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Director: [HeRo Lab - Heterogeneous Robotics Research Lab](#). 🌐 <https://hero.uga.edu>

Personal Statement

- I passionately research and teach Robotics, with expertise in multi-robot control, communication, collaboration, and coordination aspects.
- I'm more of an experimentalist and love to do hands-on real-world implementations, grounded on strong theoretical framework.
- My vision is to capacitate autonomous heterogeneous robotic vehicles with intelligent, resilient and robust coordination mechanisms through devising advanced communication and behavior coordination methods.

Research Interests

- › Networked Multi-Robot Systems
- › Search, Rescue, and Field Robotics
- › Robotic Sensor Networks
- › Human-Robot Interaction/Interfaces
- › Swarm Robotics
- › Assistive Robotic Technologies
- › Robotics in Nuclear Facilities

Education

- 11/2011 – 10/2014 [Ph.D. in Robotics and Automation](#)
[UPM](#) - Universidad Politécnica de Madrid (Technical University of Madrid), Madrid, Spain
- 07/2008 – 05/2010 [Masters of Technology \(M.Tech\) in Instrument Technology](#)
[IIT-D](#) - Indian Institute of Technology Delhi, New Delhi, India
- 03/2010 – 05/2010 [M.Sc. Exchange Student in Electrical Engineering](#)
[EPFL](#) - École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland
- 08/2004 – 05/2008 [Bachelor of Engineering \(B.E\) in Electronics and Instrumentation](#)
[TCE](#) - Thiagarajar College of Engineering (Anna University), Madurai, India

Work Experience

- 08/2025 - Present | **Associate Professor, School of Computing, [University of Georgia](#), Athens, GA, USA**
Director of Graduate Studies, Institute for Artificial Intelligence
- 08/2018 - 07/2025 | **Assistant Professor, School of Computing, [University of Georgia](#), Athens, GA, USA**
› Conduct research, teaching, and supervision in the Robotics and allied areas at UGA.
› Director, Heterogeneous Robotics (*HeRo*) Research Lab at UGA.
[Multi-Robot Systems](#) [Networked Robots](#) [Rescue Robotics](#) [Human-Robot Interfaces](#) [Swarm Robotics](#)
- 10/2016 - 07/2018 | **Postdoctoral Research Associate, [Purdue University](#), West Lafayette, USA**
› Research and mentoring activities in the SMART lab with Prof. Byung-Cheol Min.
› Contributing to the NSF/RoSeHub project.
› Performed independent research in Networked Robots and Assistive Technologies.
[Networked Robots](#) [Multi-Robot Coordination](#) [Consensus/Rendezvous](#) [Unmanned Surface Vehicles](#)
- 10/2014 - 09/2016 | **Postdoctoral Researcher and Teacher, [KTH Royal Institute of Technology](#), Stockholm, Sweden**
› Performed research in robust communications for field robots with Prof. Petter Ögren.
› Teacher and Course Responsible for the course EL2310 - Scientific Programming (Fall 2015, Fall 2015).
› Supervised masters students and mentored Ph.D. students.
› Involved in two European research projects (EU-FP7) TRADR and RECONFIG.
[Machine Learning](#) [Urban Search and Rescue Robots \(USAR\)](#) [Intelligent Teleoperation](#) [Human-Robot Interfaces](#)
- 08/2011 - 07/2014 | **Fellow (Researcher), [CERN - European Organization for Nuclear Research](#), Geneva, Switzerland**
› Conducted research in wireless communications for mobile robots used in autonomous radiation survey at CERN facilities such as the Large Hadron Collider (LHC).
› Involved in an EU doctoral research training network (EU-FP7) PURESAFE, supervised by Prof. Manuel Ferre.
› Lead a project in developing an energy management system for a robotic train in the LHC and SPS facilities.
[Robots in Nuclear/Scientific Facilities](#) [Wireless Communications](#) [Relay Robots](#) [Teleoperation Interface](#)

Funding/Grants Awarded

- Co-PI of two **IAI Seed Grants** for the projects titled "Building the first million-level benchmark dataset and foundation models for cost-effective poultry management" and "AI-Assisted Breeding for Anthracnose Resistance in Pepper (*Capsicum spp.*)" funded by the UGA Institute for Artificial Intelligence (2025-2026). Total project: **40K** each.
- PI of a **Research Grant** on the project titled "Bridging Nanoscale Quantum Phenomena and Computational Swarm Intelligence" for a Postdoctoral Fellowship from the Gordon and Betty Moore Foundation (2026-2028). Total Project: \$1.5M.
- Lead PI of a multi-institute **Research Grant** on a collaborative project titled "Collaborative Research: CPS: Medium: AI-driven Cyber-Physical Heterogeneous Systems for Precision Poultry Farming" from the USDA National Institute for Food and Agriculture (NIFA) (2024-2027). Total Project: \$1M.
- PI of a **Research Grant** on the project titled "Cooperative Multi-Agent Systems" from the U.S. Army DCIST-Cooperative Research Agreement (CRA) (2023-2026). Total Project Commitment: \$1.6M.
- Co-PI of a **Research Grant** on the project titled "Test & Evaluation for Soldier-Machine Decision-Making Systems" from the U.S. Army DEVCOM Data Analysis Center (2022-2026). Total Project: \$4.43M.
- PI of an **E-mobility Seed Grant** for the project titled "Smart and Collaborative E-Mobility Testbed" funded by the UGA College of Engineering and the Office of Research (2023-2024). Amount: \$61K.
- Co-PI of an **E-mobility Seed Grant** for the project titled "Data-driven Ultra-fast, Reliable, and Low-latency Wireless Communication for E- Vehicles" funded by the UGA College of Engineering and the Office of Research (2023-2024). Amount: \$61K.
- Co-PI of a **IIPA Seed Grant** for the project titled "EggPicker: A mobile robotic system for identifying, localizing, and collecting floor eggs in cage-free hen housing environments" funded by the UGA Institute of Integrative Precision Agriculture (2023-2024). Amount: \$30K.
- PI of a **Learning Technology Grant** from UGA (2019-2020). Amount: \$25k.
- Received Cloud Platform **Education Grant** from Google (2019).
- PI of UGA-University of Liverpool **Faculty Research Exchange** Visit Grant (2019).
- Postdoctoral **Travel Grant**, Purdue University (2017, 2018).
- Marie-Sklodowska-Curie Actions - **Early Career Research Fellowship Grant** from the European Commission (2011-2014).

