
Employment

- 2019–Present **Research Scientist**, *Aurora Innovation*, USA.
Research problems at the intersection of motion planning and machine learning for self-driving.
- 2018–2019 **Postdoctoral Fellow**, *University of Washington*, USA.
Worked at [Personal Robotics Lab](#) with Sidd Srinivasa on problems in motion planning, reinforcement learning and imitation learning.
- 2016 **Graduate Intern**, *Microsoft Research*, USA.
Imitation learning for solving partially observable decision-making problems (in collaboration with Debadepta Dey, Ashish Kapoor and Gireeja Ranade).
- 2011–2017 **Graduate Researcher**, *Carnegie Mellon University*, USA.
As a core member of [AirLab](#), developed the motion planning stack for various robots ranging from full-scale helicopters to small quadrotors.
- 2009–2011 **Undergraduate Researcher**, *Indian Institute of Technology Kharagpur*, India.
Started an undergraduate research project [KRSSG](#) to design a team of soccer playing robots. Worked on the full-stack and participated in international FIRA Mirobot league.

Education

- 2013–2018 **PhD, Robotics**, *Carnegie Mellon University*, USA.
Advisor: Sebastian Scherer
Thesis: *Adaptive Motion Planning*
- 2011–2013 **MS, Robotics**, *Carnegie Mellon University*, USA.
Advisor: Sanjiv Singh & Sebastian Scherer
Thesis: *Autonomous Emergency Landing of a Helicopter: Motion Planning with Hard Time Constraints*
- 2006–2011 **B.Tech, M.Tech, Electrical Engineering**, *Indian Institute of Technology Kharagpur*, India.
Advisor: Jayanta Mukherjee & Alok Deb
Thesis: *Application of Reinforcement Learning in Robot Soccer*

Honors and Awards

- 2019 **Best Student Paper at ICAPS**.
Generalized Lazy Search for Robot Motion Planning: Interleaving Search and Edge Evaluation via Event-based Toggles.
- 2018 **Finalist for the Collier Trophy**.
The AACUS (Autonomous Aerial Cargo/Utility System) project, which was the focus of my thesis research, was a finalist for the trophy awarded "for the greatest achievement in aeronautics or astronautics in America". Previous winners include Apollo 11, and Boeing 747.
- 2018 **Winner of the Howard Hughes Award**.
AACUS won the award "for an outstanding improvement in fundamental vertical flight technology".
- 2018 **Finalist for IJRR Paper of the Year**.
Data-driven planning via imitation learning.
- 2018 **RSS Pioneers**.
For impact in the field of robotics as a graduate student.
- 2014 **Best Paper for Unmanned VTOL Aircraft & Rotorcraft track, AHS**.
The Planner Ensemble and Trajectory Executive: A High Performance Motion Planning System with Guaranteed Safety.
- 2013 **Siebel Scholar**.
For demonstrated academic excellence and leadership.

- 2006 **National Tata Millenium Scholarship.**
For academic excellence.
- 2006 **Indian National Physics Olympiad.**
Finalist

Mentoring

- PhD students Aditya Mandalika (UW), Liyiming Ke (UW), Matthew Schmittle (UW), Gilwoo Lee (UW), Brian Hou (UW), Mohak Bhardwaj (GaTech), Jonathan Spencer (Princeton), Brad Saund (UMich), Rogerio Bonatti (CMU), Gokul Swamy (CMU)
- MS students, Researchers Johan Michalove (UW), Ajinkya Kamat (UW), Rosario Scalise (UW), Vishal Dugar (Aurora), Shushman Choudhury (PhD, Stanford), Jit Roy Choudhury (Auro)
- Undergrad Interns A. J. Kruse (UW), Max Thompson (UW), Rishabh Madan (IIT), Rajat Jenamani (IIT), Rahul Vernwal (IIT), Anirudh Vemula (PhD, CMU), Mohak Bhardwaj (PhD, GaTech)
- Ph.D Thesis Committee Aditya Mandalika (UW), Arjav Desai (CMU)

Teaching

- 2019 **Mobile Robots, University of Washington, USA.**
Designed and instructed an undergraduate course on mobile robots. Students covered a range of topics in perception, planning and control and also implemented algorithms on a fleet of 1/10th sized rally cars. Link to course: <https://courses.cs.washington.edu/courses/cse490r/19sp/>
- 2015 **Statistical Techniques in Robotics, Carnegie Mellon University, USA.**
Teaching assistant for Kris Kitani and Michael Kaess
- 2010 **Signals and Systems, Indian Institute of Technology Kharagpur, India.**
Laboratory assistant for Dheeman Chatterjee

Publications

Thesis

- [1] S. Choudhury. "Adaptive Motion Planning". Carnegie Mellon University, 2018.

