



Rishabh Kumar Parashar

M.Tech Mechanics and Design Engineering - TA

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Degree	University/Institute	Year	CGPA/Marks(%)
M.Tech Mechanics and Design Engineering - TA	IIT Hyderabad	2025	8.38
B.Tech	VIT-AP University	2021	7.56
XII (CBSE)	Kendriya Vidyalaya Along, Arunachal Pradesh	2014	70.80%
X (CBSE)	Govt. Higher Secondary School Along Arunachal Pradesh	2016	9.20

WORK EXPERIENCE

AKSI AI Aerospace Pvt. Ltd | ASSOCIATE ENGINEER (INTERNSHIP) 8/2024 - Present

Project 1: Monocular Depth Estimation and Swing Angle Detection for UAV Payload Stabilization

- Developing a vision-based system to estimate swing angle of suspended loads using a low-cost vision system
- Implementing depth estimation using MiDaS to infer distance information from monocular RGB images
- Developing payload tracking via keypoint detection and applying trigonometric pose estimation to calculate swing angle

Project 2: Vision-based Navigation for Military Cargo Drones in GPS-denied Environments (In Progress)

- Developing a vision-based navigation system using VO and SLAM for autonomous drones in GPS-denied areas.
- Integrating the system with ROS for modular development and testing in Gazebo simulation.
- Currently refining algorithms for obstacle detection and navigation in varying environmental conditions.

SCHOLASTIC ACHIEVEMENTS

Awarded Certificate of Merit for Securing 1st rank in Engineering Physics of CAT-2 (Fall-2017-18 examinations)

PROJECTS

Learning Swing-free Trajectories for UAVs with a Suspended Load | *M.Tech Thesis Project* 7/2024 - Present

- Developed UAV motion planning algorithms using RL for swing-free trajectories with suspended loads.
- Designed a feature vector for value function approximation, optimizing UAV control and reducing payload oscillations.
- Conducted simulations with quadrotors, validating learned policies in noise-robust and cluttered environments.

Image Classification with Vision Transformers (ViT) | *M.Tech Term Project* 1/2025 - 2/2025

- Fine-tuned a pre-trained ViT model on a custom wildlife dataset using Hugging Face transformers and datasets library.
- Achieved 95% classification accuracy across 10 animal classes with data augmentation and transfer learning.
- Deployed an interactive classification app using Gradio and hosted it on Hugging Face Spaces.

Implemented Convolutional Neural Network from scratch | *M.Tech Term Project* 1/2024 - 5/2024

- Implemented a CNN from scratch for classifying handwritten digits using the MNIST dataset.
- Developed the model architecture, trained the network, and applied data augmentation to enhance performance.
- Achieved high accuracy in digit recognition, showcasing expertise in deep learning and neural network optimization.

RELEVANT COURSES

Dynamics and Vibration | *Vibration isolation, Free and Forced vibration of multi-degree of freedom systems*

Vehicle Dynamics | *Principles of motion and control of vehicles through mathematical modeling and simulation*

Mobile Robotics | *Control of autonomous systems for navigation and interaction with surroundings*

POSITIONS OF RESPONSIBILITY

Placement Coordinator | Coordinated placement activities, connecting students with recruiters for job opportunities.

President of Math Club | Organizing events and fostering member collaboration to enhance math skills

SKILLS

Libraries/Frameworks: OpenCV, PyTorch, TensorFlow, YOLOv9

Techniques: Object Detection, SLAM, Image Segmentation, Feature Matching

Tools: ROS2, Gazebo, MATLAB, Git, Linux

Languages: Python, C++

PROFESSIONAL CERTIFICATION

Self Driving Car Specialization | University of Toronto

Deep Learning Specialization | DeepLearning.AI & Stanford University

Machine Learning Specialization | DeepLearning.AI & Stanford University

MATLAB Fundamentals and Simulink | MathWorks