Pujith R. Kachana

pkachana3@gatech.edu | +1-614-822-7449 | pkachana3.github.io
www.linkedin.com/in/pujith-kachana-8965301b9

Education

Georgia Institute of Technology, Atlanta, GA — Aug 2020 - Spring 2023 (expected)

- Candidate for Bachelor of Science in Computer Science, **GPA**: 4.0
- **Coursework**: Robotics and Perception, Computer Vision, Machine Learning, Intro to AI, Algorithms Design, Data Structures and Algorithms, Systems and Networking, Object Oriented Design, Probability and Statistics
- **Research Interests:** Robotic navigation and manipulation, perception, efficient RL, human-robot interaction

Skills

Software: C/C++, Python, Java, TensorFlow, PyTorch, Linux, ROS, Git, Cloud Computing
Concepts: Machine Learning, Computer Vision, Probabilistic modeling, Embedded Systems, CAD, Circuit Design

Research Experience

SLAM Algorithms Research for Mini-Cheetah Quadruped Robot — Dec 2021 - Present

- Architecting real-time LIDAR Graph-SLAM algorithm with stereo camera, IMU, and factor graph for legged robots
- Computing legged motion dynamics and integrating sensor fusion for robust measurements and odometry
- Engineered IMU-PID gimbal to extract sinusoid patterns from quadruped gait to reduce stereo camera motion blur

Robotic Snail Localization and PBVS — Nov 2021 - Present

- Designing monocular localization and odometry system on Raspberry-Pi robot snail using PnP algorithm
- Implementing position-based visual servoing for differential drive motion control towards target pose or landmark
- Securely interfacing with server for real-time localization using proprietary feature encryption for privacy protection

Map Exploration and Object Instance Search — April 2022 - Present

- Developing map exploration algorithms for complete environment observation and object search using Habitat-Sim
- Designing and benchmarking robot road-mapping, reinforcement learning, and traditional approaches to exploration

Benchmarking Modified DQN Algorithm with Stability Guarantees — Feb 2022 - May 2022

- Implemented various forms of DQN on CartPole problem to validate stability guarantees of modified DQN algorithm
- Experimented with replay buffer, target network, truncation, and tuning of DQN to study stability and efficiency

Work Experience

Amazon Robotics R&D Software Development Co-op — July 2022 - Dec 2022

- Orchestrating workflow for next generation of warehouse workcells in fast-paced R&D environment
- Leveraging robot control framework to interface with vision and perception systems, AWS cloud, and robot actuators
- Creating logic system for federated task planning of robot arms and drive units for package picking and storage
- Integrating motion-planning, object manipulation, object tracking, and upstream cloud services for warehousing

TeamDynamix Software Engineering Intern, Columbus, OH — May 2021 - Aug 2020

- Reduced 400+ web accessibility issues analysis tools through creative solutions to comply with WCAG 2.0
- Diversified analysis services by implementing 5+ new tabling features with C# and MVC, learned .NET and Azure

VYIT Innovation Intern, Team Lead, Ventech Solutions, Columbus, OH — June 2018 - Aug 2020

- Coordinated research on disruptive technologies with 40 motivated high schoolers, gained exposure to business analysis, venture capitalist presentations, start-up lifecycle, collaboration, and dedicated team management
- Pitched product ideas to local investors, one successful and creative idea received $10,000 initial funding

Leadership Experience

Georgia Tech Organizations

- Research Assistant for Prof. Ada Gavrilovska and Teaching Assistant for Intro to AI — Spring 2022
- Ground Software Team Lead and Responsible Engineer for Yellow Jacket Space Program Launch Team
  - Directed a team of 5 developers to create functional DAQ and engine controller for successful rocket static fire
- Officer for Android Dev Club and Electronics Makery club, Member of AI club and Competitive Programming Team

BHT Camp Counseling Logistics Manager — Jan 2019 - July 2019

- Supervised logistics and supplies for weeklong camp program at BHT Temple for over 120 children

COSI Science Center Guest Services — Sept 2016 - Aug 2019

- Demonstrated science exhibits and managed technical guidance as COSI Guest Services member

Additional Information

Awards: National Merit Winner, All-State high school triple and long jumper (2020)

- Competed at HackGT Hackathon (2020, 2021), Code for Good (2022), and ICPC North America Qualifier (2021)

Hobbies: Prototype projects (3D printed drone, robot arm), pick-up sports, music/art production, movies