GEETHIKA HEMKUMAR

737-932-3625 | ghemkuma@andrew.cmu.edu

https://www.linkedin.com/in/geethika-hemkumar-87918b168/ | https://github.com/geethikah21/

EDUCATION

University of Texas, Austin, TX - *Master of Science in Computer Science* GPA: 3.73/4.0   ***May 2024***

University of Texas, Austin, TX - *Bachelor of Science in Computer Science* GPA: 3.81/4.0   ***May 2024***

Relevant Coursework: Robot Learning; Neural Networks; Planning, Search, and Reasoning; Human Signals: Sensing and Analytics

RESEARCH EXPERIENCE

Living with Robots Laboratory, University of Texas at Austin - *Research Assistant*   ***Jun 2020 - Aug 2025***

- Developed navigation software for robot social navigation study designed to investigate human perceptions of the Boston Dynamics Spot placed in various social roles
- **In progress**: developing software for human-robot interaction study to investigate effectiveness of robot navigational signaling behaviors

POSTER PRESENTATIONS

Look to my Lead: How Does a Leash Affect Perceptions of a Quadruped Robot?   ***May 2022***

International Conference on Robotics and Automation (ICRA) Workshop on Social Robot Navigation: Advances and Evaluation, 2022

PUBLICATIONS

Reinforcement Learning Within the Classical Robotics Stack: A Case Study in Robot Soccer

Proceedings of the International Conference on Robotics and Automation (ICRA), 2025

'What's That Robot Doing Here?': Perceptions Of Incidental Encounters With Autonomous Quadruped Robots

Proceedings of the First International Symposium on Trustworthy Autonomous Systems, 2023

WORK EXPERIENCE

Goldman Sachs, *Engineering Analyst*   ***July 2024 - July 2025***

- Maintained, enhanced, and deployed large-scale data pipelines

Goldman Sachs, *Summer Analyst*   ***June 2023 - Aug 2023***

- Built a webpage using React to enable digitalization/automation of team's critical software review process
- Collaborated with VPs and engineers to design/implement user interface, database structure, and data flow
- Created a repository of reusable UI components to greatly facilitate extensibility of the application

ClickTime, *Software Development Intern*   ***June 2022 - Aug 2022***

- Made significant contributions to the redesign and enhancement of a critical feature from the ground up
- Modernized frontend using React and added a new endpoint to REST API to support a new feature

Charles River Analytics, *Software Engineer Intern*   ***May 2021 - Aug 2021***

- Assisted with development/modularization of ongoing robotics project's simulation to facilitate algorithm testing
- Built a Python tool to collect and visualize data from simulation in real time, facilitating algorithm improvements

PROJECTS

Human Sensing and Signals Course Project, University of Texas at Austin   ***Spring 2024***

- Developed prototype for a system consisting of a mobile application and wrist-worn device to track/improve hydration habits based on amount and intensity of physical activity
- Collected data for and trained drinking gesture and activity recognition random forest models

Robot Learning Course Project, University of Texas at Austin   ***Fall 2023***

- Developed framework to enable robots to reason about stable block-stacking based on face surface area
- Utilized *robosuite* to collect data for training a keypoint estimator based on the YOLOv8 model in order to estimate surface area of each block's face

ACTIVITIES & MENTORING

RoboCup Standard Platform League Team, University of Texas at Austin   *Sep 2022 - July 2024*
- Designed an algorithm built on OpenCV's Hough lines implementation to enable soccer field line detection for Nao humanoid robots
- Utilized 2D simulation to train a deep reinforcement learning policy for goalie Nao robot
- Developed an analytical positioning algorithm for the goalie Nao robot that was used in the 2024 competition
- Team won division at 2024 competition

Freshman Research Initiative, University of Texas, Austin, TX - *Peer Mentor*   *Jan 2021 - Dec 2022*
- Assisted students with assignments related to ROS, OpenCV, and rigid transformations
- Guided student groups during semester-long projects during second course in sequence

Freshman Research Initiative, University of Texas, Austin, TX - *Undergraduate Researcher*   *Spring and Fall 2020*
- Received a first-year fellowship to assist with robotics research in Summer 2020
- Built an apartment simulation using Gazebo and created simulator using gRPC/C++ to model protocols of the Boston Dynamics Spot
- Integrated simulator with autonomy stack to demonstrate its similarity to physical robot

SKILLS

Computer Languages: Proficient in Java; **Experienced** in C/C++, Python, R, TypeScript; **Familiar** with MATLAB, SQL, C#
Software Experience: Robot Operating System (ROS), Gazebo, gRPC, Android/iOS App Development, React, Flask, Google Test, Pytest, OpenCV, Mac, Linux, Docker, .NET, Elasticsearch, REST API Development, Kafka, Kubernetes

INDEPENDENT COURSEWORK

Udacity AWS Machine Learning Engineer Nanodegree - Learned about machine learning orchestration
- Projects: Fine-tuning CNNs using PyTorch and implementing image classification workflow