Journals

- [4] R. Bonatti, W. Wang, C. Ho, A. Ahuja, M. Gschwindt, E. Camci, E. Kayacan, S. Choudhury, and S. Scherer. "Autonomous Aerial Cinematography In Unstructured Environments With Learned Artistic Decision-Making". In: *Journal of Field Robotics* (2019).
- [3] S. Choudhury, V. Dugar, S. Maeta, B. MacAllister, S. Arora, D. Althoff, and S. Scherer. "High Performance and Safe Flight of Full-Scale Helicopters from Takeoff to Landing with an Ensemble of Planners". In: *Journal of Field Robotics* (2019).
- [2] S. Choudhury, M. Bhardwaj, S. Arora, A. Kapoor, G. Ranade, S. Scherer, and D. Dey. "Data-driven Planning via Imitation Learning". In: *The International Journal of Robotics Research* 37.13-14 (2018). **Finalist for Best Paper of the Year.**
- [1] S. Nuske, S. Choudhury, S. Jain, A. Chambers, L. Yoder, S. Scherer, L. Chamberlain, H. Cover, and S. Singh. "Autonomous Exploration and Motion Planning for an Unmanned Aerial Vehicle Navigating Rivers". In: *Journal of Field Robotics* 32.8 (2015).

Conferences

- [34] B. Hou, S. Choudhury, G. Lee, A. Mandalika, and S. Srinivasa. "Posterior Sampling for Anytime Motion Planning on Graphs with Expensive-to-Evaluate Edges". In: *IEEE International Conference on Robotics and Automation*. 2020.
- [33] L. Ke, S. Choudhury, M. Barnes, W. Sun, G. Lee, and S. Srinivasa. "Imitation Learning as f-Divergence Minimization". In: *Workshop on the Algorithmic Foundations of Robotics*. 2020.

- [32] C. Kessens, A. Fink J. annd Hurwitz, M. Kaplan, P. R. Osteen, T. Rocks, J. Rogers, E. Stump, L. Quang, M. DiBlasi, M. Gonzalez, D. Patel, J. Patel, S. Patel, M. Weiker, J. Bowkett, R. Detry, S. Karumanchi, J. Burdick, K. Matthies, Y. Oza, A. Agarwal, A. Dornbush, M. Likhachev, K. Schmeckpeper, K. Daniilidis, A. Kamat, S. Choudhury, A. Mandalika, and S Srinivasa. “Toward fieldable human-scale mobile manipulation using RoMan”. In: *Artificial Intelligence and Machine Learning for Multi-Domain Operations Applications II*. 2020.
- [31] P. Sodhi, S. Choudhury, J. G. Mangelson, and M. Kaess. “ICS: Incremental Constrained Smoothing for State Estimation”. In: *IEEE International Conference on Robotics and Automation*. 2020.
- [30] J. Spencer, S. Choudhury, M. Barnes, and S. Srinivasa. “Learning from Interventions: Human-robot interaction as both explicit and implicit feedback”. In: *Robotics: Science and Systems*. 2020.
- [29] M. Bhardwaj, S. Choudhury, B. Boots, and S. Srinivasa. “Leveraging Experience in Lazy Search”. In: *Robotics: Science and Systems*. 2019.
- [28] R. Bonatti, C. Ho, W. Wang, S. Choudhury, and S. Scherer. “Towards a Robust Aerial Cinematography Platform: Localizing and Tracking Moving Targets in Unstructured Environments”. In: *IEEE/RSJ International Conference on Intelligent Robots and Systems*. 2019.
- [27] G. Lee, B. Hou, A. Mandalika, J. Lee, S. Choudhury, and S.S. Srinivasa. “Bayesian Policy Optimization for Model Uncertainty”. In: *International Conference on Learning Representations*. 2019.
- [26] A. Mandalika, S. Choudhury, O. Salzman, and S.S. Srinivasa. “Generalized Lazy Search for Robot Motion Planning: Interleaving Search and Edge Evaluation via Event-based Toggles”. In: *International Conference on Automated Planning and Scheduling*. **Best Student Paper Award Winner**. 2019.
- [25] B. Saund, S. Choudhury, S. Srinivasa, and D. Berenson. “The Blindfolded Robot : A Bayesian Approach to Planning with Contact Feedback”. In: *International Symposium on Robotics Research*. 2019.
- [24] R. Vernwal, A. Mandalika, S. Choudhury, and S. Srinivasa. “LEGO: Learning to Sample Robust Adaptive Roadmaps”. In: *IEEE/RSJ International Conference on Intelligent Robots and Systems*. 2019.
- [23] R. Bonatti, Y. Zhang, S. Choudhury, W. Wang, and S. Scherer. “Autonomous drone cinematographer: Using artistic principles to create smooth, safe, occlusion-free trajectories for aerial filming”. In: *International Symposium on Experimental Robotics*. 2018.
- [22] S. Choudhury, S. Srinivasa, and S. Scherer. “Bayesian Active Edge Evaluation on Expensive Graphs”. In: *International Joint Conference on Artificial Intelligence*. 2018.
- [21] M. Bhardwaj, S. Choudhury, and S. Scherer. “Learning Heuristic Search via Imitation”. In: *Conference on Robot Learning*. 2017.
- [20] S. Choudhury, S. Javdani, S. Srinivasa, and S. Scherer. “Near-Optimal Edge Evaluation in Explicit Generalized Binomial Graphs”. In: *Advances in Neural Information Processing Systems*. 2017.
- [19] S. Choudhury, A. Kapoor, G. Ranade, and D. Dey. “Learning to Gather Information via Imitation”. In: *IEEE International Conference on Robotics and Automation*. 2017.
- [18] S. Choudhury, A. Kapoor, G. Ranade, S. Scherer, and D. Dey. “Adaptive Information Gathering via Imitation Learning”. In: *Robotics: Science and Systems*. 2017.
- [17] S. Choudhury, O. Salzman, S. Choudhury, and S. Srinivasa. “Densification Strategies for Anytime Motion Planning over Large Dense Roadmaps”. In: *IEEE International Conference on Robotics and Automation*. 2017.

