



# Jugal Alan

Master of Technology  
in Artificial Intelligence  
Indian Institute Of Technology, Ropar

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## EDUCATION

Degree	Institute/Board	Year
Master of Technology	Indian Institute of Technology, Ropar	2024-2026
Bachelor of Engineering	Vishwesvaraya Technological University	2019-2023
Senior Secondary	Central Board of Secondary Education	2019
Secondary	Central Board of Secondary Education	2017

## PROJECTS

- Multi UAV Flood Area Coverage and Coordination** July 2025 - present  
*Master's Thesis Project - Dr. Shashi Shekhar Jha* Github
  - Developing a real-time multi-drone system to fuse RGB imagery and pose data into continuously updated stitched orthophotos of flood-affected regions.
  - Investigating adaptive coordination strategies where drones dynamically switch roles based on segmentation confidence.
- Papaya Seed Adulteration Detection in Black Pepper** Jan 2025 - May 2025  
*Agricultural Cyber Physical Systems* Github
  - Built and annotated a custom dataset of 1,277 high-resolution images (pure black pepper, pure papaya seed, adulterated in varying quantity) to train and validate a YOLOv8s object detector.
  - Achieved 88.99% mean seed detection accuracy (MSDA) on adulterated test samples, enabling reliable localization of individual pepper and papaya seeds in real time.
- NGO Management System** 2024  
*Freelance* Github
  - Created a functional prototype that can be utilized by NGOs to manage their internal operations more effectively.
  - Built backend logic using PHP to handle CRUD operations for various modules. Structured the MySQL database to efficiently store and retrieve NGO-related data.

## EXPERIENCE

- GlowTouch Technologies** Feb 2023 - May 2023  
*Intern* Mangalore
  - Worked alongside the operations team as a web advisor for hostgator.com, a web hosting platform.
  - Debugged deployment, cloud hosting and domain configuration for 40% of daily US based clients.
  - Recognized as the overall top performer among graduate engineering trainees.
- Take It Smart PVT LTD** Sep 2022  
*Intern* Bangalore
  - Led a 4-person team to create a desktop application that utilizes convolutional neural network to colorize grayscale images and detect objects using yoloV4.
  - Worked on an experimental project focused on classifying different algorithms based on their performance to accurately predict heart disease in patients.

## TECHNICAL SKILLS

- Simulation & Robotics:** AirSim, Gazebo, ROS2, Stable-Baselines3
- Programming Languages:** C/C++, Python, Bash, JavaScript
- AI & Machine Learning:** Numpy, Pandas, Scikit-learn, PyTorch
- Computer Vision:** OpenCV, YOLOv8, Visual SLAM
- Tools & Technologies:** Git, Flask, Docker, PostgreSQL

## KEY COURSES TAKEN

- CSE:** Algorithm & Data Structure, Operating System, DBMS, Computer Networks
- Maths & Others:** Machine Learning, Deep Learning for Computer Vision, Cyber Security, NLP

## POSITIONS OF RESPONSIBILITY

- Teaching Assistant,** Tinkering Lab (GE107), IIT Ropar July 2025 – Present
- Class Representative,** Mtech AI, IIT Ropar July 2024 - Present

## MISCELLANEOUS

- Graduate Aptitude Test in Engineering(GATE) - Computer Science,** Ranked in the top 1 percent in India 2024
- Publication - IJCRT,** Image Colorization and Detection Using Machine Learning 2023
- Certifications - FreeCodeCamp,** Scientific Computing with Python, Relational Database, Responsive Web Design 2022
- Naval Cadet Corps (NCC) - Junior Division,** Served two years in India's voluntary tri-service youth organization 2017