Honors, Awards, and Achievements

- Recipient of the **Faculty Research Excellence Award** from School of Computing at UGA (2025).
- Recipient of the **CURO Faculty Mentoring Award** from UGA Honors College (2024).
- Awarded **Open Science Faculty Fellowship** by NSF Open Science Alliance Project (2023).
- Nominated for the **Best Paper Award** at DARS 2022 Conference.
- Awarded **Marie-Sklodowska-Curie** Research Fellowship (2011-2014).
- Awarded **IITD-EPFL Exchange** Fellowship (2010).
- Awarded DST-MHRD India **GATE** Scholarship (2008-2010).
- **National Finalist** in Motorola India Scholar Program (2008) and Cadence India Design Contest (2009).
- Awarded **Gold Medal** for *Best Outgoing Student Excellence* (out of 750+ students) at TCE (2008).
- Awarded IIT-M (Indian Institute of Technology Madras) **Summer Fellowship** (2007).

Leadership Responsibilities and Accomplishments

As the Director of Graduate Studies for AI Graduate Programs at UGA (2025 - Present)

- Strengthened the M.S. and Ph.D. programs in Artificial Intelligence by developing **transparent, scalable, and student-centered administrative processes** within the first five months of serving as Director of Graduate Studies (2025–Present).
- Initiated and led the streamlining of **course-substitution policies** for M.S. and Ph.D. AI electives, including policies for students entering with prior master's degrees, improving consistency in advising and reducing ambiguity for students and faculty.
- Initiated the development of **formal evaluation rubrics for adding new courses** to AI electives and concentrations, supporting curricular coherence, academic rigor, and systematic program growth.
- Created essential graduate-program forms, procedures, timelines, and milestone-tracking resources, including a **Ph.D. core competency form**, improving procedural clarity and consistency for students and faculty.
- Revised the AI program's **Student Learning Outcomes and assessment measures** and compiled program-reporting materials in Xitracs, strengthening institutional accountability and alignment with Graduate School and accreditation expectations.
- Established a comprehensive **graduate student progress-tracking system** by integrating and cross-validating data from GradSlate, GradStatus, and Argos, identifying data discrepancies and enabling accurate monitoring of degree milestones.

- Proactively identified students who were behind on program milestones or placed on academic probation and developed **individualized remediation plans** to support their return to good academic standing and improve retention.
- Developed new **graduate orientation and advising resources** outlining program procedures, milestones, and expectations for incoming M.S. and Ph.D. AI students.
- Created a centralized **Microsoft Teams communication workspace**, updated graduate-student email lists, and improved the dissemination of program announcements, events, deadlines, and student-support information.
- Developed an **AI-based advising agent** to provide first-step responses to common graduate-program questions, improving access to timely and consistent programmatic information.
- Chaired the IAI Graduate Admissions Committee beginning with the Spring 2026 cycle, overseeing the **holistic review of all M.S. and Ph.D. AI applications** and coordinating admissions decisions with committee members.
- Encouraged and nominated AI graduate students for competitive fellowships and awards, contributing to recognitions including the **Franklin College ASCEND Program Award, UGA Engaged Scholarship Award, James Carmon Award, and Crover Fellowship**.
- Contributed substantive feedback to the IAI academic program review and Franklin College graduate-program planning, helping articulate the **mission, objectives, and strategic priorities** of the AI graduate programs.