- [16] V. Dugar, S. Choudhury, and S. Scherer. “A KITE in the Wind: Smooth Trajectory Optimization in a Moving Reference Frame”. In: *IEEE International Conference on Robotics and Automation*. 2017.
- [15] V. Dugar, S. Choudhury, and S. Scherer. “Smooth Trajectory Optimization in Wind: First Results on a Full-Scale Helicopter”. In: *American Helicopter Society Forum*. 2017.
- [14] S. Choudhury, J. D. Gammell, T. D. Barfoot, S. Srinivasa, and S. Scherer. “Regionally Accelerated Batch Informed Trees (RABIT*): A Framework to Integrate Local Information into Optimal Path Planning”. In: *IEEE International Conference on Robotics and Automation*. 2016.
- [13] G. A. S. Pereira, S. Choudhury, and S. Scherer. “A Framework for Optimal Repairing of Vector Field-based Motion Plans”. In: *IEEE International Conference of Unmanned Aircraft Systems*. 2016.
- [12] G. A. S. Pereira, S. Choudhury, and S. Scherer. “Nonholonomic motion planning in partially unknown environments using vector fields and optimal planners”. In: *Congresso Brasileiro de Automatica (CBA)*. 2016.
- [11] A. Tallavajhula, S. Choudhury, S. Scherer, and A. Kelly. “List Prediction Applied To Motion Planning”. In: *IEEE International Conference on Robotics and Automation*. 2016.
- [10] S. Arora, S. Choudhury, D. Althoff, and S. Scherer. “Emergency Maneuver Library – Ensuring Safe Navigation in Partially Known Environments”. In: *IEEE International Conference on Robotics and Automation*. 2015.
- [9] S. Choudhury, S. Arora, and S. Scherer. “The Planner Ensemble: Motion Planning by Executing Diverse Algorithms”. In: *IEEE International Conference on Robotics and Automation*. 2015.
- [8] S. Choudhury and S. Scherer. “The Dynamics Projection Filter (DPF) – Real-Time Nonlinear Trajectory Optimization Using Projection Operators”. In: *IEEE International Conference on Robotics and Automation*. 2015.
- [7] S. Choudhury, S. Scherer, and J. A. Bagnell. “Theoretical Limits of Speed and Resolution for Kinodynamic Planning in a Poisson Forest”. In: *Robotics: Science and Systems*. 2015.
- [6] J. Paduano, J. Wissler, M. Piedmonte G. Drozeski, N. Dadkhah, J. Francis, C. Shortlidge, J. Bold, F. Langford, M. Chaoui, C. J. Liu, E. Foster, S. Singh, L. Chamberlain, B. Hamner, H. Cover, A. Stambler, A. Singh, S. Nalbone, M. Bergerman, S. Scherer, S. Choudhury, S. Maeta, S. Arora, D. Althoff, D. Maturana, D. Limbaugh, J. Bona, D. Barnhard, D. Chessar, D. Mindell, C. Dominguez, B. Moon, R. Strouse, L. Papautsky, D. Cerchie, B. Chu, J. Graham, C. Cameron, M. Hardesty, and R. Hehr. “TALOS: An Unmanned Cargo Delivery System for Rotorcraft Landing to Unprepared Sites”. In: *American Helicopter Society Forum*. 2015.
- [5] S. Arora, S. Choudhury, S. Scherer, and D. Althoff. “A Principled Approach to Enable Safe and High Performance Maneuvers for Autonomous Rotorcraft”. In: *American Helicopter Society Forum*. 2014.
- [4] S. Choudhury, S. Arora, and S. Scherer. “The Planner Ensemble and Trajectory Executive: A High Performance Motion Planning System with Guaranteed Safety”. In: *American Helicopter Society Forum*. **Best Paper Award Winner**. 2014.
- [3] S. Choudhury, S. Scherer, and S. Singh. “Autonomous Emergency Landing of a Helicopter: Motion Planning with Hard Time Constraints”. In: *American Helicopter Society Forum*. 2013.
- [2] S. Choudhury, S. Scherer, and S. Singh. “RRT*-AR: Sampling-based Alternate Routes Planning with Applications to Autonomous Emergency Landing of a Helicopter”. In: *IEEE International Conference on Robotics and Automation*. 2013.
- [1] H. Cover, S. Choudhury, S. Scherer, and S. Singh. “Sparse Tangential Network (SPARTAN): Motion Planning for Micro Aerial Vehicles”. In: *IEEE International Conference on Robotics and Automation*. 2013.

