

# Paresh Bhambhani

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## CONTACT INFORMATION

ARM LAB  
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## RESEARCH INTERESTS

Multi-Agent Systems, Flocking and aggregation, Swarm algorithms, Multi-agent exploration, Graph theoretic methods in multi-agent systems.

## EDUCATION

### Colorado State University

Ph.D. Candidate, Electrical and Computer Engineering

- Research Area: Multi-Agent systems
- Advisor: Anthony Maciejewski

### Colorado State University

Masters in Electrical and Computer Engineering

- GPA: 3.77

### RCOEM, Nagpur University

B.E. in Electronics Engineering, June 2010

- GPA: 3.7

## GRADUATE COURSEWORK

- |                                                |                                                                           |
|------------------------------------------------|---------------------------------------------------------------------------|
| <input type="checkbox"/> Robot Motion Planning | <input type="checkbox"/> Fundamentals of Robot Mechanics and Controls     |
| <input type="checkbox"/> Topics in Robotics    | <input type="checkbox"/> Optimization Methods - Control and Communication |
| <input type="checkbox"/> Machine Learning      | <input type="checkbox"/> Application of Random Processes                  |
| <input type="checkbox"/> Numerical Analysis I  | <input type="checkbox"/> Overview of System Engineering Processes         |
| <input type="checkbox"/> Non-Linear Controls   | <input type="checkbox"/> Computer Organization and Architecture           |
| <input type="checkbox"/> Linear Algebra        | <input type="checkbox"/> Ethical Conduct of Research                      |

## COMPUTING SKILLS

- Languages and Packages: Matlab scripting, Python, C/C++, Latex, V+, ROS, limited exposure to Perl
- Algorithms: Experience programming/evaluating/debugging Swarm behavior algorithms and robot motion planning, Robot localization and mapping, Bayesian Filters(KF,EKF,Particle)
- Hardware and Platforms: Adept MV-One Robots, Marvell PXA and Harman Development Platforms, limited exposure to BeagleBone Black and Rasperry Pi
- Operating Systems: Unix/Linux, Windows

## ACADEMIC EXPERIENCE

### Colorado State University

*PhD candidate*

December, 2015 - present

- Current Research focuses on development of multi-agent/swarm system models for collective group tasks such as flocking, obstacle avoidance and collective exploration.
- Use of graph theoretic methods for consensus and group objective achievement.

*Graduate Teaching Assistant*

July, 2014 - present

- Teaching Assistant with Systems Engineering Dept. for ENGR 501 and Mech 501.

	<ul style="list-style-type: none"> <li>• Grading Student Assignments, projects and presentations.</li> <li>• Preparing Lecture Slides and Homework.</li> <li>• Address students' administrative and coursework related questions.</li> </ul>
GRADUATE PROJECTS	<ul style="list-style-type: none"> <li>• Creation of Swarm flocking framework based on the works of Olfati et al.</li> <li>• Creation of <i>Swarm Chemistry</i> framework based on the works of Sayama et al.</li> <li>• Creating Task Level Dynamic controller for Puma 560 robot.</li> <li>• Pick &amp; Place, and obstacle avoidance program for Adept MV-One robot.</li> <li>• Creation of C program to generate robot joint values, using inverse kinematics, for Puma 560 robot.</li> <li>• Debugging and resolving issue of offset in null-space motion of Adept MV-One Robot.</li> <li>• Comparing the performance of K-Means vs the Particle Swarm Optimization on digits and wine datasets.</li> </ul>
PROFESSIONAL EXPERIENCE	<p><b>Marvell Semiconductors</b>, Pune, India</p> <p><i>SQA and Automation Engineer</i> September, 2010 - December, 2013</p> <ul style="list-style-type: none"> <li>• Qualified Marvell's Bluetooth-Wifi solution releases for a customer tablet on WHCK.</li> <li>• Developed perl scripts for automation of protocol testing scenarios.</li> <li>• Carried out Customer requirement analysis, development of test environment and test setup, and creation of test scenarios.</li> <li>• Developed test plans and test cases for testing and validation of Bluetooth and Wifi protocols.</li> <li>• Led a team of 5 people to carry out testing of Bluetooth and Wifi functionality for 4 customer projects.</li> <li>• Independently worked on creating complete testing strategy, from requirement analysis to test setup and script creation, of HCI Audio architecture for BlueZ bluetooth stack on Linux.</li> <li>• Created intranet website for Test-bed reservation.</li> </ul>
LEADERSHIP EXPERIENCE	<ul style="list-style-type: none"> <li>• 'Team Lead' at Marvell Semiconductors for 4 projects leading a team of 5 members.</li> <li>• Student President in 2010 and Student vice-president in 2009 of Electrolitz, Electronics Department student society, RCOEM Nagpur.</li> <li>• Cofounder of Entrix, a Co-curricular and Academic program for students to provide them with technical education beyond classroom which is now in its 9 th year at RCOEM, Nagpur.</li> <li>• Captain of Electronics Department debate team at RCOEM, Nagpur.</li> </ul>
HONORS AND AWARDS	<ul style="list-style-type: none"> <li>• Received Marvell's recognition award for resolving critical pre-launch product issues at client site at Suwon, South Korea.</li> <li>• First Place in "Best English Article" in Aarohi-09, a national level competition at VNIT, Nagpur, India.</li> <li>• Second place in "Reacto Drive" in Quark-08, a National level Competition at BITS, Goa, India.</li> <li>• Awarded academic excellence certificate for the year 2007-2008.</li> </ul>