Scholarly Publications and Presentations

Google Scholar: <https://scholar.google.com/citations?user=gmhcs1QAAAAJ&hl=en>

ORCID: <https://orcid.org/0000-0001-5451-8209>

Journal Articles

- [1] Sai Krishna Ghanta and Ramviyas Parasuraman. "SPACE: 3D Spatial Co-operation and Exploration Framework for Robust Mapping and Coverage with Multi-Robot Systems." In: *IEEE Robotics and Automation Letters* 10 (12 Dec. 2025), pp. 13074–13081. doi: 10.1109/LRA.2025.3627118.
- [2] Sanjay Sarma OV, Ramviyas Parasuraman, and Ramana Pidaparti. "IKT-BT: Indirect Knowledge Transfer Behavior Tree Framework for Multirobot Systems Through Communication Eavesdropping." In: *IEEE Transactions on Cybernetics* 55.6 (2025), pp. 2558–2570. doi: 10.1109/TCYB.2025.3560564.
- [3] Aravind Mandiga, Guoming Li, Tianming Liu, Ramviyas Parasuraman, Ramana M Pidaparti, Venkat UC Bodempudi, and Samuel E Aggrey. "Autonomous Navigation of a Quadruped Robot to Approach Floor Eggs and Path Optimization Analysis for Commercial Feasibility." In: *Applied Engineering in Agriculture* 41.6 (2025), pp. 733–747. doi: 10.13031/aea.16384.
- [4] Nazish Tahir and Ramviyas Parasuraman. "Edge Computing and its Application in Robotics: A Survey." In: *Journal of Sensor and Actuator Networks* 14.4 (2025). doi: 10.3390/jsan14040065.
- [5] He Yang et al. "Real-world Cyber Security Demonstration for Networked Electric Drives." In: *IEEE Journal of Emerging and Selected Topics in Power Electronics* (2025). Early Access, pp. 1–1. doi: 10.1109/JESTPE.2025.3550830.
- [6] Shushan Wu et al. "Online Adaptive Anomaly Detection in Networked Electrical Machines by Adaptive Enveloped Singular Spectrum Transformation." In: *IEEE Internet of Things Journal* 12.6 (2025), pp. 6457–6464. doi: 10.1109/JIOT.2024.3476268.
- [7] Ehsan Latif and Ramviyas Parasuraman. "Communication-Efficient Multi-Robot Exploration Using Coverage-biased Distributed Q-Learning." In: *IEEE Robotics and Automation Letters* 9 (3 Mar. 2024), pp. 2622–2629. doi: 10.1109/LRA.2024.3358095.
- [8] Qin Yang and Ramviyas Parasuraman. "Bayesian Strategy Networks Based Soft Actor-Critic Learning." In: *ACM Trans. Intell. Syst. Technol.* 15.3 (Mar. 2024). doi: 10.1145/3643862.
- [9] Ehsan Latif and Ramviyas Parasuraman. "Instantaneous Wireless Robotic Node Localization Using Collaborative Direction of Arrival." In: *IEEE Internet of Things Journal* 11 (2 Jan. 2024), pp. 2783–2795. doi: 10.1109/JIOT.2023.3296334.
- [10] Aiman Munir and Ramviyas Parasuraman. "Exploration–Exploitation Tradeoff in the Adaptive Information Sampling of Unknown Spatial Fields with Mobile Robots." In: *Sensors* 23.23 (2023), p. 9600. doi: 10.3390/s23239600.
- [11] Sanjay Sarma OV, Ramviyas Parasuraman, and Ramana Pidaparti. "KT-BT: A Framework for Knowledge Transfer Through Behavior Trees in Multi-Robot Systems." In: *IEEE Transactions of Robotics* 39 (5 2023), pp. 4114–4130. doi: 10.1109/TR0.2023.3290449.
- [12] Ehsan Latif and Ramviyas Parasuraman. "On the Intersection of Computational Geometry Algorithms with Mobile Robot Path Planning." In: *Algorithms* 16.11 (2023). **Featured in the Cover of Issue**, p. 498. doi: 10.3390/a16110498.
- [13] Ramviyas Parasuraman, Byung-Cheol Min, and Petter Ögren. "Rapid Prediction of Network Quality in Mobile Robots." In: *Adhoc Networks* 138 (Jan. 2023). doi: 10.1016/j.adhoc.2022.103014.
- [14] Nazish Tahir and Ramviyas Parasuraman. "Analog Twin Framework for Human and AI Supervisory Control and Teleoperation of Robots." In: *IEEE Transactions on Systems, Man, and Cybernetics: Systems* 53.5 (2023), pp. 2616–2628. doi: 10.1109/TSMC.2022.3216206.
- [15] Ramviyas Parasuraman, Jonghoek Kim, Shaocheng Luo, and Byung-Cheol Min. "Multipoint Rendezvous in Multirobot Systems." In: *IEEE Transactions on Cybernetics* 50.1 (2020). doi: 10.1109/TCYB.2018.2868870.
- [16] Min Ku Kim and Ramviyas Parasuraman and Liu Wang and Yeonsoo Park and Bongjoong Kim and Seung Jun Lee and Nanshu Lu and Byung-Cheol Min and Chi Hwan Lee. "Soft-packaged sensory glove system for human-like natural interaction and control of prosthetic hands." In: *NPG Asia Material (Nature)* 11.43 (Aug. 2019). doi: 10.1038/s41427-019-0143-9.
- [17] Michele Colledanchise, Ramviyas Parasuraman, and Petter Ögren. "Learning of Behavior Trees for Autonomous Agents." In: *Transactions on Games* 11.2 (June 2019). doi: 10.1109/TG.2018.2816806.
- [18] Jonghoek Kim, Shaocheng Luo, Ramviyas Parasuraman, Jun Han Bae, Eric T Matson, and Byung-Cheol Min. "Multi-robot Rendezvous Based on Bearing-aided Hierarchical Tracking of Network Topology." In: *Adhoc Networks* 86 (Apr. 2019), pp. 131–143. doi: 10.1016/j.adhoc.2018.11.004.

- [19] Mohamed Haseeb and Ramviyas Parasuraman. "Wisture: Touch-less Hand Gesture Classification in Unmodified Smartphones Using Wi-Fi Signals." In: *IEEE Sensors* 19.1 (Jan. 2019). doi: **10.1109/JSEN.2018.2876448**.
- [20] Danilo Tardioli, Ramviyas Parasuraman, and Petter Ögren. "Pound: A multi-master ROS node for Reducing Delay and Jitter in Wireless Multi-Robot Networks." In: *Robotics and Autonomous Systems* 111 (Jan. 2019), pp. 73–87. doi: **10.1016/j.robot.2018.10.009**.
- [21] Ramviyas Parasuraman and Byung-Cheol Min. "Special issue on Assistive Robotics (Editorial)." In: *Technologies* 6.4 (Oct. 2018). doi: **10.3390/technologies6040095**.
- [22] Byung-Cheol Min, Ramviyas Parasuraman, Sangjun Lee, Jin-Woo Jung, and Eric T Matson. "A Directional Antenna based Leader-Follower Relay System for End-to-End Robot Communications." In: *Robotics and Autonomous Systems* 101 (Mar. 2018), pp. 57–73. doi: **10.1016/j.robot.2017.11.013**.
- [23] Ramviyas Parasuraman, Sergio Caccamo, Fredrik Båberg, Petter Ögren, and Mark Neerincx. "A New UGV Teleoperation Interface for Improved Awareness of Network Connectivity and Physical Surroundings." In: *Journal of Human Robot Interaction (Transactions on Human Robot Interaction)* 6.3 (Dec. 2017), pp. 48–70. doi: **10.5898/JHRI.6.3.Parasuraman**.
- [24] Ramviyas Parasuraman, Thomas Fabry, Luca Molinari, Keith Kershaw, Mario Di Castro, Alessandro Masi, and Manuel Ferre. "A multi-sensor RSS spatial sensing-based robust stochastic optimization algorithm for enhanced wireless tethering." In: *Sensors* 14.12 (2014), pp. 23970–24003. doi: **10.3390/s141223970**.
- [25] Ramviyas Parasuraman, Keith Kershaw, and Manuel Ferre. "Experimental investigation of radio signal propagation in scientific facilities for telerobotic applications." In: *Int. J. of Advanced Robotic Systems* 10.10:364 (2013), pp. 1–11. doi: **10.5772/56847**.