Workshops and Tech Reports

- [15] G. Lee, B. Hou, S. Choudhury, and S.S Srinivasa. “Bayesian Residual Policy Optimization: Scalable Bayesian Reinforcement Learning with Clairvoyant Experts”. In: *arXiv* (2020).
- [14] R. Bonatti, W. Wang, C. Ho, A. Ahuja, M. Gschwindt, E. Camci, E. Kayacan, S. Choudhury, and S. Scherer. “Autonomous Aerial Cinematography In Unstructured Environments With Learned Artistic Decision-Making”. In: *Challenges in Vision-based Drones Navigation, IROS* (2019). **Best Paper Award Finalist.**
- [13] B. Hou, S. Choudhury, G. Lee, and S. Srinivasa. “Collision Posteriors on Graphs with Expensive-to-Evaluate Edges”. In: *Combining Learning and Reasoning – Towards Human-Level Robot Intelligence, R:SS* (2019).
- [12] G. Lee, S. Choudhury, B. Hou, and S. Srinivasa. “Residual Bayesian Q-Learning for Meta-Reinforcement Learning with Experts”. In: *Combining Learning and Reasoning – Towards Human-Level Robot Intelligence, R:SS* (2019).
- [11] S. Srinivasa, P. Lancaster, J. Michalove, M. Schmittle, C. Summers, M. Rockett, J. R. Smith, S. Choudhury, C. Mavrogiannis, and F. Sadeghi. “MuSHR: A Low-Cost, Open-Source Robotic Racecar for Education and Research”. In: *arXiv* (2019).
- [10] S. Choudhury, O. Salzman, S. Choudhury, C. Dellin, and S. Srinivasa. “Anytime Motion Planning on Large Dense Roadmaps with Expensive Edge Evaluations”. In: *arXiv* (2018).
- [9] G. Lee, S. Choudhury, B. Hou, and S. Srinivasa. “Bayes-CPACE: PAC Optimal Exploration in Continuous Space Bayes-Adaptive Markov Decision Processes”. In: *arXiv* (2018).
- [8] S. Choudhury and S. Srinivasa. “Bayesian Active Edge Evaluation on Expensive Graphs”. In: *International Symposium on Robotics Research. Blue Sky Track*. 2017.
- [7] S. Choudhury, S. Srinivasa, and S. Scherer. “A Bayesian Active Learning Approach to Adaptive Motion Planning”. In: *Workshop on Acting and Interacting in the Real World, NeurIPS*. 2017.
- [6] S. Choudhury and S. Scherer. *Constrained CHOMP using Dual Projected Newton Method*. Tech. rep. CMU-RI-TR-16-17. Carnegie Mellon University, 2016.
- [5] G. A. S. Pereira, S. Choudhury, and S. Scherer. *Kinodynamic Motion Planning on Vector Fields using RRT**. Tech. rep. CMU-RI-TR-16-35. Carnegie Mellon University, 2016.
- [4] S. Choudhury. *Lower and Upper Bounds for the Survival of Infinite Absorbing Markov Chains*. Tech. rep. CMU-RI-TR-05-04. Carnegie Mellon University, 2015.
- [3] A. Tallavajhula and S. Choudhury. *List prediction for motion planning: Case studies*. Tech. rep. CMU-RI-TR-15-25. Carnegie Mellon University, 2015.
- [2] A. Vemula, S. Choudhury, and S. Scherer. *Learning Motion Planning Assumptions*. Tech. rep. CMU-RI-TR-14-14. Carnegie Mellon University, 2014.
- [1] S. Choudhury, S. Scherer, and S. Singh. *Realtime Alternate Eoutes Planning: The RRT*-AR Algorithm*. Tech. rep. CMU-RI-TR-12-27. Carnegie Mellon University, 2012.

