

# DEVENDRA R. PARKAR

---

PERSONAL INFORMATION	Devendra Rajendra Parkar Tempe, AZ, United States ☎ +1 (602) 865 9168	🌐 <a href="https://github.com/drparkar">drparkar.github.io</a> ✉ <a href="mailto:dparkar1@asu.edu">dparkar1@asu.edu</a> 🔗 <a href="#">devrz45</a>
RESEARCH INTERESTS	My broad research interest lies in understanding and building complex systems with distributed agents. My current research explores techniques from multi-agent optimization, stochastic processes and reinforcement learning to build and study multi-agent behaviors.	
EDUCATION	<b>M.S. Computer Science</b> Arizona State University, Tempe, Arizona, USA (Expected) May 2024 On-going Thesis. Evolving Stochastic Algorithms for Self-Organizing Particle Systems Advisor. Prof. Joshua Daymude GPA 4.00/4.00  <b>B.E. Computer Engineering</b> University of Mumbai, Mumbai, India May 2018 Bachelors Thesis. Simulation of Autonomous Swarm Behavior Advisor. Prof. Jayant Gadge GPA 7.96/10	
SUBMISSIONS	Jamison Weber, Dhanush Giriyan, <b>Devendra Parkar</b> , Andréa Richa, Dimitri Bertsekas, <i>Distributed On-line Rollout for Multivehicle Routing in Unmapped Environments</i> , <a href="https://doi.org/10.48550/arXiv.2305.15596">https://doi.org/10.48550/arXiv.2305.15596</a> [Submitted and under review]  Kaustuv Mukherji*, <b>Devendra Parkar</b> *, Lahari Pokala, Dyuman Aditya, Paulo Shakarian, Clark Dorman, <i>Scalable Semantic Non-Markovian Simulation Proxy for Reinforcement Learning</i> , <a href="https://doi.org/10.48550/arXiv.2310.06835">https://doi.org/10.48550/arXiv.2310.06835</a> [Submitted and under review] *contributed equally	
ON-GOING WORK	<b>Devendra Parkar</b> , Joshua Daymude, Kirtus Leyba, <i>Evolving Collective Behaviors in Self-Organizing Particle Systems</i> , [Manuscript in preparation]	
PRESENTATIONS	<b>Devendra Parkar</b> , Vaibhav Panchal, Prem Bhat and Rishi Shah, <i>Efficient Energy Management System for Indian households</i> , [Short-paper presentation] International Conference and Workshop on Electronics and Telecommunication Engineering at Thakur College of Engineering and Technology, ICWET 2015	
RESEARCH EXPERIENCE	<b>Research Assistant</b> under Prof. Joshua Daymude(ASU) Sep 2022 - Present Project: <i>Evolving Stochastic Algorithms for Self-Organizing Particle Systems</i> <ul style="list-style-type: none"><li>• Developed models to achieve collective behaviours of Aggregation, Separation and Object Coating using bio-inspired optimization algorithms - Genetic Algorithms, Particle Swarm Optimization</li><li>• Developed distributed, parallelized implementation of simulation pipeline using HPC-MPI framework</li></ul> <b>Graduate Service Assistant</b> under Prof. Paulo Shakarian(ASU) May 2023 - Present Project: <i>IARPA Haystack - Movement Generation</i> <ul style="list-style-type: none"><li>• Researching constrained optimization of agent trajectory in knowledge infused graphs using heuristic based graph traversal algorithms</li></ul> Project: <i>PyReason-Gym simulations for Symbolic Reinforcement Learning</i> <ul style="list-style-type: none"><li>• Designed a new Deep-Q-Net algorithm to handle non-markovian time based dynamics</li><li>• Successfully demonstrated transfer of interpretable policies learnt in PyReason-Gym on PySC-II and AFSIM simulators</li></ul> <b>Research Volunteer</b> under Prof. Andréa Richa(ASU), Prof. Dimitri Bertsekas(ASU) Jan 2023 - May 2023 Project: <i>Decentralized Multi-agent Heuristic Rollout</i> <ul style="list-style-type: none"><li>• Developed a new Decentralized Multi-agent Rollout algorithm to solve vehicle routing problem in unmapped environments</li><li>• Extended the algorithm for real world application with physical robot simulations (Robotarium testbed) and verified the cost improvement properties</li></ul> <b>Research Assistant</b> under Prof. Jayant Gadge(MU) Jan 2017 - May 2018 Project: <i>Simulation of Autonomous Swarm Behaviors</i> <ul style="list-style-type: none"><li>• Demonstrated a new prey-predator based co-evolution approach to develop nascent communication using Foot-bots in ARGoS simulator</li></ul>	

AWARDS	<b>Graduate Engineering Fellowship</b> Ira A. Fulton Schools of Engineering (ASU)	2023 - 24
MENTORING EXPERIENCE	<b>Matthew Groholski</b> Barrett, The Honors College Thesis(ASU) On-going Thesis. Evolving bridging behaviour for self-organizing particle systems	Aug 2023 - Present
	<b>Raylene Faerber</b> Undergraduate Research(ASU)	Aug 2023 - Present
INDUSTRY EXPERIENCE	<b>Senior Software Developer</b> DreamSetGo, Mumbai, India Achievements: <ul style="list-style-type: none"> <li>• Built the entire product backbone with key features - payment processing, order management, coupons creation, invoice generation, data gathering pipeline</li> <li>• Built the initial infrastructure on AWS with automated CI/CD capabilities</li> </ul>	May 2020 - Jul 2022
	<b>Fullstack Software Developer</b> Games24x7, Mumbai, India Achievements: <ul style="list-style-type: none"> <li>• Developed and deployed crucial features - leaderboards, partial payments, tournament tickets which generate over 53% of revenue and handle over 1 million concurrent users(peak)</li> <li>• Achieved 15% - 20% overall performance improvement by initiating migration of web application from React 15 to React 16</li> </ul>	Jun 2018 - May 2020
	<b>Intern</b> Kartographers, Mumbai, India Helped secure project funding by successfully implementing the feature to live track hosts in maps with intra-zonal accuracy	Jul 2017 - Apr 2018
COMMUNITY OUTREACH	<b>Psyche Programming Intern</b> NASA Psyche Mission(ASU) Assist undergraduate students to develop, host, debug and maintain capstone projects (web/mobile apps, AR/VR/WebXR apps, server-database services)	Aug 2022 - Dec 2022
REFERENCES	<p><b>Prof. Joshua Daymude</b> Assistant Professor at School of Computing and Augmented Intelligence, Biodesign Center for Biocomputing, Security and Society at Arizona State University, <b>Email:</b> jdaymude@asu.edu</p> <p><b>Prof. Paulo Shakarian</b> Associate Professor at School of Computing and Augmented Intelligence, Center for Cybersecurity and Trusted Foundations Affiliates at Arizona State University, <b>Email:</b> pshak02@asu.edu</p> <p><b>Prof. Spring Berman</b> Associate Professor at School for Engineering of Matter, Transport and Energy, Global Security Initiative, Center for Human, Artificial Intelligence, and Robot Teaming at Arizona State University, <b>Email:</b> spring.berman@asu.edu</p>	