Efficient Retrieval-Augmented Generation for Mobile Edge Computing
C. Liu, L. Qian, **C. D. Jadhav**, J. Zhao

22nd International Conference on Privacy, Security, and Trust (PST) 2025
Legal Retrieval Augmented Generation with Structured Retrieval and Iterative Refinement
C. D. Jadhav, C. Liu, J. Zhao

15th International Symposium on Computer Science in Sport 2025
The Centre That Moves: A Data-Driven Perspective on Spatial Adaptations in Men's Singles Badminton
J. Q. J. Tan, **C. D. Jadhav**, J. Komar

ACADEMIC PROJECTS

Undergraduate Research Experience on Campus Program August 2023 – June 2024
Serving Insights: Improving Data-Driven Badminton Analytics with Computer Vision and Machine Learning

- Built an end-to-end badminton analytics pipeline in Python using OpenCV and OpenPose for court isolation, replay filtering, and homography-based mapping of player positions onto a standardized court plane.
- Curated and annotated shot data from 6 YONEX French Open 2023 matches, extracting joint angles and normalized inter-joint distance features using Sports2D.
- Benchmarked RNN, LSTM, and Conv2D models for grip classification across forehand, backhand, and overhead shots, achieving a best F1 score of 0.954 and presenting findings at the International Conference of Undergraduate Research 2024.

Undergraduate Research Experience on Campus Program August 2022 – June 2023
Football Analytics: Playing Styles of Singapore Premier League Teams

- Built an expected-goals model from 2019–2021 Singapore Premier League event logs by fitting a logistic regression estimator using shot location, distance to goal, and shot angle.
- Applied regression-tree analysis over eight possession-style percentages to derive interpretable rules for high-quality chances, identifying cross-heavy patterns producing up to 0.216 expected goals per shot and mapping tendencies to team-level profiles for scouting and match preparation.

PERSONAL PROJECTS

Unmute — Sign Language Translation Platform January 2026
3rd Place, Gemini 3 Hackathon

- Co-developed a text-to-sign language translation system that converts spoken or typed input into sequences of Singapore Sign Language (SgSL) signs using a curated NTU Sign Bank dataset containing over 1,000 unique Singapore-contextual signs.
- Leveraged the Gemini API for text understanding, sign sequence planning, and live video conferencing to support interactive communication.

Sports Event Trackers
`event-tracking-jkomar.pythonanywhere.com`

- Built an interactive multi-sport event tracking web app for Tennis, Badminton, Football, Basketball, and Floorball with coordinate mapping and action tagging.
- Enabled downstream analytics by exporting tagged events and match summaries to CSV and PDF reports.
- Introduced editable player and event names and keyboard shortcuts to improve quality-of-life and streamline workflows.