Sahit Chintalapudi

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Education

Massachusetts Institute of Technology **Boston**
2nd year Ph. D Student, Artifical Intelligence and Decision Making *2020–Present*
Advised by Dr. Leslie Pack Kaebling and Dr. Tomas Lozano-Perez

Georiga Institute of Technology **Atlanta**
B.S Computer Science, GPA: 3.94 *2016–2019*
Concentrations in Intelligence and Theory

Publications

[1] Keshav Kolur*, Sahit Chintalapudi*, Byron Boots, and Mustafa Mukadam. Online motion planning over multiple homotopy classes with gaussian process inference. *Proceedings of the International Conference on Intelligent Robots and Systems (IROS)*, 2019.

[2] Vinitha Ranganeni, Sahit Chintalapudi, Oren Salzman, and Maxim Likhachev. Effective footstep planning using homotopy-class guidance. *Artificial Intelligence*, 286:103346, 2020.

Research Experience

DeepMind **London**
Research Engineering Intern *March 2020–August 2020*
- Experimented with curricula generation methods for RL agents in the context of autonomous stacking.
- Developed internal infrastructure for collecting human demonstrations of manipulation in simulated environments.

Georgia Institute of Technology: Robot Learning Lab **Atlanta**
Undergraduate Research Assistant, advised by Dr. Byron Boots *2017–2019*
- Used C++, MATLAB, and the GTSAM toolbox to model the planning problem with a factor graph that adapted in real time to environment changes. In an environment with randomly moving obstacles, this algorithm reduced collision intensity by at least 37% compared to other approaches.
- Extending existing implementations of Model Predictive Control algorithms to run on the AutoRally platform and log data for Value Function Approximation.

University of Washington: Human-Centered Robotics Lab **Seattle**
Undergraduate Research Assistant, advised by Dr. Maya Cakmak *May 2019–Aug 2019*
- Implemented a Jacobian-Based Full-Body Controller for the Fetch Robot to perform research on mobile manipulation with ROS and C++.
- Researched Task Decomposition to facilitate high dimensional planning in the context of autonomous cleaning.

Carnegie Mellon University: Searched Based Planning Lab **Pittsburgh**
Robotics Institute Summer Scholar, advised by Dr. Maxim Likhachev *June 2018–Aug 2018*
- Developed C++ Software for a humanoid footstep planner which plans 16-128 times faster than the baseline approach in environments with many obstacles

Skills

Languages: Python, C++, MATLAB, Java

Tools: ROS, Tensorflow, PyTorch, NumPy, Linux, LaTeX, Eigen, GTSAM

Awards

2019 President's Undergraduate Research Award: Georgia Tech Grant

1st Place: Google Tech Challenge 2019

Best Collegiate Speed Demons Team: Sparkfun Autonomous Vehicle Competition 2018

1st Place Autonomous Car Wars: Sparkfun Autonomous Vehicle Competition 2017

3rd Place: International Autonomous Robot Racing Competition 2017

Hack Harrasement Award: SwampHacks 2017

Projects

MeleeML

Interactive Robot Learning Final Project *Fall 2019*

- Trained a Generative Adversarial Imitation Learning (GAIL) agent to learn how to play Super Smash Brothers Melee (SSBM) from Human Demonstration using PyTorch
- Designed and implemented an advantage actor-critic model to play SSBM by training against CPUs

The Agency: Undergraduate Machine Learning Club

Internal Operations Manager *2018–2019*

- Gave weekly lectures on Machine Learning topics not covered in the undergraduate ML curriculum.
- Topics include: GANs, Deep Reinforcement Learning, Kernel Methods
- Lead a project team on building an autonomous parade float for Georgia Tech's homecoming parade

RoboRacing: Autonomous RC Vehicles

Software Lead *2016–2018*

- Prototyped different deep network architectures in Keras for end to end learning of steering autonomous vehicles from images of the road.
- Managed a team of seven other developers, using GitHub issues to track team progress and coordinating with mechanical and electrical team leads
- Developed the plant PID controller on an Arduino

Relevant Coursework

MIT: Algorithms for Inference, Underactuated Robotics, Optimization Methods, Machine Learning

Georgia Tech: Interactive Robot Learning (Graduate Course), Computer Vision, Honors Probability and Statistics, Robotics and Perception, Machine Learning

Service

Robotics and Automation Letters (RA-L) 2021: Reviewer

Graduate Application Assistance Program Mentor 2020-2021: Mentored 4 students, providing feedback and advice on graduate school applications over the course of a semester

Robotics, Science and Systems (RSS) 2017: Student Volunteer