



**Kapil Mulay**  
Bachelor of Technology  
in Engineering Physics  
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EDUCATION

| Degree                 | Institute/Board                       | CGPA/Percentage     | Year      |
|------------------------|---------------------------------------|---------------------|-----------|
| Bachelor of Technology | Indian Institute of Technology, Ropar | 9.16 (Till 4th Sem) | 2024-2028 |
| Senior Secondary       | Central Board of Secondary Education  | 88.17%              | 2024      |
| Secondary              | Central Board of Secondary Education  | 96.2%               | 2022      |

EXPERIENCE

- **Dhananjay Lab for Education Design [Certificate]**

*Junior Developer under Dr. Sudarshan Iyengar*

– Implemented a research paper on background authenticity detection using Python, CNNs, and feature extraction techniques.

– Trained a custom model for real vs. fake background classification; converted the model to TFLite for deployment.

– Built a frontend interface using React, Vite, and TypeScript to enable real-time inference in the browser.

– Integrated YOLO and MediaPipe for object detection and pose estimation as part of the vision pipeline.

– Packaged the full-stack application for distribution using Inno Setup.

November 2024 - January 2025

IIT Ropar
- PROJECTS
- **Maze Solver – Autonomous Maze-Navigating Micromouse**

*Python, C++, ROS2, ESP32*

– Implemented a Flood-Fill based navigation system in Python and C++ for autonomous maze solving with dynamic wall updates and real-time rerouting.

– Designed a multi-run traversal strategy (explore, return, optimize) with loop removal, diagonal path compression, and linear regression-based feasibility scoring to select the fastest path.

April 2025 - September 2025

**GitHub | Simulation**

• **NeuroGAN – ML Based Medical Image Synthesis Platform**

*PyTorch, FastAPI, Next.js, Hugging Face Spaces, GitHub Actions*

– Developed a DCGAN-based system trained on 10,000+ brain MRI images for synthetic tumor image generation.

– Implemented latent-space interpolation (LERP/SLERP) with an interactive interface for exploring GAN latent spaces.

– Built and deployed a full-stack application using FastAPI, Next.js, Hugging Face Spaces, and Vercel with automated CI/CD.

January 2026 - May 2026

**GitHub | Demo**

• **HydroSense – Cloud-Native IoT Water Quality Monitoring System**

*TypeScript, Next.js, Node.js, MQTT, MongoDB Atlas, Prisma, HiveMQ Cloud*

– Engineered an end-to-end IoT platform for water quality monitoring, ingesting real-time sensor data through MQTT.

– Built a cloud-native data pipeline with HiveMQ Cloud, MongoDB Atlas, and Prisma for persistent storage and analytics.

– Integrated ML-based water potability prediction and automated deployment on HF Spaces through GitHub Actions CI/CD.

January 2026 - May 2026

**GitHub | Website**

• **Grabbit – Full-Stack E-Commerce Platform**

*Laravel, MySQL, Vite, PHP*

– Implemented user authentication, inventory management, and order processing workflows.

– Designed a relational database schema in MySQL to manage users, products, orders, and transaction records.

– Integrated RazorPay gateway and automated emails to support secure checkout, order confirmations, and user notifications.

September 2022 - July 2023

**GitHub | Website**

• **Other Projects: 5-Stage Pipelined MIPS32 Processor [GitHub], ZenoVerse(Blockchain + Computer Vision)[GitHub]**

TECHNICAL SKILLS

• **Programming Languages:** C/C++, Python, JavaScript, TypeScript, PHP, Solidity

• **Tools & Frameworks:** Linux, Git, GitHub, Colab, FastAPI, PyTorch, NextJS, Laravel, Hardhat, ROS2

KEY COURSES TAKEN

• **CSE & Maths:** Algorithm & Data Structures, Linear Algebra, Advanced Calculus, Probability and Stochastics

• **Electrical:** Signals and Systems, Digital Circuits, Control Theory

POSITIONS OF RESPONSIBILITY

• **Assistant Internship Coordinator (SDE)**, Career Development and Placement Cell, IIT Ropar

May. 2026 - May. 2027

• **Deputy Contingent Lead**, Representing IIT Ropar at Inter IIT Tech Meet 15.0

May. 2026 - Feb. 2027

• **Coordinator, AI Club & Software Community**, Board of Science and Technology, IIT Ropar

May. 2025 - May. 2026

• **UG Mentor**, ISMP, IIT Ropar

May. 2025 - May. 2026

MISCELLANEOUS

• **Top 7% Merit**, IIT Ropar

Received the Top 7% Merit Prize from the institute in 2nd and 3rd semesters.

2025

• **Inter IIT 14.0**, IIT Patna

Secured 10th and 11th places in ISRO(AI) and Adobe problem statements. Represented IIT Ropar at the Engineer's Conclave.

2025

• **Technoxian 2025**, Noida

Represented IIT Ropar in the maze-solver challenge at Technoxian 2025 held in Noida Stadium.

2025