# Uday Arora

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## SUMMARY

As a Master's student in Artificial Intelligence, I am driven to create innovative machine learning and AI solutions that connect advanced research with real-world applications. I thrive in collaborative settings, enjoy tackling complex challenges, and aim to apply my technical expertise and problem-solving mindset to deliver scalable, impactful AI and ML solutions.

## WORK EXPERIENCE

**AI Engineer Intern @ Bid Sense Team, Tata Communications**             May 2025 – July 2025

- Designed an intelligent agent system leveraging LLMs (GPT, LLaMA) with RAG pipelines using LangChain, LlamaIndex, FAISS) to automate workflow tasks such as information retrieval, summarization, and decision support for RFP documents.
- Delivered a scalable, production-ready solution using Python, Docker, AWS, and MLflow, with a Streamlit-based interface that reduced research time by 60% and improved usability for cross-functional teams.

**ML Engineer Intern @ SAE Team, Bharti Airtel**             Aug 2023 – Oct 2023

- Developed ML pipelines to analyze large-scale 5G RAN data, enabling intelligent agents to detect patterns for network optimization and automated resource allocation.
- Enhanced throughput and latency KPIs by 15% through time-series forecasting, anomaly detection, and clustering models implemented with scikit-learn, XGBoost, and TensorFlow.

## PROJECTS

**Autonomous Cleaning Robot Development**             Nov 2023 – Jan 2025

- Built an intelligent agent framework combining perception (object detection with TensorFlow, OpenCV) and decision-making, achieving 97.8% accuracy in classifying waste, spills, and household items.
- Integrated SLAM within the ROS framework to orchestrate navigation, mapping, and obstacle avoidance, enabling 98.7% coverage in cluttered environments and delivering a fully functional proof-of-concept robot.

**Heat Impact Prediction**             Aug 2024 – Dec 2024

- Designed a CNN-LSTM model in TensorFlow/Keras to predict extreme heat events with 85% accuracy, integrating spatial, temporal, and multimodal environmental data sources.
- Improved performance by 12% over baselines and developed a vulnerability index linking forecasts to social impact metrics, demonstrating scalable AI for decision support and strategy optimization.

**DeepShield**             Mar 2024

- Built an AI-powered content evaluation agent as a Chrome extension for real-time deepfake detection on Twitter and YouTube, achieving 84% accuracy with TensorFlow and OpenCV.
- Deployed privacy-preserving, on-device inference with full-stack integration (Python, JavaScript, HTML/CSS), enabling instant detection and automated user alerts without external servers.

**ECG Signal Analysis**                                           Jan 2023 – Apr 2023

- Developed anomaly detection and classification workflows in Python for ECG time-series signals, enabling intelligent agent applications in health monitoring.

- Applied modular, object-oriented design to feature extraction and analysis, improving detection performance by 18% while ensuring scalable and reusable code.

## PUBLICATIONS

**Performance Analysis of Detection Models for Depth-Aware Robotic Cleaning Systems**
Submitted to IEEE Access, Under Review, 2025 — Presents a comparative study of computer vision models for depth-aware robotic cleaning, evaluating detection performance and system integration for autonomous operation.

## EDUCATION

**Master of Science (M.S.) in Artificial Intelligence**          Aug 2025 – July 2027 (Expected)
San José State University (SJSU), San José, CA, USA
Relevant Coursework: Machine Learning, Deep Learning, Natural Language Processing, Reinforcement Learning, Cloud AI Systems

**Bachelor of Technology (B.Tech) in Computer Science and Engineering**          2021 – 2025
Vellore Institute of Technology (VIT), Vellore, India
GPA: 9.05/10
Relevant Coursework: Data Structures & Algorithms, Computer Networks, Database Management Systems, Operating Systems
Honors: SEED Grant Awardee (Autonomous Cleaning Robot Project)

## SKILLS

- **Programming:** Python, SQL, JavaScript, Java, C/C++

- **AI/ML:** TensorFlow, PyTorch, scikit-learn, Keras, CNNs, LSTMs, Transformers, Transfer Learning

- **LLMs & Intelligent Agents:** GPT, LLaMA, Hugging Face Transformers, LangChain, LlamaIndex, RAG pipelines, Prompt Engineering

- **Systems & Deployment:** API Development, FastAPI, Docker, MLflow, AWS (S3, EC2, Lambda)

## EXTRACURRICULAR & LEADERSHIP

- **Mentor – Computer Vision Team, VIT**          Oct 2024 – May 2025
  Guided first- and second-year students in AI and computer vision, mentoring them on object detection modules and prototype development for the autonomous cleaning robot project.

- **Web Developer Instructor – Robovitics**          Mar 2023 – Jun 2023
  Trained 200+ members in backend development with Node.js, Express.js, and Firebase, leading 15+ successful projects and improving participants' practical engineering and collaboration skills.

- **Organizer – Robowars, Gravitas'22 Tech Fest**          Jul 2022 – Sept 2022
  Directed the flagship robotics event with 1,000+ attendees; managed logistics, industry sponsorships (Autodesk), and outreach, increasing participation by 30% over the previous year.