Conference Papers (In Proceedings)

- [1] Sai Krishna Ghanta and Ramviyas Parasuraman. "SK: Semantic Kernel for Robotic Information Gathering." In: *2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2026)*. Accepted. Oct. 2026.
- [2] Tohid Tasooji and Ramviyas Parasuraman. "Hybrid Framework for Multi-Robot Target Search in Unknown and Adversarial Environments." In: *2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2026)*. Accepted. Oct. 2026.
- [3] Tohid Tasooji and Ramviyas Parasuraman. "Safe and Adaptive Multi-Robot Formation Control Via Composed CBFs in the Presence of Dynamic and Uncertain Obstacles." In: *2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2026)*. Accepted. Oct. 2026.
- [4] Tohid Tasooji and Ramviyas Parasuraman. "Multi-Robot Consensus and Coordination with Localization Uncertainty." In: *2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2026)*. Accepted. Oct. 2026.
- [5] Swaraj Nistane and Ramviyas Parasuraman. "H-IPP: Altitude-Adaptive Informative Path Planning with Multiple UAVs." In: *2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2026)*. Accepted. Oct. 2026.
- [6] Sanjay Oruganti, Sergei Nirenburg, Marjorie McShane, Jesse English, Michael Roberts, Christian Arndt, Ramviyas Parasuraman, and Luis Sentis. "Why Cognitive Robotics Matters: Lessons from OntoAgent and LLM Deployment in HARMONIC for Safety-Critical Robot Teaming." In: *2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2026)*. Accepted. Oct. 2026.
- [7] Atharva Sagale and Ramviyas Parasuraman. "Distributed Connectivity Restoration and Improvement in Networked Robots." In: *2026 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2026)*. Accepted. Oct. 2026.
- [8] Atharva Sagale, Tohid Tasooji, and Ramviyas Parasuraman. "DCL-Sparse: Distributed Relative Localization in Sparse Graphs." In: *2026 IEEE International Conference on Robotics and Automation (ICRA)*. In Press. May 2026.
- [9] Aiman Munir, Ayan Dutta, and Ramviyas Parasuraman. "Energy-Aware Informative Path Planning for Heterogeneous Multi-Robot Systems." In: *2026 IEEE International Conference on Robotics and Automation (ICRA)*. In Press. May 2026.
- [10] Aiman Munir, Ehsan Latif, and Ramviyas Parasuraman. "Multi-Robot Informative Sampling and Coverage in GPS-Denied Environments." In: *2026 IEEE International Conference on Robotics and Automation (ICRA)*. In Press. May 2026.
- [11] Pranav Pandey, Prashant Doshi, and Ramviyas Parasuraman. "FRESHR-GSI: A Generalized Safety Model and Evaluation Framework for Mobile Robots in Multi-Human Environments." In: *2026 IEEE International Conference on Robotics and Automation (ICRA)*. In Press. May 2026.
- [12] Shailendra Sekhar Bathula and Ramviyas Parasuraman. "Imitation-BT: Automating Behavior Tree Generation by Echoing Reinforcement Learning Agents." In: *2026 IEEE International Conference on Robotics and Automation (ICRA)*. In Press. May 2026.
- [13] Sai Krishna Ghanta and Ramviyas Parasuraman. "Policies over Poses: Reinforcement Learning based Distributed Pose-Graph Optimization for Multi-Robot SLAM." In: *2025 IEEE International Symposium on Multi-Robot & Multi-Agent Systems (MRS)*. Dec. 2025. doi: **10.1109/MRS66243.2025.11357260**.
- [14] Leszek Gąsieniec, Łukasz Kuszner, Ehsan Latif, Parasuraman, Ramviyas, Paul Spirakis, and Grzegorz Stachowiak. "Anonymous Distributed Localisation via Spatial Population Protocols." In: *36th International Symposium on Algorithms and Computation (ISAAC 2025)*. Vol. 359. Leibniz International Proceedings in Informatics (LIPIcs). Dagstuhl, Germany: Schloss Dagstuhl – Leibniz-Zentrum für Informatik, 2025, 35:1–35:17. doi: **10.4230/LIPIcs.ISAAC.2025.35**.
- [15] Sai Krishna Ghanta and Ramviyas Parasuraman. "MGPR: Distributed Multi-Gaussian Processes for Wi-Fi-based Multi-Robot Relative Localization in Large Indoor Environments." In: *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2025)*. Oct. 2025, pp. 974–981. doi: **10.1109/IROS60139.2025.11247180**.
- [16] Tohid Tasooji and Ramviyas Parasuraman. "Distributed Fault-Tolerant Multi-Robot Cooperative Localization in Adversarial Environments." In: *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2025)*. Oct. 2025, pp. 4626–4633. doi: **10.1109/IROS60139.2025.11246042**.
- [17] Tyson Jordan, Pranav Pandey, Prashant Doshi, Ramviyas Parasuraman, and Adam Goodie. "Analyzing Human Perceptions of a MEDEVAC Robot in a Simulated Evacuation Scenario." In: *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2025)*. Oct. 2025, pp. 6345–6350. doi: **10.1109/IROS60139.2025.11246558**.
- [18] Pranav Kumar Pandey, Ramviyas Parasuraman, and Prashant Doshi. "Integrating Perceptions: A Human-Centered Physical Safety Model for Human-Robot Interaction." In: *34th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*. Aug. 2025, pp. 1823–1830. doi: **10.1109/RO-MAN63969.2025.11217747**.

