

# CURRICULUM VITAE – ROHAN R PALEJA

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## PERSONAL INFORMATION

Rohan Paleja  
Robotics PhD Student in CORE Robotics Lab  
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## PROFESSIONAL OBJECTIVE

Improve the ability for machines to understand humans and humans to understand machines. I focus on developing techniques and algorithms that can improve the compatibility of humans and machines, and help bring efficient and high-performing human-robot collaboration to fruition.

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## EDUCATION

**Ph.D. Georgia Institute of Technology, Atlanta GA.** in Robotics. 2018 – Present.  
Research Title : *Co-Adaptive Human-Robot Teaming via Anticipatory Machine Learning Modelling (CoHRT)*. More details at [www.rohanpaleja.com](http://www.rohanpaleja.com)  
**M.Sc. Rutgers University, New Brunswick NJ.** in Mechanical Engineering. 2017 – 2018.  
Thesis title : *Viability and Performance of Indoor Mapping Using the Velodyne VLP-16 LiDAR*.  
**B.Sc. Rutgers University, New Brunswick NJ.** in Mechanical Engineering. 2014 – 2017.  
*Magna Cum Laude.*

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## PUBLICATIONS

### Conference Proceedings -

- Paleja, R., Silva, A., Chen, L., and Gombolay, M. (2020) "Interpretable and Personalized Apprenticeship Scheduling : Learning Interpretable Scheduling Policies from Heterogeneous User Demonstrations." In Proceedings of the Conference on Neural Information Processing Systems (NeurIPS). [**20% Acceptance Rate**]
- Chen, L., Paleja, R., Ghuy, L., and Gombolay, M. (2020) "Joint Goal and Strategy Inference across Heterogeneous Demonstrators via Reward Network Distillation." In Proceedings of the Conference of Human-Robot Interaction (HRI). [**24% Acceptance Rate**]
- \*Niu, Y., \*Paleja, R., and Gombolay, M. (2020) "Multi-Agent Reinforcement Learning with Graph-Attention Communication." In Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS). [Under Review - October 8th, 2020]
- Chen, L., Paleja, R., and Gombolay, M.. "Learning from Suboptimal Demonstration via Self-Supervised Reward Regression." In Proceedings of the Conference on Robot Learning (CoRL). [Under Review - July 5th, 2020]
- Schrum, M., Neville, G., Johnson, M., Moorman, N., Paleja, R., Feigh, K., and Gombolay, M. (2020) "Effects of Social Factors and Team Dynamics on Adoption of Collaborative Robot Autonomy." In Proceedings of the Conference of Human-Robot Interaction (HRI). [Under Review - October 5th, 2020]

### Workshop Papers -

- Paleja, R., and Gombolay, M. (2020) "Heterogeneous Learning from Demonstration." In Proceedings of the Conference of Human-Robot Interaction (HRI) Pioneers Workshop. [**32% Acceptance Rate**]

### Thesis -

- Paleja, R., and Diez, J. (2020) "Viability and Performance of Indoor Mapping using the Velodyne VLP-16 LiDAR." *M.Sc. Thesis*, Rutgers University.
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## INDUSTRY EXPERIENCE

**Summer Research Intern. Advanced Concepts and Technologies Group, MIT Lincoln Laboratory** Summer 2019.

### **Research Assistant in the Cognitive Optimization and Relational (CORE) Robotics Lab**

- Learning from Multi-Modal Behaviors
  - Developed algorithms for learning from heterogeneous demonstrators, setting in a new state-of-the-art in imitation learning.
  - Modeled the reward functions across demonstrators, teasing out strategy-specific criteria to produce a new state-of-the-art in heterogeneous inverse reinforcement learning.
- Human-Robot Collaborative Coadaptation
  - Investigating how we can program AI behavior to induce a Nash equilibrium in collaborative tasks.
  - Developed a collaborative teaming environment in Minecraft as an interactive testbed to study human behavior as they work alongside an autonomous agent.
- Multi-Agent Reinforcement Learning
  - Developed Multi-Agent Graph-attention Communication (MAGIC), a graph-attention communication protocol in which we learn 1) a Scheduler to help with the problems of when to communicate and whom to address messages to, and 2) a Message Processor using Graph Attention Networks (GATs) with dynamic graphs to deal with communication signals.

