Harpreet Kour

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Education

VIT Bhopal University,	Bhopal-Indore Highway
Integrated M.Tech in AI Computer Engineering	Kothrikalan, Sehore Madhya Pradesh – 466114
CGPA: 9.15	2022 - 2027

Projects

SmartHelmet-Alcohol_and_Drowsiness_Detection (August 2024 - July 2025)

- **Description**: Smart Helmet Safety System that detects alcohol consumption and drowsiness in real time to enhance rider safety through sensor-based alerts.
- **Role**: Built an embedded system with alcohol and motion sensors, alert mechanisms, and real-time detection capability.
- **Technologies Used**: Arduino (Uno/Nano), MQ-series Alcohol Sensor, MPU6050 IMU, C++ (Arduino IDE), Serial Communication, Basic Electronics, Fritzing.

Predicting-E.-coli-Presence-and-Resistance-in-Environmental-Samples-Using-Machine-Learning-Models (April 2025)
(forthcoming in a future issue of African Journal of Biomedical Research)

- **Description**: Built ML models to predict E. coli presence and antibiotic resistance in environmental samples.
- **Role**: Data preprocessing, feature engineering, model training/evaluation, and performance analysis.
- **Technologies Used**: Python, Jupyter Notebook, scikit-learn, pandas, numpy, matplotlib, seaborn.

QRStatus (August 2025)

- **Description**: Developed a QR-enabled real-time faculty availability system that lets students check live status via unique QR codes, minimizing unproductive visits and improving campus efficiency.
- **Role**: Full-stack developer designing and implementing FacultyQRStatus, including dashboard, WebSocket updates, QR code features, responsive UI, and backend APIs for seamless real-time, cross-device functionality.
- **Technologies Used**: Frontend: React, Vite, Tailwind CSS, JavaScript QR Scanner; Backend: Node.js, Express.js, WebSocket (ws package); QR Code Generation: qrcode npm package; Database: JSON storage (extendable to MongoDB); Deployment: Replit and Node.js hosting platforms.

Transform-Knowledge-into-Memory-Palaces (September 2025)

- **Description**: Automated backend test suite ensuring end-to-end functionality of the Memory Palace API from document upload to knowledge extraction.
- **Role**: Developed and maintained Python-based API tests validating document processing, AI concept extraction, and memory palace generation.
- **Technologies Used:** Python for automated API testing, with minor use of JavaScript for supporting functions.

Certification

Deloitte Australia - Technology Job Simulation (August 2025)

- **Description**: Completed a technology job simulation project focused on solving real-world business challenges through innovative tech solutions.
- **Technologies Used**: Data Structures, Formal Communication, Planning, Programming, Python, Software Development Processes

Artificial Intelligence for Beginners (January 2025)

- **Description**: Completed an introductory project on Artificial Intelligence concepts, focusing on foundational AI techniques and applications
- **Technologies Used**: Python, Jupyter Notebook, NumPy, pandas, scikit-learn, and basic machine learning algorithms.

Additional

Technical Skills: Python, Java, C++, SQL, HTML/CSS, TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy, Jupyter, Team Management, Decision Making, Git, GitHub, AWS, Django.

Academic Achievements:

- Participated in HackRx 4.0 Hackathon by Bajaj Finserv, developing an Android app for forgery document detection using machine learning.
- Completed NPTEL Cloud Computing course with Elite + Silver rank, demonstrating proficiency in cloud technologies.
- Attended one-week AI innovation program focused on building real-world AI applications.

Volunteer Experience:

- **AI Club – VIT Bhopal University**: Volunteered to promote AI awareness by organizing workshops, seminars, and collaborative events.
- **Mood Indigo – IIT Bombay**: Supported event outreach, promotion, and coordination for India's largest cultural festival.