- [19] Michael Starks and Ramviyas Parasuraman. "GMF: Gravitational Mass-Force Framework for Parametric Multi-Level Coordination in Multi-Robot and Swarm Robotic Systems." In: *2025 IEEE International Conference on Robotics and Automation (ICRA)*. May 2025, pp. 11355–11361. doi: 10.1109/ICRA55743.2025.11128543.
- [20] Leszek Gąsieniec, Łukasz Kuszner, Ehsan Latif, Parasuraman, Ramviyas, Paul Spirakis, and Grzegorz Stachowiak. "Brief Announcement: Anonymous Distributed Localisation via Spatial Population Protocols." In: *4th Symposium on Algorithmic Foundations of Dynamic Networks (SAND 2025)*. 2025, pp. 19–1. doi: 10.4230/LIPIcs.SAND.2025.19.
- [21] Aiman Munir, Ayan Dutta, and Ramviyas Parasuraman. "Energy-Aware Coverage Planning for Heterogeneous Multi-Robot System." In: *The 17th International Symposium on Distributed Autonomous Robotic Systems (DARS 2024)*. Oct. 2024, pp. 210–227. doi: 10.1007/978-3-032-04584-3_15.
- [22] Aiman Munir, Ehsan Latif, and Ramviyas Parasuraman. "Anchor-Oriented Localized Voronoi Partitioning for GPS-denied Multi-Robot Coverage." In: *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*. Oct. 2024, pp. 3395–3402. doi: 10.1109/IROS58592.2024.10802222.
- [23] Siva Krishna Ravipati, Ehsan Latif, Suchendra Bhandarkar, and Ramviyas Parasuraman. "Object-Oriented Material Classification and 3D Clustering for Improved Semantic Perception and Mapping in Mobile Robots." In: *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*. Oct. 2024, pp. 9729–9736. doi: 10.1109/IROS58592.2024.10801936.
- [24] Ehsan Latif and Ramviyas Parasuraman. "HGP-RL: Distributed Hierarchical Gaussian Processes for Wi-Fi-based Relative Localization in Multi-Robot Systems." In: *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*. Oct. 2024, pp. 3387–3394. doi: 10.1109/IROS58592.2024.10802653.
- [25] Aiman Munir, Ramviyas Parasuraman, Jine Ye, and WenZhan Song. "Route Planning for Electric Vehicles with Charging Constraints." In: *2024 IEEE 100th Vehicular Technology Conference (VTC2024-Fall)*. Oct. 2024. doi: 10.1109/VTC2024-Fall163153.2024.10757558.
- [26] Nazish Tahir, Haijian Sun, and Ramviyas Parasuraman. "Communication-Aware Consistent Edge Selection for Mobile Users and Autonomous Vehicles." In: *2024 IEEE 100th Vehicular Technology Conference (VTC2024-Fall)*. Oct. 2024. doi: 10.1109/VTC2024-Fall163153.2024.10757784.
- [27] Ehsan Latif, Ramviyas Parasuraman, and Xiaoming Zhai. "PhysicsAssistant: An LLM-Powered Interactive Learning Robot for Physics Lab Investigations." In: *2024 IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2024)*. Pasadena, CA, USA, Aug. 2024, pp. 864–871. doi: 10.1109/RO-MAN60168.2024.10731312.
- [28] Lihao Zhang, Haijian Sun, Jin Sun, Ramviyas Parasuraman, Yinghui Ye, and Rose Qingyang Hu. "Map2Schedule: An End-to-End Link Scheduling Method for Urban V2V Communications." In: *2024 IEEE International Conference on Communications (ICC)*. Pasadena, CA, USA, June 2024, pp. 1005–1010. doi: 10.1109/ICC51166.2024.10622509.
- [29] Qin Yang and Ramviyas Parasuraman. "Bayesian Soft Actor-Critic: A Directed Acyclic Strategy Graph Based Deep Reinforcement Learning." In: *Proceedings of the 39th ACM/SIGAPP Symposium on Applied Computing*. SAC '24. Avila, Spain, Apr. 2024, pp. 646–648. doi: 10.1145/3605098.3636113.
- [30] Nazish Tahir and Ramviyas Parasuraman. "Utility AI for Dynamic Task Offloading in the Multi-Edge Infrastructure." In: *2023 Seventh IEEE International Conference on Robotic Computing (IRC)*. Dec. 2023, pp. 331–338. doi: 10.1109/IRC59093.2023.00060.
- [31] Nazish Tahir and Ramviyas Parasuraman. "Consensus-based Resource Scheduling for Collaborative Multi-Robot Tasks." In: *2023 Seventh IEEE International Conference on Robotic Computing (IRC)*. Dec. 2023, pp. 323–330. doi: 10.1109/IRC59093.2023.00059.
- [32] Ehsan Latif and Ramviyas Parasuraman. "SEAL: Simultaneous Exploration and Localization in Multi-Robot Systems." In: *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2023)*. Oct. 2023. doi: 10.1109/IROS55552.2023.10342157.
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Conference/Workshop Short Papers/Presentations (Lightly-Reviewed)

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- [12] Pranav Pandey, Ramviyas Parasuraman, and Prashant Doshi. "On Physical Compatibility of Robots in Human-Robot Collaboration Settings." In: *ICRA 2022 WORKSHOP ON COLLABORATIVE ROBOTS AND THE WORK OF THE FUTURE*. May 2022.
- [13] Nazish Tahir and Ramviyas Parasuraman. "Robot Controlling Robots - A New Perspective to Bilateral Teleoperation in Mobile Robots." In: *RSS 2020 Workshop on Reacting to Contact: Enabling Transparent Interactions through Intelligent Sensing and Actuation, 2020*. July 2020.
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- [2] Nazish Tahir and Ramviyas Parasuraman (Advisor). "Towards Collaborative Control and Computing in Multi-Robot Systems." Ph.D. (Computer Science) Thesis. University of Georgia, July 2024.
- [3] Ehsan Latif and Ramviyas Parasuraman (Advisor). "Collaborative Algorithms for Localization and Exploration in Multi-Robot Systems." Ph.D. (Computer Science) Thesis. University of Georgia, July 2023.
- [4] Qin Yang and Ramviyas Parasuraman (Advisor). "Self-Adaptive Swarm System." Ph.D. (Computer Science) Thesis. University of Georgia, May 2022, p. 194.
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MS Thesis Products

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- [2] Shailendra Sekhar Reddy Bathula and Ramviyas Parasuraman (Advisor). "Synthetic Instincts: Echoing Reinforcement Learning Agents for Behavior Tree Generation." M.S. (Artificial Intelligence) Thesis. University of Georgia, July 2024.
- [3] Siva Krishna Ravipati and Ramviyas Parasuraman (Advisor). "Semantic Material Labeling of 3D Point Cloud using RGB-D Data and Visual SLAM." M.S. (Artificial Intelligence) Thesis. University of Georgia, May 2023.
- [4] Caleb Adams and Ramviyas Parasuraman (Advisor). "High-Performance Computation with Small Satellites and Small Satellite Swarms for 3D Reconstruction." M.S. (Computer Science) Thesis. University of Georgia, May 2020, p. 127.