### **Research Assistant in the Applied Fluids Laboratory**

- SLAM Modeling Using the Velodyne LiDAR
  - Developed a system to that can simultaneously avoid obstacles, localize, and map using the Velodyne VLP-16, a GPS, and an IMU

### **Undergraduate Capstone Project**

- Autonomous Lawn-care Vehicle
    - Create an Autonomous Lawn-care Vehicle that uses 3D Vision and Machine Learning for Object Detection and Weed Extermination
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### **Teaching Assistantship**

- Robot Intelligence : Planning (CS 7469-A) – Graduate Section, School of Interactive Computing (IC), Georgia Institute of Technology (Fall 2020) | Supervisor : Prof. Matthew C. Gombolay
- Robot Intelligence : Planning (CS 4649-A) – Undergraduate Section, School of Interactive Computing (IC), Georgia Institute of Technology (Fall 2020) | Supervisor : Prof. Matthew C. Gombolay
- Dynamics of Rigid Bodies (ME 2202), School of Mechanical Engineering (ME), Georgia Institute of Technology (Summer 2020) | Supervisor : Prof. Nader Sadegh
- Alternative Energy Systems (ME 474), School of Mechanical Engineering (ME), Rutgers University (Fall 2017) | Supervisor : Prof. Sara Moghtadernejad
- Aerospace Propulsion (ME 459), School of Mechanical Engineering (ME), Rutgers University (Spring 2018) | Supervisor : Prof. Doyle Knight

### **Advising & Mentorship**

- Yaru Niu, M.Sc. Student in the School of Electrical & Computer Engineering at the Georgia Institute of Technology
    - Developed Multi-Agent Graph-attention Communication (MAGIC), a graph-attention communication protocol
  - Sergey Savelyev
    - Developed a Recon-Blind Multi Chess agent based on AlphaZero
    - Thesis : Mastering Reconnaissance Blind Chess with Reinforcement Learning
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**Operating Systems :** Windows, Unix and Linux.

**Programming Languages :** Python, C++, L<sup>A</sup>T<sub>E</sub>X, Java, HTML.

**Noted Libraries :** PyTorch, TensorFlow, DGL, Pygame

**Scientific Softwares** Maple, Matlab, Simulink, Mathematica, LabVIEW, Unreal Engine, ROS.

**Languages :** English, Spanish.

AWARDS

**Technology Ventures Award**, Rutgers University, 2016  
**James J. Slade Research Scholar Award**, Rutgers University, 2016  
**General Engineering Scholarship**, Rutgers University, 2015

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PROFESSIONAL  
CERTIFICATIONS

**Udacity Robotics Nanodegree**, 2017-2018. [Credential URL](#).  
**Udacity Deep Learning Nanodegree**, *In Progress*  
**Udacity Deep Reinforcement Learning Nanodegree**, *In Progress*

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LEADERSHIP &  
ACADEMIC  
SERVICE

**Sponsorship Chair**, Human-Robot Interaction (HRI) 2020 Pioneers Workshop, Cambridge United Kingdom.  
**Technical Manuscript Reviewer for**,

- International Conference on Human-Robot Interaction (HRI)
- International Conference on Robot & Human Interactive Communication (ROMAN)
- International Conference on Neural Information Processing Systems

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MEMBERSHIPS

**IEEE Student Member**  
**RoboGrads, Robotics Graduate Student Organization**  
**Pi Tau, Mechanical Engineering Honor Society**  
**American Society of Mechanical Engineers**

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REFERENCES

References can be provided upon request