

MANPREET KOUR

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Education

Delhi Technological University, Delhi

Bachelor of Technology in Information Technology

2022 – 2026

9.48/10 CGPA

Experience

Goldman Sachs

May – July, 2025

Summer Analyst

Bangalore, India

- Engineered a **REST API** and **ReconServices** module with field-level JSON validation and logging, reducing data discrepancies between **DealCloud** and **Salesforce** by **95%+** and cutting reconciliation time by **70%**.
- Achieved **99.5%** end-to-end data integrity using Java Spring Boot, Salesforce REST APIs, and the DealCloud SDK.

AIMS-DTU

June – July, 2024

Research Intern

Remote

- Achieved **92.4%** **segmentation accuracy** in seafloor habitat mapping using **Mask R-CNN** and hyperspectral imagery.
- Integrated **Panoptic FPN** into Mask R-CNN, boosting detection precision by **15%** for marine biodiversity classification.

Projects

IoT & AI-Powered Smart Waste Collection System | *Firebase, Streamlit, Twilio, Dijkstra's Algorithm*

🌐 [Website](#)

- Deployed AI-powered system across **12 smart bins** using ultrasonic, tilt, temperature, and GPS sensors; implemented **Dijkstra's Algorithm** for optimized routes, reducing fuel use by **40%** and improving response time by **35%**.
- Built a real-time Streamlit dashboard with **Twilio alerts**, Firebase backend, and live bin tracking; adopted by **150+ municipal users**, cutting overflow incidents by **60%** in critical waste zones.

AI-Powered Trip Planner | *React, Google Cloud Console, Vercel*

🌐 [Website](#)

- Led development of AI Trip Planner using Google APIs, generating **500+ personalized itineraries** and launching **Adventure Mode** for group travel, attracting **250+ live users**.
- Improved load time by **30%** via API caching and optimized rendering; boosted user retention by **40%** through features like **history tracking** and **secure authentication**.

Technical Skills

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

Frontend: React, Angular, HTML, CSS, JavaScript

Backend: Node.js, Express.js

Databases: Microsoft SQL Server, MongoDB, Oracle, Firebase

Cloud & DevOps: Amazon Web Services (AWS), Git, GitHub, CI/CD, JIRA

CS Fundamentals: Object-Oriented Programming (OOP), Data Structures & Algorithms (DSA), Database Management Systems (DBMS), System Design, Computer Networks, Operating Systems

Patent & Publications

Patent | **BinGenie – Vision-Based Smart Waste Classification System** | *Granted by Govt. of India*

Invented a vision-powered smart bin for public waste segregation using a custom-trained CNN model (**EcoSort-WastePro**) achieving **99% test accuracy** on the **WastePro** dataset (**13.4k images**, **250+ views** & **50+ downloads** on Kaggle), integrated with real-time sensors and Raspberry Pi for deployment in public spaces like airports and malls.

Research Paper | **Waste Classification with CNNs** | *Springer ICT4SD Conference*

Conducted a comparative study on deep CNN architectures for waste classification, showcasing **EfficientNetB0's** superior performance with a **93.86% test accuracy**, contributing to sustainable AI solutions for smart urban ecosystems.

Research Paper | **From Pixels to Places: A Multimodal AI Framework for Personalized Travel Experiences** | *IEEE*

Proposed a multimodal AI framework integrating **BERT-based sentiment analysis**, **CNN-driven visual aesthetic scoring**, and **geospatial optimization** with **ILS algorithm** optimization to generate personalized travel itineraries.

Achievements

- Awarded **PMSSS 2022 Scholarship** by the Government of India for ranking in the **top 1%** nationwide.
- Secured **All-India Rank 76 (Global Rank 309)** in the 24-hour international coding contest **IEEEExtreme**.
- Outperformed as a **3-Star Coder** on GeeksforGeeks, demonstrating consistency and algorithmic expertise.
- Ranked **1st** among 160,000 participants in the 12th annual state examination (J&K Board)