

Mohammad Saeid Anwar

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Professional Summary

PhD candidate in Information Systems with 4+ years of research experience in Computer Vision, Edge Distributed Computing, and ROS-based autonomous systems. Expertise in designing scalable AI/ML solutions for real-time perception, multimodal sensor fusion, and task allocation in heterogeneous autonomous systems (UAVs & UGVs). Passionate about edge AI, LLM, and real-time autonomous decision-making for mission-critical applications.

Education

Doctor of Philosophy (PhD) in Information Systems, University of Maryland Baltimore County January 2022 – Present

PhD Topic: *Resource-Aware Real-Time Collaborative Task Execution for Improved Perception In Heterogeneous Autonomous Systems*

Advisor: [Nirmalya Roy](#)

Skills

- **Languages:** Python, Matlab, C, R
- **Tools and Libraries:** PyTorch, TensorFlow, Keras, Pandas, NumPy, Matplotlib, Scikit-learn, OpenCV, ROS1, ROS2
- **Hardware Proficiency:** Raspberry Pi, Jetson Nano, Jetson Xavier, Arduino, Intel NCS2
- **Simulation Softwares:** Simulink, Unity, Tableau, Gazebo
- **Robotic Agent:** Clearpath Jackal, Husky A300, Boston Dynamics SPOT robot, Modal Ai Drone,
- **ML Expertise:** Supervised and Unsupervised Learning, Gen AI (GAN, VAE, Diffusion), Computer Vision, Multimodal AI, Transformer, LLM, NLP, Fine-tuning (PEFT), Image Segmentation, Optimization
- **Misc.:** Git, Linux, Debian, Distributed Training, Leadership, Mentoring, Documentation

Experience

Graduate Research Assistant, [University of Maryland Baltimore County, MD, USA](#) January 2022 - Present

- Developed a framework for efficient collaboration between UAVs and UGVs, optimizing task distribution, and reducing communication overhead. The research focuses on self-adaptive algorithms, resource-aware processing, and real-time object detection and navigation in resource-constrained environments.
- Improving 3D perception by fusing RGB, LiDAR, and radar data to enhance detection accuracy and segmentation precision. This research optimizes proposal-level fusion techniques to improve navigation and situational awareness in dynamic, unstructured environments.
- Integrating Vision-Language Models (VLMs) into autonomous ground vehicles for enhanced situational awareness and adaptive decision-making in complex urban environments. The goal is to enable human-like reasoning and collaborative autonomy in dynamic, adversarial scenarios. (ongoing)
- Skills: PyTorch, Multi-GPU Training, Multimodal AI, AI on Edge, CNN, LSTM, BERT, Segmentation, Image Compression

Graduate Teaching Assistant, [University of Maryland Baltimore County, MD, USA](#) January 2022 - December 2023

- Course taken: IS-603 (Decision-making support system)
- Course taken: IS-425 (Decision support system)
- Course taken: IS-733 (Data mining)

Publications (Selected) [Google Scholar](#)

- Comparative study between decision tree, SVM and KNN to predict anaemic condition. [[IEEE BECITHCON 2019](#)]
- An efficient technique of hemoglobin level screening using machine learning algorithms [[IEEE EICT 2019](#)]
- HeteroEdge: Addressing Asymmetry in Heterogeneous Collaborative Autonomous Systems. [[IEEE MASS 2023](#)]
- A Novel ROS2 QoS Policy-Enabled Synchronizing Middleware for Co-Simulation of Heterogeneous Multi-Robot Systems. [[ICCCN 2023](#)]
- MobHeteroCAS: Mobility-Aware DNN Task Scheduling in Heterogeneous Collaborative Autonomous Systems. *ACM TAAS Journal* 2024 (Under Review)
- Arsfinetune: On-the-fly tuning of vision models for unmanned ground vehicles. [[DCOSS-IoT 2024](#)]
- SkillNet: Human Actions Assessment via Human-AI Collaboration. [[ACM TOMM 2025](#)]
- SERN: Simulation-Enhanced Realistic Navigation for Multi-Agent Robotic Systems in Contested Environments. (Under Review)
- CoOpTex: Multimodal Cooperative Perception and Task Execution in Time-critical Distributed Autonomous System. [[DCOSS-IoT 2025](#)]
- Imitation-Inspired Semantic-Guided Distillation for User-Conditioned Memorability Prediction. [[IEEE ICDM 2025](#)]
- COHORT: Hybrid RL for Collaborative Large DNN Inference on Multi-Robot Systems Under Real-Time Constraints. [[IEEE WoWMoM 2026](#)]