Diya Singh

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EDUCATION

Purdue University - West Lafayette, IN

M.S. Computer Science **August 2025 – May 2027**

Areas of Interest: Artificial Intelligence, Machine Learning, Deep Learning

- **Relevant Coursework:** Algorithmic Game Theory, Data Mining, Artificial Intelligence, Data Engineering I, Parallel Computing, Theoretical CS

B.S. Computer Science, Minor in Art & Design, Mathematics **August 2022 – May 2026**

Concentrations: Machine Intelligence, Computer Graphics, Systems Software, Algorithmic Foundations *GPA: 3.75/4.00*

- **Relevant Coursework:** Data Structures and Algorithms, Advanced Algorithms, Operating Systems, Compilers, Systems Programming, Computer Networks, Computer Graphics, Probability, Linear Algebra, Numerical Methods

TECHNICAL SKILLS

Programming Languages: Python, Java, SQL, C/C++, MATLAB, Bash scripting, JavaScript
Libraries: TensorFlow, PyTorch, pandas, numpy, scikit-learn, FastAPI, SQLAlchemy, nltk, matplotlib, seaborn, Junit, React, Flutter
Tools: Docker, Git, Google Cloud Platform (GCP), Vertex AI, Azure ML, Firebase, Supabase, Unity, Figma, Hugging Face, Claude Code
Certifications: ML Specialization (DeepLearning.ai, Stanford), Introduction to ML (Kaggle), Getting Started with Deep Learning (NVIDIA), AWS AI & ML Scholar (Future AI Scientist Nanodegree)

TECHNICAL EXPERIENCE

AI & ML Automation Intern at Envita Solutions **May 2026 – Aug 2026**

- Replatformed AI-driven email classification and extraction pipeline to automate customer request record creation and database routing.
- Increased accuracy from **92% to >95%**, surpassing prior Power Automate pipeline and manual scheduling on requests.
- Replaced Power Automate flow with a robust, auditable system that reduces manual triage and surfaces edge cases for human review.

Product Development Intern at FractalHive **Jul 2025 – Sep 2025**

- Delivered responsive audit web app for an education sector client, reducing manual processing time by 30% through streamlined workflows.
- Designed end-to-end database schema with validation and multi-level access controls; built role-specific dashboards for relationship managers and underwriters in a B2B commercial banking platform.

Discovery Undergraduate Interdisciplinary Research Internship (DUIRI) **Jan 2025 – Present**

- Engineered AI-powered Walkability Assistant app informed by analyzing **2M+** user reviews with **LDA topic modeling** in Python.
- Led user-centered design and prototype testing, integrating feedback resulting in a **25%** increase in user engagement.

Machine Learning Intern at Haleon- Centrum Multivitamins **Jul 2024 – Aug 2024**

- Architected and built an end-to-end facial recognition diagnostic tool for nutrient deficiency detection, owning **full-stack design** including **system architecture**, **Firebase database schema**, and **ML pipeline in Flutter and Python**.
- Iterated in agile sprints incorporating weekly stakeholder feedback, improving feature accuracy by **20%**.

Machine Learning Intern at NRoad **May 2024 – Jul 2024**

- Developed a finance document parsing model and REST API using **microservice architecture**, **FastAPI**, **SQLAlchemy**, and **MySQL**.

Undergraduate Researcher, Purdue University - Dr. Wenzhuo Wu's Lab **Aug 2023 – Jan 2024**

- Developed **TinyML** models for wearable sensors to track athletic performance and recovery; built a **Unity**-based digital screen printer model that reduced resource waste by **30%** and testing time by **35%**.
- Presented a research poster at Purdue research expo showcasing advancements and attracting scholarship representatives.