Patents

- [3] R. Bonatti, W. Wang, C. Ho, A. Ahuja, M. Gschwindt, E. Camci, E. Kayacan, S. Choudhury, and S. Scherer. “A System Decomposition for Real-time Efficient and Safe Motion Generation for Autonomous Flying Systems”. In: *Invention Disclosure 2020-152 (Provisional Patent Filed)*. 2020.
- [2] S. Scherer, S. Choudhury, S. Maeta, D. Althoff, S. Arora, V. Dugar, and B. MacAllister. “A System Decomposition for Real-time Efficient and Safe Motion Generation for Autonomous Flying Systems”. In: *Invention Disclosure 2018-007 (Provisional Patent Filed)*. 2018.

- [1] S.Choudhury and S.Scherer. “High-Performance Dynamically Feasible Motion Planning via Adaptive Ensembles of Algorithms”. In: *Invention Disclosure 2017-227 (Provisional Patent Filed)*. 2017.

Press Coverage

- 2019 **Wired, GeekWire, MuSHR**, Fleet of Autonomous RACECARs.
[Robotic race car platform from Univ. of Washington designed to speed research around A.I](#)
[These Small Cars Can Help Drive the Autonomous Future](#)
- 2019 **Economist, SIGNAL, RCTA**, Robotic mobile manipulation platform RoMan.
[Robots’ abilities to recognise and manipulate things are improving](#)
[Perception, Manipulation and Teaming Generate Army Robotics Achievements](#)
- 2019 **Gizmodo, Nvidia Blog, Drone cinematography**.
[Researchers Taught Autonomous Camera Drones to Film Like a Hollywood Director](#)
[This Drone Uses AI to Automatically Create the Perfect Cinematic Shots](#)
- 2017-2018 **PopularMechanics, NewAtlas, AACUS**, Autonomous Aerial Cargo/Utility System.
[The Marine Corps Is Testing a Fully Autonomous Huey Helicopter](#)
[AACUS-equipped autonomous helicopter makes first cargo delivery to US Marines](#)

Invited Talks

- 2020 **Feedback in Imitation Learning: Confusion on Causality and Covariate Shift**, *ICML*.
Workshop on AI for Autonomous Driving
- 2019 **How can experience help in planning?**, *ONR*.
ONR Science of Autonomy Meeting
- 2019 **Learning from Experience in Robot Motion Planning: A Bayesian Perspective.**,
MSR Montreal.
MSR Montreal Seminar Series
- 2018 **Robot-Assisted Feeding: From Bite Acquisition to Bite Transfer**, *NRI*.
NRI PI Meeting
- 2018 **Bayesian Active Edge Evaluation on Expensive Graphs**, *ONR*.
ONR Science of Autonomy Meeting
- 2018 **Data-driven Planning via Imitation Learning**, *ICRA*.
Workshop on Informative Path Planning and Adaptive Sampling
- 2017 **Adaptive Motion Planning**, *IROS*.
Workshop on Complex Collaborative Systems
- 2016 **Theoretical Limits of Motion Planning as Percolation on Markov Chains**, *MSR*.
Adaptive Systems and Interaction (ASI) group at Microsoft Research Redmond