- [5] Mohamed Haseeb, Ramviyas Parasuraman (co-Advisor), and Petter Ogren (co-Advisor). "Passive gesture recognition on unmodified smart-phones using Wi-Fi RSSI." M.S. (Machine Learning) Thesis. KTH Royal Institute of Technology, Sweden, Oct. 2017, p. 127.
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Patents and Invention Disclosures

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Internet Code and Dataset Repositories

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Technical Reports

- [1] PURES SAFE Consortium (Pierre Bonnal et al.) "The OpenSE Framework - an open, lean and participative approach to systems engineering for projects in scientific facilities." Version 1.0.0.2. In: (Feb. 2016).
- [2] Parasuraman, Ramviyas. "Few common failure cases in mobile robots." In: *arXiv:1508.03000 [cs.RO]* (2015).
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- [4] Parasuraman, Ramviyas and Alexander Stadler. "Wireless Video transmission tests in CERN ISOLDE Facility." In: *CERN EDMS 1209799* (2012).
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Invited Talks, Presentations, Seminars, and Guest Lectures

- [1] *Heterogeneous Robotics Research at UGA*. Invited Talk at ACM X IEEE Research Symposium, Feb. 2026.
- [2] *AI-driven Active Sampling and Persistent Monitoring with Multi-Robot Systems*. Invited Talk at SRNL Environmental Remediation Virtual Workshop, Nov. 2025.
- [3] *Relative Localization in Multi-Robot and Wireless Networked Systems*. Invited Talk at IEEE Denver Computer Information Theory and Robotics Society., Sept. 2024.
- [4] *Heterogeneity and Collaboration in Multi-Robot Systems*. Invited Talk at University of North Carolina, Charlotte, Feb. 2024.
- [5] *Collaborative Localization of Mobile Robots Using Wireless Signals*. Invited Talk at Engineering & Maths Research Seminar Series, Sheffield Hallam University, UK, Nov. 2023.
- [6] *Robot Twins for Computing and Autonomy*. Invited Talk, Cyber-Physical Systems Symposium, UGA, Aug. 2023.
- [7] *Multi-Robot Localization Algorithms*. Invited Talk at the University of Liverpool, UK, May 2023.
- [8] *Heterogeneous Robotics Research*. Guest Lecture, FYOS Seminar - Asian Americans' contributions to USA's science and lecture, UGA, Nov. 2022.
- [9] *Heterogeneous Multi-Robot Systems*. Invited Talk, Cyber-Physical Systems Symposium, UGA, Aug. 2022.
- [10] *Heterogeneous Multi-Robot Systems*. Invited Talk, Phenomics and Plant Robotics Center Symposium, UGA, Sept. 2021.
- [11] *Learning Time Series Data: A Case Study on Wi-Fi Signal Classification For On-Air Hand Gesture Detection*. Invited Seminar, Thiagarajar College of Engineering, India, Aug. 2021.
- [12] *Exploiting Connectivity Graph for Multi-Robot Control Mechanisms*. Invited Talk, National Institute of Technology Silchar, India, Sept. 2020.
- [13] *Robotics and Control*. Guest Lecture, Computer Architecture and Organization, UGA, Mar. 2020.
- [14] *Learning On-Air Hand Gestures From Wi-Fi Signals on Smartphones*. Invited Talk, Deep Learning Seminar, UGA, Oct. 2019.
- [15] *Trends in Micro Nano Multi Robot Systems*. Invited Talk, Applied Physics Seminar, UGA, Feb. 2019.
- [16] *Bridging Robotics and Wireless Networking*. Guest Lecture, FYOS 1001, UGA, Nov. 2018.
- [17] *Networked Robotics Research*. Guest Lecture, ATRI 8800, UGA, Oct. 2018.
- [18] *Robot Control, Communication, and Learning Using Wireless Networks*. Invited Talk, UGA, Apr. 2018.
- [19] *Use of Wireless Network Measurements for Mobile Robot Systems*. Invited Talk, IIT Madras, India, Mar. 2018.
- [20] *Gaussian Processes for Regression*. Seminar, SMART lab, Purdue University, USA, Jan. 2018.
- [21] *Resilient Control and Communications for Multi-Robot Systems*. Invited Talk, IIT Palakkad, India, Jan. 2018.
- [22] *Robotic Technologies for Assistive Wheelchairs*. Guest Lecture, Introduction to Assistive Technology and Robotics, Purdue University, USA, Oct. 2017.
- [23] *Tutorial on Robotarium for Multi-Robot Experiments*. Presentation, SMART lab, Purdue University, USA, Aug. 2017.
- [24] *Design Guidelines for Mobile Robotic Systems in Harsh Environments*. Guest Lecture, CNIT 581-008: Software Design and Development for Robotics, Purdue University, USA, Apr. 2017.
- [25] *Resilient Wireless Communications for Field Robots*. Invited Talk, Polytechnic Postdoctoral Seminar, Purdue University, USA, Mar. 2017.
- [26] *Short course on Robot Operating Systems (ROS)*. Guest Lecture, SMART lab, Purdue University, USA, Feb-May, 2017.
- [27] *Assistive Technologies for disabled - Mobility Enhancement*. Guest Lecture, CNIT 581-AST: Introduction to Assistive Technology and Robotics, Purdue University, USA, Oct. 2016.
- [28] *Progress on Work Package 2 of EU-FP7 TRADR Project*. Invited Talk, TRADR Review Meeting Year 2, Dortmund IFR, Germany, Mar. 2016.
- [29] *Wireless Communication Enhancement Methods for Mobile Robots in Scientific Facilities*. Invited Talk, PURES SAFE Final Conference, Geneva, Switzerland, Jan. 2016.
- [30] *Generic mobile platform modules development for remote radiation survey and inspection*. Invited Talk, CERN Engineering Department Technical Meeting (ENTM), Geneva, Switzerland, Dec. 2012.

