Sahit Chintalapudi

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Education

Massachusetts Institute of Technology   **Boston**
1st 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

President's Undergraduate Research Award: Georgia Tech Grant

1st Place: Google Tech Challenge 2019

Best Collegiate Speed Demons Team: Sparkfun Autonomous Vehicle Competition 2018

3rd Place: Google Games 2018

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

3rd Place: International Autonomous Robot Racing Competition 2017

Best Use of ClarifAI: SwampHacks 2017

Hack Harrasement Award: SwampHacks 2017

Projects

MeleeML
Interactive Robot Learning Final Project   *Fall 2019*
o Trained a Generative Adversarial Imitation Learning (GAIL) agent to learn how to play Super Smash Brothers Melee (SSBM) from Human Demonstration using PyTorch
o Designed and implemented an advantage actor-critic model to play SSBM by training against existing CPUs

The Agency: Undergraduate Machine Learning Club
Internal Operations Manager   *2018–2019*
o Gave weekly lectures on Machine Learning topics not covered in the undergraduate ML curriculum.
o Topics include: GANs, Deep Reinforcement Learning, Kernel Methods
o Lead a project team on building an autonomous parade float for Georgia Tech's homecoming parade

RoboRacing: Autonomous RC Vehicles
Software Lead   *2016–2018*
o Prototyped different deep network architectures in Keras for end to end learning of steering autonomous vehicles from images of the road.
o Managed a team of seven other developers, using GitHub issues to track team progress and coordinating with mechanical and electrical team leads
o Developed the PID controller which acted as in interface between the hardware and the racing AI on an Arduino

Relevant Coursework

MIT: Algorithms for Inference (In Progress)

Georgia Tech: Interactive Robot Learning (Graduate Course), Machine Learning, Computer Vision, Honors Probability and Statistics, Robotics and Perception, Introduction to Artificial Intelligence, Second Course in Linear Algebra, Honors Design and Analysis of Algorithms