

JAPPANJOT KAUR

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Experience

Celebal Technologies | Data Science Intern (Jun 2025 – Present)

- Assisting in the design and optimization of scalable ML workflows, leveraging automated feature engineering, hyperparameter tuning, and model evaluation metrics to enhance predictive performance across diverse datasets.
- Building a RAG-based GenAI chatbot using LangChain, integrated with LLMs and vector databases, and applying unsupervised learning (Isolation Forests) for real-time anomaly detection in network data.

India Meteorological Department, New Delhi | AI/ML Intern (July 2024 - Aug 2024)

- Analyzed meteorological data and forecasting patterns, focusing on the impact of heat terminal stress on wheat crops, improving prediction accuracy by 15%.
- Developed the **Mausam Fasal Sathi**, an AI/multilingual real-time chatbot for IMD, which provides district-based weather forecasts, rainfall summary reports, and crop advisories to empower over 5 lakh+ farmers.
- Upgraded the chatbot's NLP capabilities using Hugging Face Transformers and LLAMA 2, increasing user engagement by 25%.

Igrow Solutions | Freelance (Jan 2023 - May 2023, Nov 2024 - Dec 2024)

- Produced explainer content for an in-house program that strategically boosted YouTube impressions and engagement by 40%.
- Conducted outreach to 100+ YouTube creators, fostering collaborations that enhanced brand influence and increased subscriber count by 30%.
- Recognized with a ₹10,000 monthly stipend for impactful data-driven initiatives.

Key Projects

AlzCare—A Smart Assistance System for Daily Activities in Alzheimer's Patients  

(April 2025 - May 2025)

- Implemented a real-time human activity detection mobile application using MediaPipe Pose + CNN-LSTM, achieving 92%+ recognition accuracy and triggering instant SMS/email alerts for falls or anomalies via workflow automation, reducing emergency response time by 60%.
- Built an interactive UI with live activity tracking, journaling, cognitive mind games, and caregiver notifications, lowering supervision burden and enabling non-intrusive, cost-effective in-home Alzheimer's care.

Real-Time Object Detection using YOLO Variants with Nature-Inspired Algorithm  

(Feb 2025 - Apr 2025)

- Engineered an AI-based object detection compiler integrating YOLOv8, YOLOv11, and YOLO-World with hybrid PSO-GWO optimization, achieving mAP@0.5 of 93.20% and 185+ FPS real-time performance on the Pascal VOC dataset.
- Enhanced localization accuracy using dual-stage refinement (Canny edge detection + SIFT keypoints), reducing bounding box localization error to 3.10 px and achieving 98.44% computational complexity reduction.

Defending Social Networks Against Misinformation Using Graph-Theoretic Intervention Strategies  

(Jan 2025 - Apr 2025)

- Pioneered a scalable misinformation mitigation framework using the Independent Cascade Model (ICM) on the OGBN-Arxiv dataset (169K+ nodes, 1.1M+ edges), simulating misinformation diffusion and evaluating ten strategic edge/node blocking interventions.
- Proposed a hybrid IEED + community detection approach and soft blocking method, achieving a 95%+ reduction in misinformation spread, lowering the average infection rate from 29.9% to 1.38%, with structural integrity preserved for real-time social networks.

Research Work

Towards Transparent Psychiatry: A Review of Explainable AI Techniques in Mental Health Diagnostics

Finished a co-authored research paper exploring the role of SHAP, LIME, Grad-CAM, and other XAI methods across psychiatric diagnostic models using CNNs, LSTMs, and attention mechanisms.

Predicting Customer Ad Clicks Using Ensemble and Machine Learning Models: A Comparative Study

Performed a comparative analysis of 7+ ML models on Facebook ad data, highlighting XGBoost's top performance with 93% accuracy.

FitFlex: A Comprehensive Fitness Website Deployed Using AWS EC2

Authored a research paper that detailed the development and cloud deployment of a full-stack Django fitness platform on AWS EC2, which included features such as progress tracking and personalized plans.

