Aniket Mandhare

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EDUCATION

California State University **Expected: May 2025**
M.S., Mechanical Engineering, GPA: 3.81/4.0
Relevant Coursework: Biomechanics, Finite Element Methods, Control Systems, Mechatronics

Savitribai Phule Pune University **June 2015 - May 2019**
B.S., Mechanical Engineering, GPA: 8.04/10

SKILLS

- Catia V5, Solidworks, Fusion360
- C++. Python
- CAM, 3d-printing
- Ansys
- DFM & DFA
- Manual milling, turning
- GD&T (Y14.5)
- CoppeliaSim, Pybullet
- Soldering, electrical wiring

WORK EXPERIENCE

California State University **Aug. 2024 – Present**
Teaching Associate *Fullerton, CA*
- Mentored 120+ students in the principles of engineering graphics, standards and design processes
- Created course syllabus for an engaging learning experience, accommodating students from various age groups and educational backgrounds
- Performed team-building exercises, guiding groups in the execution and completion of their freshman projects

Strider Robotics, Indian Institute of Science **Feb. 2023 – June 2023**
Mechanical Design Engineer, Actuators *Bengaluru, India*
- Designed a compact 1:16 multi-stage planetary gear reduction system delivering 80+ Nm torque
- Analyzed fits and tolerances to achieve minimal backlash and low internal friction
- Spearheaded prototyping efforts, delivering a functional actuator prototype in under 3 months through coordination with external vendors and manufacturers
- Developed a custom test rig to evaluate actuator stiffness, backlash and peak torque

PROJECTS

Reconfigurable Walker – *Graduate Thesis*
- Created a six-legged robot using reconfigurable planar kinematic linkages for foot trajectory generation
- Engineered a novel mechanism for synchronous reconfiguration and actuation of all six legs with only three actuators, enabling various movement patterns
- Augmented planar leg linkages for compliance to produce non-planar motion, enabling steering

Quadruped Robot – Minimal
- Designed and built a miniature, 12 DOF quadruped, consisting largely of FDM printed parts
- Generated a robot URDF for reinforcement learning simulations in PyBullet
- Programmed a function to emulate ground reaction and contact sensors in simulation

Cycloidal actuators
- Developed a BLDC-motor based closed-loop actuator with position, velocity and torque control capabilities
- Created a 1:10 cycloidal reduction for increased output torque, low backlash and high back-drivability
- Designed for seamless integration of motor control board and wiring

PUBLICATIONS

- **Research paper (ICCAR 2025 – Accepted):** Ground contact and reaction force sensing for linear policy control of quadruped robot
- **Research paper (IDETC 2025 – Accepted):** Novel reconfigurable phase changing mechanisms for realizing a spectrum of walking motion (Graduate thesis)
- **Newspaper article (Robot dog Schvaan):** Pune engineers develop robot dog