

ARCHIT SHARMA

New York, NY ◊ as20424@nyu.edu ◊ [Portfolio](#) ◊ [GitHub](#) ◊ [LinkedIn](#)

EDUCATION

New York University

M.S. Mechatronics and Robotics

Sept 2024 - Present

GPA: 3.8

Birla Institute of Technology Pilani - Goa

B.Tech Mechanical Engineering

Aug 2019 - May 2023

GPA: 3.4

SKILLS

- **Programming Languages:** C/C++, Python, C#, MATLAB
- **Robotics and Simulation:** ROS/ROS2, MuJoCo, IsaacSim, Unity, Unreal Engine, OptiTrack
- **AI and Computer Vision:** PyTorch, TensorFlow, OpenCV, Open3D, Scikit-Learn, OpenGL
- **CAD and Hardware:** SolidWorks, Onshape, Ansys, COMSOL, Embedded Systems

PUBLICATIONS

NEURAL NETWORK-BASED CONTROL FOR VEHICLE SUSPENSION SYSTEMS WITH ACTIVE DAMPING

Archit Sharma, Pravin M Singru

The 30th International Congress on Sound and Vibration, 2024

PROJECTS

Optimal Control and Reinforcement Learning

Sept 2025 - Dec 2025

- Engineered a custom reward model for a PPO deep reinforcement learning pipeline, training a Unitree Go2 robot in NVIDIA Isaac Sim to achieve robust locomotion across different terrains.
- Designed an MPPI (Model Predictive Path Integral) controller for a 3R planar manipulator to achieve precise joint control
- Developed a Model Predictive Control (MPC) to ensure trajectory-tracking and stability for simulated drones
- Programmed a Q-learning-based controller to solve the inverted pendulum problem

Robot Perception and Computer Vision

Sept 2025 - Dec 2025

- Implemented a custom Optical Flow algorithm in OpenCV to track the motion of vehicles
- Developed an image retrieval pipeline using SIFT-VLAD and a ResNet network trained on the VPR dataset to accurately identify locations in New York

Formation Control and Flocking for Drone Swarms

Mar 2025 - May 2025

- Simulated decentralized drone swarms in Unity, programming flocking and collision avoidance behaviors using Boid rules and a potential field control
- Researched Particle Swarm Optimization (PSO) algorithms that encourage drone exploration

Gesture Controlled Hexapods

Nov 2024 - May 2025

- Engineered a custom gesture-controlled hexapod, integrating motor drivers, flex sensors, and accelerometers with an on-board microcontroller via Wi-Fi telemetry
- Implemented gait algorithms to execute stable, multidirectional legged locomotion

EXPERIENCE

Applied Dynamics and Optimization Laboratory

Sept 2025 - Present

Graduate Student Researcher

NYU, New York

- Developed a simulation framework through the integration of COMSOL fluid solver and MuJoCo physics to analyze the kinematics and dynamics of bio-inspired carangiform (fish) locomotion
- Implemented convex optimization algorithms to correct model inaccuracies, enhancing the physical accuracy and reliability

Robotic Design Team

Jan 2025 - May 2025

Mechanical Engineer

NYU, New York

- Used SolidWorks and Onshape CAD Software to design and rapidly prototype the excavation subsystem for the NYU Lunabotics Rover
- Conducted rigorous physical testing, passing all preliminary operational tests

Dynamics and Vibrations Lab

Aug 2021 - Jan 2024

Undergraduate Student Researcher

BITS Pilani, Goa

- Researched and implemented closed-loop control algorithms (PID, LQR, Sliding Mode) in MATLAB-Simulink to dampen vibrations in a semi-active suspension system.

Computational Intelligence Lab

Jan 2023 - Aug 2023

Research Intern

IISc, Bengaluru

- Conducted simulations of musculoskeletal dynamics in OpenSim, analyzing deep muscle activity by integrating motion capture data collected via an OptiTrack system for 5+ subjects
- Developed a signal processing pipeline in MATLAB using FFT and band-pass filters to successfully denoise and analyze hours of IMU and EMG sensor data