Skills

Languages: Python, C/C++, JavaScript, HTML/CSS, SQL, Dart

Machine Learning & Data Science: Scikit-Learn, Pandas, NumPy, OpenCV, TensorFlow, PyTorch, Keras, Altair AI Studio, NLP, Transformers, LLMs, Langchain

Frameworks & Development: Flask, Django, REST APIs, WebSockets, MediaPipe, Bootstrap, Tailwind CSS, Kivy

Cloud Platforms & Systems: AWS (EC2, DynamoDB), Linux, Version Control (Git/GitHub)

Soft skills: Problem Solving, Team Collaboration, Multitasking, Organizational Skills, Adaptability

Educational Credentials

Amity University Punjab, Mohali

2022 - Present

- B.Tech Computer Science and Engineering | CGPA: **8.42**, SGPA: **9.09** (6th Sem)

Relevant Coursework: Machine Learning, Deep Learning, Computer Vision, Data Mining, Data Structures and Algorithms, Operating Systems, Discrete Mathematics, Statistical Methods, Theory of Computation, Computer Networks, Database Management, Computer Architecture

Pratap Public School, India

- *Class XII* - 89% 2021 - 2022
- *Class X* - 93.33% 2019 - 2020

Scholastic Achievements

- Flipkart GRID 7.0 Semi-Finalist, Early Careers Program (July 2025)
- Finalist, HackOrbit 2025 — Recognized for innovation and problem-solving at MITS Gwalior's flagship national hackathon (36-hour sprint).
- LeetCode 50 Days Badge (Feb 2025), LeetCode 100 Days Badge (July 2025)—For consistent daily problem-solving.
- Earned the Kaggle "Community Competitor" badge for participating in a community-hosted data science competition (April 2025).
- Introduction to Pandas Badge—Earned from LeetCode for completing Pandas-based data analysis problems and tutorials (Jan 2025).
- 97.25 Percentile (Rank: 14,087) in the Naukri.com Campus Young Turks Competition, India's largest skill contest; secured Rank 5,106 in Round 2 under the Data and AI category (Oct 2024).
- Special Mention, Altair® Data Science Contest—Recognized for excellence in data analysis, innovative problem-solving, and predictive modeling using Altair RapidMiner in a nationwide competition (Sep 2024).
- 3rd Position, Mind Maze Escapade at Cognizance, IIT Roorkee—Secured 3rd place and won a ₹5000 cash prize (March 2024).
- 3rd Position, Ideathon: Resolve to Solve by AUP, Mohali (June 2023).
- 3rd Position, Code S.O.S Coding Competition (June 2023).
- Recognized as Budding Innovators in the Venture Vault event by AUP, Mohali (May 2023).
- 2nd Prize, CyberGlyphics Comic Design Competition—Created a captivating comic using Adobe Photoshop Suite on cybersecurity at AUP, Mohali (May 2023).
- 2nd Prize, Technovation by AUP, Mohali (Nov 2022).

Value-Added Courses

- **Data Analytics Job Simulation** | Deloitte Australia (Forage)
- **Data Science & Analytics—HP LIFE Online Course** | HP Foundation
- **Generative AI Explained** | NVIDIA
- **Augment Your LLM Using Retrieval Augmented Generation** | NVIDIA
- **Machine Learning and AI with Python** (HarvardX • CS109xa) | edX
- **Foundations of Project Management**, Google | Coursera
- **Project Initiation: Starting a Successful Project**, Google | Coursera

Extracurriculars

- Coordinator for Chess Tournament at Inter-Institutional Sports Meet, Sangathan 2023.
- Participated in a walkathon organized by AUP on Earth Day 2023.
- Participated in the Campaign Against Single-Use Plastic, coordinated by AUP & Punjab State Council for Science and Technology on World Environment Day 2023.
- 2nd Runner-up in Chess Singles Tournament at Inter-Institutional Sports Meet, Sangathan 2022.
- Participated in Vigilance Week 2022, organized by AUP in collaboration with Union Bank of India & Corporation Bank.