Yunliang Zhao

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EDUCATION

Carnegie Mellon University **PA, U.S.**
Master of Science in Mechanical Engineering **(GPA: 4.0)** Expected May 2026
Relevant Courses: Modern Control Theory, Robot Dynamics & Analysis, Mechanics of Manipulation, Optimal Control & Reinforcement Learning, AI & Machine Learning, Advanced Mechatronics, Trustworthy AI
Research: *MetaMobility Lab* — Control and design of exoskeletons

New York University: Tandon School of Engineering **NY, U.S.**
Bachelor of Science in Mechanical Engineering, Minor in Management **(GPA: 3.5)** Sep. 2019 – May 2023
Relevant Courses: CAD, Thermodynamics, Statics, Dynamics, Machine Design, Fluid Mechanics, Automatic Control, Heat Transfer, Finite Element Modeling, Project Management
Activities: Captain, *NYU UltraViolet RoboMaster Team*, *Tandon CSSA*

SKILLS

CAD & Simulation: SolidWorks, Fusion360, Onshape, Ansys
Programming: Python, MATLAB/Simulink, SQL, C++, Arduino C
Control Systems: MPC, TVLQR, LQR, PID, Impedance Control
Hardware & Manufacturing: PCB Design, Soldering, 3D Printing, Laser Cutter, Manual Machining, CNC
Languages: English, Mandarin

RESEARCH EXPERIENCE

MetaMobility Lab Sep. 2024 - Present
- Designed PCBs and cable systems for V1 & V2 hip exoskeleton prototypes
- Assisted in mechanical design of hip exoskeleton
- Programmed **Teensy 4.1** for low-level control of a knee exoskeleton
- Designing a **controller for sit-to-stand assistance** in knee exoskeletons

WORK EXPERIENCE

Nanjing Encos Intelligent Technology Co., Ltd Nanjing, China
Design and Structural Engineer Intern Sep. 2023 – Aug. 2024
- Designed, manufactured, and assembled **custom motors** using SolidWorks
- Generated engineering drawings and directly communicated with manufacturers
- Gained experience designing **planetary reducer gearboxes**
- Calibrated motor parameters using **VESC firmware and hardware tools**

PROJECT EXPERIENCES

Optimal Control and Reinforcement Learning (Course Project) Jan. 2025 - May 2025
- Implemented and compared **PID, TVLQR, and MPC** controllers for trajectory tracking
- Utilized **April Tag** technology for position localization

Robot Manipulation and Locomotion Design (Course Project**)** Apr. 2023 - May 2023
- Developed controllers for a robot to pick and place blocks into a bowl
- Evaluated the performance of resolved-rate, impedance, and PD controllers
- Built kinematic control functions using **forward and inverse kinematics**

NYU UltraViolet RoboMaster Team (Captain) Sep. 2020 – Aug. 2023
- Led a **90+ member team** competing in RoboMaster competitions
- Oversaw 3 sub-teams building multiple robots annually; advised on feasibility and efficiency
- Designed mechanical structure of the infantry robot using **SolidWorks, Onshape, and Ansys**
- Fabricated parts using **3D printing, CNC, laser cutting, and waterjet machining**
- Applied **agile and waterfall** management techniques to track progress

HONORS & AWARDS

Dean's List 2021-2023
RoboMaster University League: 5th Place (2022 & 2023), 3rd Place (2021)