Professional Activities

- Workshop Organizer [Imitation Learning and its Challenges in Robotics](#), NeurIPS 2018
[Machine Learning in Robot Motion Planning](#), IROS 2018
[Complex Collaborative Systems: Closing the Loop, Learning & Self-Confidence](#), IROS 2017
- Reviewer JAIR, IJRR, IEEE-TRO, IEEE RA-L, JFR, AURO, RSS, ICRA, IROS, NeurIPS, ICML, CoRL, ISRR

Robot Systems

- 2019-current **Self-driving, Aurora, Planning**.
Working with an amazing team to develop and deliver self-driving safely, broadly and quickly.
- 2018-2019 **Fleet of Autonomous RACECARs, Full-stack**.
Led a team of students to design [MuSHR](#), a fleet of low-cost, open-source robotic racecar platforms for education and research. MuSHR is easy to build following our DIY tutorials and is used in various classes and research projects at UW. Press: [Allen News](#), [GeekWire](#).

- 2018-2019 **Mobile Manipulator**, *Full-stack*.
Integration lead for designing a mobile manipulator platform, RoMan, that can autonomously traverse over challenging terrain, grasp and manipulate unknown debris weighing upto 50 lbs. Work done under RCTA in collaboration with ARL, CMU, GD, JPL, UPenn. Press: Economist, Army Times.
- 2013-2017 **Full-scale Helicopter**, *Planning*.
Developed the motion planning software for a full-scale autonomous helicopter that can fly from take-off to landing, reaching speeds of 60m/s. The AACUS project, sponsored by ONR, involved testing on multiple helicopter platforms across a range of situations, culminating in a successful demonstration and nomination for multiple aerospace awards. Press: CMU News, Popular Mechanics.
- 2017 **Medium-scale Hexarotor**, *Planning*.
Developed the motion planning software for a DJI-M600 hexarotor, designed by Near Earth Autonomy, for long term deployment in the wild. The system flew in an obstacle course for more than 150 min at speeds of up to 10 m/s.
- 2017 **Small-scale Quadrotor**, *Planning*.
Developed the motion planning software for a DJI-M100 quadrotor platform for navigation in unstructured environments. The system was able to navigate at speeds of 5m/s in an unstructured obstacle with hills, trees, telephone poles.
- 2012-2013 **Riverbank Exploring UAV**, *Planning*.
Developed the motion planning software for a custom octorotor platform tasked with autonomously exploring river banks. The robot autonomously flew 450 m along a narrow river bank without GPS or a prior map.
- 2012 **Helicopter Sensor Head**, *Hardware, Perception*.
Wrote software drivers for a sensor suite that is mounted on a full-scale helicopter and is capable of actively tracking a landing site on a shipdeck. The sensor suite has 3 cameras, SICK LDMRS laser GPS INS and time server board.
- 2010-2011 **FIRA Mirosot (5) League Robot Soccer Team**, *Full-stack*.
Led a team of undergraduates to compete as the first Indian Mirosot team in FIRA against 10 teams from around the world. Worked on full robot stack: hardware, vision pipeline, feedback control, motion planning and high level multi-agent strategies.
- 2009-2010 **RoboCup SSL Robot Soccer Team**, *Full-stack*.
Member of a team of undergraduates to compete in the Indian league of Robocup SSL. Designed hardware and control for an omni-directional robot, the vision pipeline and the motion planner.

Outreach

- MuSHR As postdoc, started and led the Multi-agent System for non-Holonomic Racing ([MuSHR](#)) initiative - an open-source, fully functional, robotic race car with advanced sensing and computational capabilities at a fraction of the cost of existing platforms.
- Hobby Robotics Governor of the Technology Robotix Society, IIT Kharagpur. I was the coordinator for [ROBOTIX](#), a major inter-collegiate event. We also conducted free hands-on workshops across multiple cities, created and managed online tutorials and raised funding.
- Robot Soccer Community Founding member of the Kharagpur RoboSoccer Students Group [KRSSG](#). I led the first Indian team to participate in the international FIRA Mirosot league. We also organized the first Indian leg of the RoboCup league. We raised funding for lab equipments, organized hands-on workshops to recruit undergraduates and promoted the event nationwide to encourage competition.
- Lab Tours Demos and tours of the AirLab and Field Robotics Centre to the general public
- Community Outreach Volunteered at Child Relief and You (CRY) in Kolkata to teach kids from ages 9-13
- Outreach Volunteered at Rural Development Centre in Kharagpur
- Culture Exchange Member of the JENESYS exchange program in Japan. Took part in cultural activities and presented at the Tokyo embassy on behalf of group.