Instructor: [CSCI \(ATRI\) 4550/6550 Artificial Intelligence](#) Fall 2025 (4 Credits), UGA. The AI course is a split-level (undergraduate and graduate) course covering various introductory topics on artificial intelligence.
[CSCI 8535 Multi-Robot Systems](#) Spring 2019, 2020, 2021, 2022, 2023, 2024, 2025. (4 Credits), UGA. This is a graduate-level course on recent topics in Multi-Robot Systems research.
[CSCI 8530 Advanced Topics in Robotics](#) Fall 2023 (4 Credits), UGA. This is a graduate-level course on recent topics in Robotics research.
[CSCI \(ATRI\) 4530/6530 Introduction to Robotics](#) Fall 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2026 (4 Credits), UGA. This Robotics course is a split-level (undergraduate and graduate) course covering various topics on autonomous mobile robotics.
[CSCI 1300-1300L Introduction to Python Programming](#) Fall 2021 (4 Credits), UGA. This is an introductory undergraduate course targeting freshman and sophomore students in covering the basics of programming and Python.
[FYOS 1001 Robotics and Autonomous Vehicles](#) Spring 2022, Spring 2023, Fall 2024, Fall 2025 (1 Credit), UGA. This is a freshman undergraduate seminar course covering the fundamentals of robotics and autonomous vehicles to attract freshmen students towards research and relevant courses in computer science.
[EL2310 Scientific Programming](#) Fall 2015, Fall 2016 (7.5 ECTS credits, 40 hours), KTH Sweden. This is a split-level (undergraduate and graduate) course on the basics of C, C++, and MATLAB programming.

Supervisor: [Current Postdocs](#) - Tohid Tasooji (CS)
[Current Graduate/Thesis students](#) - Sai Krishna Ghanta (PhD-AI), Swaraj Nistane (PhD-CS), Atharva Sagale (PhD-CS), Jonathan Porter Squires (PhD-CS), Amit Kumar Rai (PhD-CS), Pranav Pandey (PhD-CS, co-supervised with Dr. Prashant Doshi), Moneshk Bajaj (MS-CS), Gehad Abdelal (MS-AI)
[Current MS Project students](#) - Kavya Mothukuri (MS-CS)
[Current Undergraduate Students](#) - Tanish Reddy (CS), Nikhita Raghavan (CSE), Arnav Thakur (CS), Rishab Seshadri (CS), Paarth Rathors (CS), Yuval Deshe (CS), Bonnie Houston (DS), Eshwar Thammineni (CSE), Mahir Gangone (CS)
[Former Graduate/Thesis Advisees](#)

- Dr. Aiman Munir (PhD-CS, UGA). Now a faculty member at Penn State Behrand
- Dr. Nazish Tahir (PhD-CS, UGA). Now a faculty member at UGA
- Dr. Ehsan Latif (PhD-CS, UGA). Now an AI Research Scientist at Cognizant AI Labs
- Dr. Qin Yang (PhD-CS, UGA). Now an Assistant Professor at University of Tulsa
- Dr. Sanjay Sarma Oruganti Venkata (PhD-ENGR). Now a Research Scientist at Rensselaer Polytechnic Institute (RPI)
- Shailendra Bathula (MS-AI, UGA). Now a PhD student at IIIT Hyderabad
- Naveen Kurra (MS-CS, UGA. Co-supervised with Dr. Ramana Pidaparti). Now a Software Developer II at Oracle.
- Siva Ravipati (MS-AI, UGA). Now an AI/ML Engineer at L&T Technology Services
- Caleb Adams (MS-CS, UGA). Now a Program Manager and Principal Investigator at NASA.
- Mohamed Haseeb (MS-ML, KTH). Now a Lead ML Engineer at Myrspoven
- Mengchan Li (MS-Robotics, KTH). Now a Senior Product Manager at ECARX

[Former MS Project Students](#) - Khoa Le (MS-CS), Chenhao Zhang (MS-ECE), Harshith Kasthuri (MS-CS), Jeyanth Dondeti (MS-CS), Manish Ravikanti (MS-CS), Sanket Veer (MS-CS), Sai Sree Meka (MS-CS), Kaushik Vadlapudi (MS-CS), Dhaval Bhandari (MS-CS), Ravi Parashar (MS-CS).
[Former Undergraduate Students](#) - Ethan Nash Carroll (CS), Daniel Lajj (CS), Marcelo Lannaman (ME), Samuel Lemus (CS), Neil Patel (CSE), Rocco Arching (CS), Kartikey Sankhdhar (CS), Arnav Arora (CS), Micahel Starks (CSE), Caroline Lessiter (CSE), Ashurst Walker (CS), Diego Almeida (CS), Nachiket Hinge (CS), Hakan Grunerli (CS), Ravi Parashar (CS), Anderson Molter (CS), Ervin Enriquez (CSE), Anushka Bagad (CS), Jacob Gil (CS), Mohammed Mohammed (ELE), Madhurya Gajula (CSE), Sharanya Pillalamarri (CSE), Luke Lashley (CS), Parisha Reddy (CS), Karthik Paladugula (CS), Davielle Matos (CS), Linsey Brialey (CS), Mahdi Ghafouri (CSE).

Mentor: [Capstone Projects](#) Bird Removal System (2025-2026), Multi-Robot Maze Testbed (2023-2024), Power-Sharing Swarm Robot Design (2022-2023), Poultry Patrol Robot (2021-2022)

Honors, Awards, and Achievements of Mentees (Student Success)

My mentees have earned numerous university, national, and international distinctions, including dissertation and graduate student awards, competitive fellowships, research scholarships, best paper and poster honors, travel awards, and undergraduate research recognitions.

