Saaketh Reddy Chintha Reddy

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Georgia Institute of Technology	MS Mechanical Engineering	GPA: 4.00	*May 2025 – Dec 2026*
Georgia Institute of Technology	BS Mechanical Engineering	GPA: 3.90	*Aug 2020 – May 2025*

Research

LiDAR(VIP) ~ Dr. Ye Zhao *August 2023 – Present*

- Implemented an Invariant Extended Kalman Filter (InEKF) for state estimation on the Agility's Digit humanoid robot, Unitree's G1 and Go2 leveraging Pinocchio for forward kinematics computation
- Conducted an investigative study of MuJoCo simulation parameters to analyze their effects on Digit's walking behaviors
- Optimized path planning and obstacle avoidance by implementing object clustering and a collision detection algorithm
- Engineered an innovative gear-pulley actuation mechanism for a parallel gripper to precisely track and transmit servo torque

Environmental Fluid Mechanics Lab (VIP) ~ Dr. Mohammad Mohaghar *Jan 2025 – August 2025*

- Successfully led an undergraduate team to design and prototype a magnetically actuated, jellyfish-inspired soft robot
- Implemented flux-concentrating elements to amplify a weak magnetic field, eliminating the need for expensive polarizers

SEAL Georgia Tech Research Institute **Smyrna, Georgia**

Student Assistant - Undersea Sonar Signal Processing *Jan 2024 – May 2024*

[J1] W. N. Newcomb, S. Reddy, A. Satish, and A. Medda, **Time–frequency spectral optimization of underwater sonar acoustic returns for characterization using spectral descriptors**, J. Acoust. Soc. Am., vol. 156, pp. A25–A26, 2024

Experience

Georgia Institute of Technology **Atlanta, Georgia**

Graduate Teaching Assistant – System Dynamics ME 3017 *Aug 2025 – Present*

- Led weekly recitation sessions and office hours across all four course sections, covering Laplace analysis, state-space modeling, and system stability

Auriga Space **Los Angeles, California**

Mechanical Engineering Intern *Aug 2024 – Dec 2024*

- Led rapid prototyping division using FDM & SLA printers to design and print 20+ unique parts for tooling and high load-bearing applications. Reduced production costs by 90% and prototype iteration time by 80%
- Developed a novel test bench to analyze the minimum pulse width detectable by photodiodes. Also, enhanced sensor detection by 60% by designing a light-collimating setup that tracks the position of a projectile moving over 2000 m/s

Sandia National Labs (Q Clearance Applicant DOE) **Livermore, California**

R&D Intern - Telemetry & Handling Gear Engineering *Summer 2023 & 2024*

- Designed 3 unique fixtures for vibration testing of telemetry assemblies. Performed modal & structural analysis in Creo to ensure fixture integrity. Produced machine drawings with GD&T annotations
- Automated vibration & shock test data analysis using MATLAB, cutting work time by 75% and saving 20+ hours weekly
- Partnered with Pelican™ to design and engineer a foam shipping container, safeguarding a multi-million-dollar telemetry assembly from impacts, vibrations, and ESD during transport
- Defined requirements and procedures for both thermal and lifting rings strength evaluations for a classified gas detector, ensuring compliance with DoD specifications.

Flowers Invention Studio **Georgia Tech**

Prototyping Instructor *Aug 2023 – Present*

- Train 20+ students weekly on the use of 3D printers, waterjets, laser cutters, woodworking and metalworking tools while assisting peers in integrating design for manufacturing & assembly for their academic/personal projects

Projects

Serial Robotic Arm *May 2025 – July 2025*

- Implemented full manipulator modeling and control pipeline using DH parameters, forward/inverse kinematics, and dynamics, validated through end-effector trajectory tracking
- Designed and tuned joint-space PID controllers with gravity compensation in Simulink and analyzed torque profiles.
- Optimized robot workspace performance via manipulability ellipsoid analysis, applying gradient-based optimization to maximize manipulability along the task trajectory

Capstone – Noise Cancelling Headphones *Jan 2025 – May 2025*

- Designed and manufactured a fully custom noise-canceling headphone system, owning all mechanical components from concept through fabrication
- Led acoustic-mechanical design of sealed earcups and internal chambers to maximize passive noise isolation and sound quality, informing material selection, venting strategy, and sealing geometry
- Iteratively developed a headband through 25+ prototype cycles, optimizing comfort, flexibility, and durability via geometry tuning and material selection leveraging rapid prototyping techniques
- Coordinated across sub teams to integrate PCB packaging, thermal considerations, and cable routing within a compact enclosure

Gesture-controlled RC car *Aug 2023 – Dec 2023*

- Utilized a Texas Instruments microcontroller and integrated IMU using Arduino to capture hand gestures
- Developed motor driver programming, incorporated omni wheels, and designed a custom chassis and wheel drive
- Implemented a PD controller for constant velocity under varying loads and elevations

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Relevant Coursework

Nonlinear Controls, Convexifying Autonomous Decision-making, Linear Controls, Dynamics of Mechanical Systems, Robotics, Optimal Control, Mechatronics