Curriculum Vitae

Pune, Maharashtra, India.	Email: ameyjoshi1011@gmail.com Ph: (+91) 8623006184
Personal Github Link	LinkedIn Profile

AMEY V. JOSHI

Education	2019-2023	Symbiosis Institute of Technology, Symbiosis International University	Pune, India
	• 8.44/10 (3.56/4.00) • Belong to top 5 percentile in a class of 150.		
Coursework	Data Structures and Files, Principles of Computer Systems, Computer networks, linear algebra, calculus, differential equations, signal processing, Operating Systems, Fundamentals of Robotics, Embedded and control systems.		
Projects	***SLAM using 3D lidar point cloud and pose graph optimization.*** Aim: To develop a robust 3D occupancy mapping system for a robot by fusing 3D LiDAR point clouds and odometry data to accurately represent the environment, while mitigating drift through pose graph optimization during revisits. ***Demand side management for EVs using heuristic optimization***. Aim: To enhance smart grid efficiency and cost-effectiveness by applying reinforcement learning and Gaussian distribution modeling to optimize day-ahead load shifting, reducing peak demand and achieving substantial savings. ***Omnidirectional hexacopter time flight control and latency perception.*** Aim: To employ deep reinforcement learning and classical topological path planning to train robust neural-network controllers for a hexacopter, minimizing flight time in cluttered environments, facilitated by ORB SLAM for accurate spatial mapping and navigation. ***Video Object segmentation using self-supervision.*** Aim: To explore the utilization of joint embeddings and latent predictive deep neural network models for the processing of unlabeled data, with the objective of clustering individual entities and effectively discriminating between foreground and background elements for autonomous vehicles. ***Unsupervised Disparity Estimation in stereo vision.*** Aim: To present a comprehensive framework for unsupervised depth estimation from stereo image pairs, leveraging the utilization of a photometric loss and a synthesis view.		

Work Experience	***IoT Research Intern, PMS Robotics (06/2021 – 08/2021)*** • Project: Development of advanced quality control inspection system for Guava Fruit to improve by-product quality in food processing industries. • Developed and implemented MATLAB code for the acquisition and analysis of sensor data. • Conducted in-depth research on Internet of Things (IoT) technology specific to thermal cameras. • Designed and optimized algorithms using Simulink to enhance the efficiency of sensor data collection processes. ***Symbiosis Centre for Applied Artificial Intelligence (07/2022 – 08/2023)*** • Implemented multimodal explainability in drone imagery, advancing object detection to enhance interpretability. • Developed a model for the fusion of sensory data with imagery and applied ensemble learning techniques, elevating perception capabilities for more nuanced insights in drone operations. ***Flytbase Ltd. (01/2023 – 06/2023)*** • Responsible for the development, testing, and maintenance of robotics algorithms and applications. • implemented communication protocols for device interaction, including ROS2, Mavlink, MQTT, and UART. Executed integration within Docker environments and onboard computing systems for optimal functionality. ***La Fondation Dassault Systèmes- SCAAI (08/2023–present)*** • Conducted web-based data collection of drone-captured aerial and ground-level search and rescue videos, Subsequently, developed neural scene representation and rendering techniques, along with priority alerting systems, to optimize search tasks. Further working on integrating language driven navigation capabilities • Generated synthetic data for rescue operations utilizing diffusion models and implemented interpretable AI with multimodal fusion for object detection. • Testing and development of the aforementioned features on a virtual twin industrial platform.
Certificates	• AI for everyone | Coursera [deeplearning.AI] 06/2020 – 08/2020 (No expiry) • Deep-Learning specialization | Coursera [deeplearning.AI] 06/2020 – 08/2021 (No expiry) • Motion Planning for self-driving cars course | Coursera [University of Toronto] 12/2021 – 02/2022 (No expiry)

Research Papers	***Video Object Segmentation with Self-Supervised framework for autonomous vehicles.*** • IET Conference 2022 | IET Digital Library ***Robust Object Segmentation using 3D mesh models and self-supervised learning.*** • International Conference on Machine Learning and Data Engineering (ICMLDE 2023) ***Towards Explainable Multi-Scale Object Detection from Drone Imagery.*** • Engineered Science (Q1) Journal ***DiscoverNet: Unsupervised Video Object Discovery through Discrete Visual Tokenization and Language Model-Inspired Reconstruction*** • The 35th British Machine Vision Conference BMVC (Under Review)
Computer Languages	conversant with C++, Python, R programming, MATLAB, Linux kernel and Shell Scripting, Pytorch, Tensorflow, Keras, docker, ROS
Professional Membership	***Participation and Excellence:*** 1. Participated in ABU Asia-Pacific Robot Contest (ABU Robocon), eYantra Robotics Competition (eYRC), KPIT Sparkle competition 2. Conducted workshop for Japanese high school students from Chiba University on "AI's mysterious black box problem." 3. Conducted hands-on sessions as part of the AI for Leaders Workshop at Dassault systemes, introducing AI and Deep Learning fundamentals. 4. Best paper award at international conference on Innovation Discoveries and Emerging Advancements in Applied Sciences (IDEAAS 2024- Engineered Science). ***Vice-President at Rotonity Robotics Club*** *Simulation team head, ABU-Robocon 2021 International Competition* ***Volunteer at IgiftLife Organ Donation NGO*** *Engaged in content creation for organ donation awareness.* ***Subject Matter Expert*** *@Ventura eLearning Global Pvt Ltd* *Content creation on "Generative AI for product and research development"*
References	Available on request