

DIPANSHU SINGH

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PROFESSIONAL SUMMARY

Result-driven Computer Science professional with 3+ years of experience in building and deploying machine learning systems, autonomous robotics solutions, and software products. Demonstrated success in reducing operational overhead, improving prediction accuracy, and delivering high-impact solutions using Python, PyTorch, ROS, and full-stack frameworks. Strong focus on system-level thinking, AI-driven automation, and product usability.

EDUCATION

ARIZONA STATE UNIVERSITY

Bachelor of Science, Computer Science | May 2024

Master of Science, Computer Science – Artificial Intelligence | May 2025

PROFESSIONAL EXPERIENCE

Astro Seed - Tempe, AZ

August 2023 – May 2024

- Designed an autonomous drone system for plant health analysis using ROS, DroneKit, and Gazebo, reducing manual inspection time by 75%.
- Built real-time drone simulation framework in Gazebo/ROS for diverse terrain testing, increasing system fault-tolerance by 40%.

Technology Consultant – Tempe, AZ

February 2025 – May 2025

- Resolved 300+ high-priority classroom tech issues across ASU's campus, reducing system downtime by 85%.
- Collaborated with a cross-functional team of 30+ consultants, maintaining SLA compliance and improving client satisfaction by 90%.

Teaching Assistant - Ira. A Fulton School of Engineering – Tempe, AZ

August 2021 – December 2021

- Co-led academic sessions, enhancing student engagement and understanding through interactive lectures and discussions. Provided academic support and feedback, contributing to elevated student performance and class management.

PROJECTS

Interactive AI Flashcard Generator (In progress)

- Developing a web application that transforms raw text or uploaded PDFs into interactive flashcards using Gemini API for context-aware summarization and Q&A generation.
- Enables students to convert study material into personalized, spaced-repetition-ready flashcards in seconds, improving retention and study efficiency.
- Built with Firebase, Gemini API, and React, with file parsing, intelligent chunking, and memory optimization for large documents.

Agentic AI for Multimodal Tabular Data Extraction

- Engineered AI system to automatically detect, extract, and structure multimodal tabular data from web sources while preserving relationships with charts and images.
- Achieved 91% structure preservation accuracy across diverse formats and reduced manual extraction time from 3 hours to under 5 minutes.
- Integrated rule-based validation and adaptive retraining to maintain consistency in web scraping under layout drift.

Crime Analysis: Identifying Risk Areas

- Engineered a spatial graph neural network (GNN) using GCNConv layers over 117 ZIP-code nodes, achieving 86.96% test accuracy and 87% F1-score in predicting crime hotspots.
- Pre-processed 100K+ crime records into a time-aware, ZIP-aggregated dataset with daily temporal features, boosting model stability and learning generalizable city-wide crime patterns.

Tic-Tac-Toe Game

- Created an advanced Android/iOS Tic-Tac-Toe game implementing Minimax algorithm with alpha-beta pruning for optimal AI gameplay with AI win rate of 95%.
- Engineered multiple difficulty levels, local data storage, and Bluetooth multiplayer functionality. Achieved a highly efficient AI opponent capable of unbeatable play in hard mode, while providing an engaging user experience across all skill levels.

Context Monitoring App

- Developed a real-time health monitoring Android app using Kotlin, leveraging smartphone sensors for detecting heart/respiratory rates.
- Stored and analysed symptom trends locally with RoomDB, allowing users to track and share health logs with clinicians.

SKILLS

Languages: Python, C, C++, JavaScript, Java, Kotlin, Bash, SQL

AI/ML: PyTorch, Keras, NumPy, Pandas, OpenCV, Scikit-learn

Web & App Development: Flutter, HTML/CSS, Firebase, REST APIs

Tools & Cloud: Git, AWS (S3, EC2), Docker, Jupyter, Tableau, Agile/Scrum

Databases: SQLite, Firebase, PostgreSQL

Awards: Dean's List Scholar: Fall 2020 to Spring 2024

Certificates: Artificial Intelligence Virtual Experience - **Cognizant**, Computer Vision Program - **CMUCS**

COURSEWORK COMPLETED

Artificial Intelligence, Machine learning, Data Visualization, Computer Network Security, Data Processing at Scale, Operating Systems, Software Engineering, Data Structures and Algorithms, Applied Data Analytics, Mobile computing, Knowledge Representation, NLP, Cloud Computing.