Ojasva Goyal

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Education

Birla Institute of Technology and Science Pilani - Pilani Campus India
Bachelor of Engineering in Civil + Minor in Data Science, CGPA 7.63/10 *October 2021 – 2025*

Fields of Interests

Deep Learning, Machine Learning, Artificial Intelligence, Business Intelligence, Research, Entrepreneurship

Technical Skills

Languages: Python, C, R, SQL, HTML, CSS
Libraries & Frameworks: PyTorch, Tensorflow, Keras, Numpy, Pandas, OpenCV, DjiTellopy
Softwares: Tableau, Matlab, Metabase, Robot Operating System (ROS), Gazebo, Mission Planner, Revit
Operating Systems & Editors: Windows, Linux, VSCode, Git, Latex
Subjects/Electives: Foundation of Data Science, Machine Learning, Deep Learning, Applied Statistical Methods, Generative AI, Environmental Sustainability Venture, New Venture Creation

Publications and Projects

Detecting diverse wheat rust strains with enhanced accuracy using advanced deep learning approaches

- **First author** of the paper, where we're proposing a **state-of-the-art DL architecture** for detecting wheat rust and **novel wheat rust dataset.** The paper is **currently under review** in a journal **(Impact Factor:- 7.7)**.

Integrating Deep Learning for Visual Question Answering in Agricultural Disease Diagnostics: Case Study

- **Lead author** of the paper, published in **Scientific Reports**, where we've developed a **deep learning and Visual Question Answering (VQA) model** for wheat rust detection, achieving 97.69% accuracy with a **fine-tuned ResNet and enhanced VQA via BLIP.** Implemented federated learning for lightweight model integration in mobile and drone platforms. | Paper Link

Enhancing Image Clarity through CycleGAN-based Dehazing | *Deep Learning* March 2024 – April 2024

- Developed a **CycleGAN model for image dehazing**, improving image clarity and visual quality.
- Improved model performance using data augmentation techniques, leading to more generalized results.
- Implemented the model from scratch without using pretrained models, showcasing a deep understanding of the underlying principles. | Project Report

CNN-Based Sound Classification for Multi-Class Recognition | *Deep Learning* January 2024 – March 2024

- Designed a 6-layer CNN model for classifying 13 distinct sound classes, experimenting with architectures like **EfficientNet, ResNet, DenseNet, and MobileNetV2**.
- Implemented preprocessing techniques using libraries such as librosa to generate Mel spectrograms, facilitating the CNN-based classification process. | Project Report

Swarm-Based Object Tracking UAV In Indoor Environments November 2022 - July 2023

- **Lead developer** on the project, creating an object detection and tracking system for UAVs in indoor environments under Dr. G S S Chalapathi's supervision.
- **Secured INR 50,000** funding from AUGSD, BITS Pilani for the project and developed AI-based algorithms for swarm systems, autonomous planning, state estimation, and controls. | Project Report

Experiences

Business Data Analyst | House of Vaaree July 2024 – December 2024

- Developed a **sales forecasting model** using the Temporal Fusion Transformer (TFT), enhancing prediction accuracy for sales and inventory trends. Designed and implemented **portfolio health monitoring dashboards** using **SQL, Metabase and Tableau**, enabling efficient tracking and reducing analysis time by **40%**. Conducted **root cause analysis (RCA)** for underperforming SKUs, identifying actionable outcomes, that **increased profitability by 15%** in specific product categories.

Summer Research Intern | **Ministry of Education, Government of INDIA** May 2024 – July 2024

- Conducted research on **Panoptic farm segmentation using satellite image time series** at **CoE: AI for Agriculture**, BITS Pilani, leading to the implementation of the model for Indian districts. This work **secured further government funding** for advanced research and deployment.

BIM Researcher and Consultant | **The University of Auckland** July 2023 – August 2023

- Worked with **Hynds Pipe Systems Ltd**, which manufactures and supplies a comprehensive range of products for drainage, watermain, environmental, and rural applications.
- My work was to study the New Zealand business climate and the obstacles in implementing BIM there and provide the company with relevant data to decide on how to implement BIM in its operations.

Summer Robotics Intern | **P.N.T. Robotics & Automation Solutions, LLP.** May 2023 – July 2023

- Researched on the navigation of **MAV in GPS-denied environments**.
- Engineered robotic arm simulations using MoveIT, increasing precision for automated tasks; **integrated ArUco Markers** for enhanced robot localization, improving positioning accuracy in dynamic environments. | Special Recognition for work done !!

Positions of Responsibility

Vice-Captain, Team Robocon May 2023 – July 2024

- Led the development of **autonomous quadcopters** for indoor navigation and disaster management, **set up a new state-of-the-art lab**, and **raised INR 1,00,000**. | Team Website

Head of Events, CRISS ROBOTICS | *All-terrain Autonomous Mars Rover Team* May 2022 – May 2024

- Organized kernel events, **'Robots at War' and 'Drone Racing'** at Apogee with a **cash prize of INR 2,00,000+**, and fostered sponsor collaborations, promoting team growth and societal impact. | Team Website

Mentor, Peer Mentorship Program, BITS Pilani (PMP) September 2022 – December 2023

- Mentored **1000+ freshers from the batch of 2022** at BITS Pilani, aiding in their adaptation to the new environment and addressing academic, mental health, and other challenges. Member of the AUGSD Team of PMP BITS Pilani.

Honours and Certificates

Secured **1st Place** at ASCE CISSC-2025 International Conference February 2025

- Developed an AI-powered UAV crop disease diagnostic system integrating deep learning, Federated Learning, and Agentic AI for smart city agriculture.

Received **Innovator of the Year** award from BITSAA through Mantra Leadership Awards 2024-25 February 2025

Secured a spot in Top 20 in Hackathon 7.0 organised by Cisco's thingQbator December 2024

Secured 166th rank out of 75,000 participants in Amazon ML Challenge 2024 September 2024

Environmental Sustainability Ventures by The Sustainability Mafia July 2024

- **Founded ePlast**, a plastic recycling startup, as part of course at BITS, gaining hands-on experience in venture creation.
- Engaged with industry leaders and VCs, **got selected for Microsoft for Startup's Founders Hub**, Nasscom Foundations's **thingQbator Prototyping Stage (top 55 teams out of 1700+ applicants)**, and developed skills in building financial and business models, product roadmaps, and the product itself.| Pitch Deck

Secured 1st position in Nucleus: The Tech Show organized by BITS-TEC of DST, GOI February 2024

- Won a cash prize of INR 10,000.

Secured 2nd position in Prototype:- Project Presentation in Apogee 2023 at BITS Pilani April 2023

- Won a cash prize of INR 9,000.

Volunteering Experience

Outreach Intern at "THE BARABARI PROJECT"

- The Barabari Project is a tech mentorship program for candidates from underprivileged communities to help them become job-ready.

Student Volunteer at "BITSAA GLOBAL MEET 2023 JAIPUR"

- Being part of the Program Management Committee and Technical Committee, it was a great experience organizing the events like "BITSians in Social Arena", "Zara Hat Ke", and "Nurturing Leadership" with 1000+ registrations from across the globe.