Abhinav Kumar

Undergraduate student interested in novel research in deep learning with applications in reinforcement learning and robotics seeking research opportunities

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EDUCATION

Computer Science with focus on Intelligence and Modeling/Simulation

Georgia Institute of Technology, Atlanta GA

08/2017 - 12/2021 (ant.) *4.00*

Courses

- Deep Learning
- Intro to AI
- Optimization
- Computer Vision
- Differential Equations
- Statistics

WORK EXPERIENCE

Intern

NASA

01/2020 - 08/2020

Achievements/Tasks

- Implemented transfer learning pipeline using BERT and PyTorch to extract keywords from scientific publications
- Implemented module to crawl through Wikipedia articles and apply TextRank analysis to extract keywords from a Wikipedia subgraph
- Working on research publication connected to this work

Undergraduate Research Assistant

Georgia Tech Machine Learning and Perception Lab

08/2019 - 08/2020

Achievements/Tasks

- Worked on research project combining symbolic representations and deep learning for automating solving of math problems
- Helped to develop approach as well as contributing to an in progress research paper associated with the project
- Used PyTorch to create library and testing framework for the project
- Currently continuing similar work with former members of the lab

Project Leader/Technology Team Member

HackGT

12/2018 - 12/2020

Georgia Tech student organization that organizes hackathons and computer science education/outreach events

Achievements/Tasks

- Led implementation of NLP system for hackathon application grading that reduced grading time on over 80% of hackathon applications using Flask and NLTK
- Led improvement of SlackBot interface used to grade applications using Express.js, MongoDB, and Slack API
- Led creation of intelligent NLP chatbot for use by hackathon participants to answer common participant questions using Express.js and Slack API

SKILLS

Python ●●●●●

PyTorch ●●●●○

Deep Learning ●●●●○

Teamwork ●●●●○

Project Management ●●●○○

OTHER PROJECTS

Leveraging Reinforcement Learning for Trajectory Optimization (08/2020 - 12/2021 (ant.))

- Working on using reinforcement learning techniques to improve trajectory optimization for robotic locomotion in situations with contact. Using PyDrake with plans to incorporate deep reinforcement learning and A1 quadruped robot

Intelligent Network Collision Avoidance (01/2019 - 04/2019)

- Developed a testing framework as part of a Vertically Integrated Project team for evaluating different strategies for avoiding collisions on a wi-fi network. Implemented exponential back-off and Deep Q Network models using Keras. Developed skills relating to reading and analyzing research papers and an understanding of the research process.

LANGUAGES

English
Native or Bilingual Proficiency

Tamil
Native or Bilingual Proficiency

Spanish
Limited Working Proficiency

INTERESTS

Robotics | Computer Vision | Reinforcement Learning | Deep Learning | Research