

## Education

- Indian Institute of Technology, Mandi** 2023 – 2027  
*B.Tech in Bioengineering; CGPA: 8.02/10* Mandi, HP
  - Relevant Coursework:** Data Structures & Algorithms, Machine Learning, Introduction to Python and Data Science, Probability and Statistics

## Experience

- HIMPACT LAB, IIT Mandi** Aug 2024 – Dec 2024  
*Frontend Developer (Intern)* Mandi, HP
  - Initial UI Development:** Built the first production-ready UI for **Incline** using Django templates, HTML/CSS, and vanilla JS; ensured responsive layouts across all devices.
  - Backend Integration:** Integrated Leaflet.js-based interactive maps into the Django backend; enabled real-time server-side plotting and dynamic data retrieval on map clicks via custom endpoints.
  - Project Handoff:** Delivered the initial production-ready version before handing it over to a new developer; site live at [incline.iitmandi.ac.in](http://incline.iitmandi.ac.in).

## Technical Skills

- Languages:** Python, C++, JavaScript, Perl
- Frameworks:** React, ROS, TensorFlow, Django, Streamlit
- Tools:** Git, Linux, Docker, SolidWorks, Raspberry Pi, Arduino
- Concepts:** Sensor Fusion, Kalman Filtering, Data Preprocessing, Control Systems

## Projects

- Vaya – Your Local Healthcare Connection** [GitHub](#)  
*Python, Django, Django Channels, Groq API (Llama3), RAG* Aug 2025 – Present
  - Full-stack Healthcare Platform:** Designed a comprehensive platform for doctor discovery, appointment booking, and digital report handling. Integrated secure authentication for patients and doctors.
  - AI-Powered RAG System:** Devised a two-step RAG pipeline that retrieves verified doctors from the database prior to generating AI-based suggestions, minimizing hallucinations and improving relevance.
  - Real-time Communication:** Enabled encrypted, real-time messaging between patients and doctors via Django Channels.
- Maze Solver – Interactive AI Pathfinding Visualizer** [GitHub](#)  
*Python, Django, BFS/DFS/A\*/Dijkstra, Reinforcement Learning, Docker* Jul 2025
  - Algorithm Coverage:** Visualized and compared 5 core pathfinding algorithms (BFS, DFS, A\*, Dijkstra, IDDFS), allowing users to explore traversal strategies and efficiency in real time.
  - Scalable Deployment:** Orchestrated a robust deployment pipeline using Docker and GitHub Actions for CI/CD. Live at [mazesolver-5b66.onrender.com](http://mazesolver-5b66.onrender.com).
- AquaSweep – Underwater Rover with Edge and Motion Detection** [GitHub](#)  
*Python, OpenCV, Flask, ROS, Arduino, Raspberry Pi* Jan 2025 – Jun 2025
  - Live Streaming + UI:** Engineered an MJPEG-based camera pipeline delivering ~20 FPS over LAN with <200ms latency using Flask sockets; supported stable underwater feedback.
  - Algae Detection with Edge AI:** Developed modular OpenCV pipelines incorporating edge, motion, and algae detection; achieved ~93% detection accuracy in lab settings.
  - Depth Stabilization:** Controlled 8 thrusters via a ROS-Arduino interface; fused IMU and Bar30 data through Kalman filtering to maintain a stable depth hold ( $\pm 3$ cm error).

## Leadership & Achievements

- Hospitality Head, Exodia: Led 30-member team for IIT Mandi's cultural fest; managed 1000+ attendees and logistics.
- Robotics Club, IIT Mandi: Mentored juniors in robotics design, automation; contributed to project builds and contests.
- Selected for semester exchange program (TU Darmstadt) on the basis of merit in a batch of 450+ students.
- Secured Top 5 rank in Arduino Hackathon during intra-college techfest.