- Doctoral alumna **Aiman Munir** received the **Best Ph.D. Dissertation Award** from the UGA School of Computing (2026).
- Doctoral student **Sai Krishna Ghanta** received a competitive **NSF SCIEP AI Fellowship** through a research collaboration with The University of Texas at Austin (2026).
- Doctoral student **Sai Krishna Ghanta** was competitively selected to attend the Robotics Summer School sponsored by the **KTH Robotics, Perception, and Learning Lab** in Stockholm, Sweden (2026).
- Doctoral students **Sai Krishna Ghanta** and **Swaraj Nistane** received **NSF NHERI SPARC Travel Awards** to participate in training on computing, artificial intelligence, and natural-hazards research (2026).
- Undergraduate student **Tanish Murali Reddy** received the **CURO Research Award** for Spring 2026.
- Doctoral alum **Ehsan Latif** received a competitive scholarship to participate in the **NSF Cyber-Physical Systems Rising Stars Workshop** (2025).
- Doctoral student **Aiman Munir** received the **James L. Carmon Award Honorable Mention** from UGA and the **Student Research Award** from the UGA School of Computing (2025).
- Graduate student **Pranav Kumar Pandey** received the **Best Poster Award** at the ICRA 2025 Workshop on Advanced Social Navigation (2025).
- Graduate student **Harshith Kasthuri** received the **Best Poster Award** at the UGA School of Computing Research Day (2025).
- Undergraduate students **Nash Carroll** and **Rishab Seshadri** received the **CURO Research Award** and the **CURO/School of Computing Research Scholars Award**, respectively (2025).
- A student mentee received the competitive **Georgia Network for Electric Mobility Summer Exchange Fellowship** under my faculty mentorship (2025).
- Doctoral student **Aiman Munir** received the **Outstanding Graduate Student Award** from the UGA School of Computing and the **James L. Carmon Award Honorable Mention** from UGA (2024).
- Doctoral alum **Ehsan Latif**'s dissertation was selected as **UGA's institutional nomination** for the national CGS/ProQuest Distinguished Dissertation Award competition (2024).
- Doctoral alum **Ehsan Latif** received the **Pioneers of Natural Sciences Laboratory Robotics Award** at the ICRA Workshop on Accelerating Discovery in Natural Science Laboratories with AI and Robotics (2024).
- Undergraduate student **Aneesh Karanam** received the **CURO Summer Fellowship**, and undergraduate student **Sam Lemus** received the **School of Computing Undergraduate Scholar Award for Research** (2024).
- Undergraduate students **Neil Patel** and **Nazish Tahir** were recognized among UGA's **Top 100 Student Employees of the Year** (2024).
- Doctoral student **Ehsan Latif** received the **James L. Carmon Award Honorable Mention**, the **NSF Open Science Publication Award**, and the **University of Liverpool-UGA Exchange Research Scholarship** (2023).
- Graduate students **Nazish Tahir** and **Ehsan Latif** received the **Outstanding Graduate Student Award** from the UGA School of Computing (2023).
- Graduate student **Nazish Tahir** received an **NSF Travel Award** to attend the IEEE PerCom Conference (2023).
- Undergraduate students **Michael Starks** and **Neil Patel** received competitive **CURO Research Scholarships**; Michael Starks was also recognized among UGA's **Top 100 Student Employees of the Year** (2023).
- Doctoral student **Aiman Munir** received the **Graduate Degree Accelerator Award** from UGA (2023).
- Undergraduate student **Michael Starks** received the **Best Paper Award** at the UGA CURO Undergraduate Research Symposium and a **CURO Travel Award** for conference participation (2022–2023).
- Students **Nazish Tahir**, **Pranav Kumar Pandey**, **Michael Starks**, and **Ehsan Latif** earned first-, second-, third-, and fourth-place poster awards, respectively, at the UGA School of Computing and AI Research Days (2022).
- Graduate student **Diego Alejandro Santamaria-Sarcos** received the **Scarborough Family Scholarship** from the UGA School of Computing (2022).

- Chair/Organizing Committee:** Chair of Workshop Organizing Committee: ICRA 2023 Full-day Workshop on Communication Challenges in Multi-Robot Systems: Perception, Coordination, and Learning (June 2023).
- Editorial activities:** Associate Editor for the IEEE International Conference on Robotics and Automation (*ICRA 2026*).
Associate Editor for the IEEE/RSJ International Conference on Intelligent Robots and Systems (*IROS 2025*).
Area Editor for the IEEE International Symposium on Multi-Robot and Multi-Agent Systems (*MRS 2023*).
Associate Editor for the IEEE International Conference on Robotics and Automation (*ICRA 2020*).
Guest editor in the *Frontier in Robotics and AI Journal* (2022-Current).
Guest editor for a special issue on “Heterogeneity in Intelligent Mobile Robots and Systems” in the *Machines Journal* of the MDPI Publishers (2022-Current).
Guest editor for a special issue on “Assistive Robotics” in the *Technologies Journal* of the MDPI Publishers (2017-2018).
- Journal Reviewer:** IEEE Trans. Robotics, Intl. J. Robotics Research, Journal of Field Robotics, ACM Trans. Human-Robot Interaction, IEEE Trans. Cybernetics, IEEE Trans. SMC Systems, IEEE Systems Journal, Autonomous Agents and Multiagent Systems, IEEE Robotics and Automation Letters, IEEE Trans. Mechatronics, Autonomous Robots, IEEE Trans. Human-Machine Systems, Journal of Intelligent Robot Systems, IEEE Sensors, PLOS One, Mobile Networks and Applications.
- Conference PC/Reviewer:** Intelligent Robots and Systems (IROS), Robotics and Automation (ICRA), Human-Robot Interaction (HRI), Joint Conference on Artif. Intel. (IJCAI), Search and Rescue Robotics (SSRR), Multi Robot Systems (MRS), Distributed Autonomous Robots Systems (DARS), Vehicular Technology Conference (VTC), Sensors, Decision and Control (CDC), American Control (ACC), Telecommunications (WTS), etc.
- Grant Reviewer:** NSF Review Panel Member (2018,2021), Army Research Office (2021).
- Professional memberships:** IEEE Member (current), ACM Member (current), IEEE Robotics and Automation Society (RAS) (current), IEEE Vehicular Technology Society (VTS) (current), IEEE Communications Society (ComSoc) (2011-2013), IEEE Signal Processing Society (SPS) (2014-present), IFAC Associate (2012-present), Institution of Engineers India (2005-2008), IEEE RAS TC on Telerobotics (2015 - present), IEEE RAS TC on Robotics and Automation in Nuclear Facilities (2012-present), IEEE RAS TC on Multi-Robot Systems (2017-current).
- Media appearance/Outreach:** My role and collaboration in a Nature’s Asia Materials paper was mentioned in the [news story](#) from Purdue.
Our paper on Learning Behavior Trees was highlighted in [Nordeous Engineering Blog](#) at this news story
I appeared in the PURES SAFE [Promo/Outreach video](#) by CERN (Aug 2012).
I demonstrated cool robots during the [CERN Open Days](#) (Sep 2013), a public event which had more than 50,000 visitors.