



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	Visvesvaraya 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.
- **Pixel2Prescription** Sep 2025 - Nov 2025
Natural Language Processing **Github**
 - Developed a vision foundational model to classify plant species and detect diseases leveraging large-scale plant imagery and self-supervised pretraining.
 - The model uses ViT for visual classification front-end and is linked to a knowledge base/language model back-end which generates farmer-friendly diagnostic reports and treatment recommendations.
- **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.

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

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