

JAY CHAWLA

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MS Computer Engineering Candidate | AI/ML Engineering | Data Science | Software Engineering

PROFESSIONAL SUMMARY

Computer engineering graduate student with hands-on experience in AI/ML, data analytics, robotics simulation, and full-stack development. Built 4 machine-learning analytics modules with Python/scikit-learn, analyzed 90,000+ legal documents with NLP and clustering workflows, and delivered Streamlit dashboards, Rasa chatbot flows, Node.js APIs, and MQTT/ThingSpeak pipelines.

EDUCATION

National University of Singapore (NUS), Singapore | Aug 2025 - Present

Master of Science in Computer Engineering

The Ohio State University (OSU), Columbus, OH | Jan 2022 - May 2025

Bachelor of Science in Computer Science and Engineering | Specialization: Artificial Intelligence | GPA: 3.57/4.00

- Coursework: Artificial Intelligence, Database Systems, Data Structures and Algorithms, Computer Vision, Operating Systems, Networking, Information Security, Software Development, Web Development.

WORK EXPERIENCE

Ernst & Young | Technology Consulting Intern, Digital Transformation | Jun 2025 - Aug 2025

- Built a procurement spend analyzer using Python, Streamlit, Rasa, scikit-learn, and SAP purchase-to-pay data from 8 source tables.
- Engineered 4 ML analytics modules covering unit-price prediction, inflation analysis, plant-wise price variation, and low-value purchase anomaly detection.
- Consolidated 1,000+ procurement records through Python-based joins and cleaning logic, powering 10+ dashboard charts, tables, and chatbot responses.

Research Assistant, American Institutions and Methodology Lab | OSU | May 2024 - May 2025

- Analyzed 90,000+ Supreme Court documents using Python, pandas, NumPy, scikit-learn, matplotlib, and NLP workflows for NSF-funded research.
- Modeled high-dimensional political science datasets with PCA, K-Means, hierarchical clustering, Guided LDA, and topic modeling to identify document patterns.
- Maintained 10+ reusable cleaning and visualization scripts that improved reproducibility across document classification and legal text analysis workflows.

Lab Assistant, Engineering Education Department Lab | OSU | Aug 2024 - Nov 2024

- Created a Python order-tracking application for 2 first-year engineering courses, organizing recurring student project requests for lab staff.
- Automated 3 workflow features for order validation, request organization, and status tracking, reducing manual tracking across engineering lab procurement.

Undergraduate Teaching Assistant | OSU | Sep 2023 - Jan 2024

- Guided 50+ CSE 2321 students through data structures assignments covering graphs, recursion, asymptotic analysis, and abstract data types.

Innovation Analyst Intern | OSU and Honda | Sep 2023 - Nov 2023

- Mapped 15+ customer needs across 3 innovation sprints, supporting strategic planning, stakeholder communication, and AI-enabled improvement proposals.

PROJECTS

Learning-Based Locomotion Control for Legged Robots | NUS | Jan 2026 - Present

- Developing locomotion-control algorithms for 2 robot morphologies, quadruped and humanoid, in Isaac Lab and MuJoCo simulation environments.
- Training reinforcement-learning and policy-optimization controllers for adaptive whole-body motion across 3+ test conditions with limited demonstrations.

IoT Sensor Failure Detection and Cloud Monitoring Pipeline | NUS | Jan 2026 - May 2026

- Built an ESP32/MicroPython pipeline using MQTT, ThingSpeak, and MATLAB to classify 2 sensor states: normal and anomaly/failure.

Multi-Objective Optimization using NSGA-II | NUS | Aug 2025 - Dec 2025

- Executed NSGA-II on 4 benchmark and engineering problems, including ZDT3, crashworthiness design, MW7, and reliability-centered maintenance.
- Optimized a 3-objective crashworthiness model with 5 design variables and generated Pareto-front trade-offs across safety, cost, and constraints.

Local Discovery Platform | OSU Capstone | Jan 2025 - May 2025

- Engineered a Yelp-style platform combining 5 data types, including dining, events, weather, cost, and crowd-level signals for local discovery.
- Built Python and Node.js services with Elasticsearch to support real-time API retrieval and location-based recommendation workflows.

Applied Artificial Intelligence Projects | OSU | Aug 2024 - Dec 2024

- Completed 5 AI projects across Pacman graph search, regression analysis, Naive Bayes sentiment classification, and fMRI cognitive-state prediction.

TECHNICAL SKILLS

- Languages: Python, SQL, JavaScript.
- Machine Learning and AI: scikit-learn, NumPy, pandas, regression, classification, clustering, PCA, K-Means, Naive Bayes, Guided LDA, reinforcement learning, policy optimization, NSGA-II, anomaly detection, model evaluation.
- Data, Web, and Tools: Streamlit, Rasa, React, Node.js, REST APIs, Elasticsearch, MATLAB, Arduino, ESP32, MicroPython, MQTT, ThingSpeak, SAP purchase-to-pay data, Git.