Head Undergraduate Teaching Assistant, CS180 Problem Solving & OOP, Purdue University **Aug 2025 – Present**

- Teaching Friday classes to over 400 students, leading lab sessions, grading, and coordinating student concerns; mentored students in debugging, code optimization, and software engineering best practices during and outside of office hours.
- Served as Student Success TA (prior semesters), providing individualized academic guidance, study strategies, and exam preparation.

Undergraduate Teaching Assistant, Purdue University **August 2023 - Present**

- *CS381 Analysis of Algorithms(Spring 2026):* Proctored exams and graded homework for an upper-level algorithms course; led office hours and help sessions covering asymptotic analysis, dynamic programming, graph algorithms, and proof-based reasoning.
- *CS182 Discrete Mathematics (Spring 2024):* assisting with problem-solving techniques and theoretical concepts, office hours, and grading.

Machine Learning Intern at Indium Software Ltd. **Jun 2023 – Aug 2023**

- Benchmarked 10 Hugging Face LLMs for Finance and Healthcare domains; authored evaluation report that improved model selection decision-making accuracy by 25%.

PROJECTS

Bloom: AI-Powered PCOS Management iOS App (GitHub) **May 2026**

- Built a cycle-aware iOS app in React Native + Expo integrating Gemini 2.5 Flash to generate personalized daily meal and workout plans tuned to PCOS phase, pantry stock, and real equipment constraints.
- Implemented cycle prediction using exponential decay-weighted averaging across 6 prior cycles with confidence intervals; supports Flo app data import via JSON and plain-text parsing.
- Architected single daily AI call with graceful static fallback, keeping the app functional offline and within free-tier API limits.

Animal Detection & Segmentation: Fine-Tuned Models Under Augmentation & Corruptions (GitHub) **Dec 2025**
- Fine-tuned and benchmarked YOLO, Mask R-CNN, and RT-DETR on a 9-class animal subset of Open Images (7,850 train images) under systematic Gaussian blur and JPEG compression corruptions at three severity levels.
- RT-DETR achieved the highest baseline mAP@0.5 (0.788) and lowest degradation under high-blur conditions (−11.2% vs. −17.7% for YOLO); found JPEG compression had negligible impact across all models while Gaussian blur caused significant, severity-proportional drops.

Flip7 AI Agent (GitHub) **Dec 2025**
- Designed a dynamic programming–based hit/stay agent for the Flip 7 card game that computes deck-weighted expected values at each state using memoization, selecting actions via argmax over stay value and expected hit value.
- Pivoted from RL Q-learning after identifying multi-agent reward instability; DP agent matched human win rate (50%) and average score (~19.5 pts/round) with a comparable bust rate of ~30.8% across 182 evaluated rounds.

Live Streaming Application **Apr 2025 – May 2025**
- Engineered real-time live streaming system using Docker containers, hosting public server on Google Cloud Platform VM.
- Automated performance analytics and efficient pcap data processing with Python under different network conditions.
- Produced technical reports with statistical analysis and data visualizations (matplotlib, seaborn) communicating findings stakeholders.

ReadCoin – HackMIT Hackathon Finalist (GitHub) **Sep 2024**
- Developed a reading app using real-time eye-tracking to enhance focus and engagement by dynamically adjusting content through auto-scroll and providing incentives for every line read using React, Python and web socket communication.

PUBLICATIONS
"AI-Driven Walkability Ecosystem: Enhancing Public Health through Personalized, Social, and Adaptive Mobility Solutions" Manuscript in preparation, DUIRI - Purdue University.

LEADERSHIP AND INVOLVEMENTS
- **Ford Motors Company Scholarship, CS Corporate Partners Scholarship** Purdue University Department of CS, 2024, 2025
- **Purdue Pillars of Excellency Scholarship: Teaching and Scholarship,** 2024

BoilerMake Hackathon Executive Board – Design Team Lead **Feb 2023 – Present**
Women in Science Program – Jandos Scholar, Mentor, & Social Media Committee **Aug 2022 – Present**
Memberships: Rewriting The Code, CodePath