

Anthony Ng

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Education

M.S. IN ROBOTICS | GEORGIA INSTITUTE OF TECHNOLOGY | GRAD: SPRING 2028

- Coursework: Dynamics of Mechanical Systems, Linear Controls, Probability Theory for Sci/Eng

B.S. IN MECHANICAL ENGINEERING | UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN | GRAD: FALL 2025

- GPA: 3.97/4.00; Minor: Computer Science
- Bronze Tablet Award (Top 3%), Highest Honors, James Scholar Honors, 6x Dean's List
- Highlighted Coursework: Robot Dynamics and Controls, Computer Control of Mechanical Systems, Mechanical Design Optimization, Numerical Methods, Deep Learning for Computer Vision

Skills

- **Software:** Solidworks, Creo, Fusion 360, Arduino, Java, C++, Python, Matlab, MS Suite, Agile, Windchill
- **Other Skills:** DOE, 3D Printing & Machine Tools, Change Order/Doc Control, CT Scanning

Industry Experience

MECHANICAL ENGINEERING INTERN | INTUITIVE SURGICAL | SUMMER 2026

- Designed and fabricated a modular fixture and test method to conduct component-level friction testing across all DaVinci Multiport Core 8 mm instruments
- Conducted CT scanning and material testing for metallic 3D printed vs metallic injection molded (MIM) patient-contacting components
- Designed and assembled safety cladding and fixturing for critical Force Feedback test equipment

MECHANICAL ENGINEERING INTERN | BROOKS AUTOMATION | SUMMER 2025

- Led customer collaboration to diagnose EFEM vibrations using 3-axis accelerometer data and Python spectral analysis, presenting findings/recommendations to technical and non-technical stakeholders
- Performed load calculations under static and dynamic cases and conducted FEA (including simplified CAD models) for various configurations in an upcoming robot redesign using Creo and Python
- Designed fixture to parallelize 24-hr motor test, allowing multiple units to be tested w/o full assembly

MECHATRONIC EQUIPMENT ENGINEERING INTERN | INTUITIVE SURGICAL | SUMMER 2024

- Designed, prototyped, and built fixture to improve safety and ergonomics in warehouse w/ Solidworks
- Collaborated with cross-functional team to design Da Vinci 5 surgeon-side console motor test module
- Finalized and refined designs leveraging FEA, 3D printing, and drawings (including GD&T)

MANUFACTURING ENGINEERING INTERN | ENDOVASCULAR ENGINEERING | SUMMER 2023

- Designed, prototyped, change order released, and performed equipment qualification for manufacturing and inspection fixtures, leveraging Solidworks and Bambu Lab & Phrozen 3D Printers
- Developed and improved radial force and tensile tests for incoming inspection of critical manufacturing components leveraging Mark-10 test stands, MSI radial force test, Excel, and VSCode (Python)

R&D ENGINEERING INTERN | EARLENS CORPORATION | SUMMER 2022

- Analyzed product return data to streamline solutions for Operations using QAD, Rhino3D, and Excel
- Conducted DOE and feasibility testing on new tubing material using Minitab, Geomagic, and ScanApp

Research Experience

GRADUATE RESEARCHER | GT EPIC LAB: POWERED PROSTHESIS (DR. YOUNG) | FALL 2026 - PRESENT

- Supporting prosthetic trials with motion-capture and onboard sensor data collection
- Integrating and configuring new BLDC/IMUs for OSL powered prosthetic using Jetson Orin Nano
- Integrated a hardware E-stop for OSL and tested circuit at various currents using ESP32 C++ script

UNDERGRADUATE RESEARCHER | UIUC IBB LAB (DR. LUETKEMEYER) | SPRING 2024 - FALL 2024

- Developed a thermoregulated bath for in situ testing/confocal microscopy of biological specimens
- Designed for machining (included drafted drawings) and 3D printing using Solidworks

- Selected thermal materials to optimize lab safety and fixture effectiveness

Extracurricular Experience

SMALL-GROUP LEADER | INTERVARSITY CHRISTIAN FELLOWSHIP | FALL 2024 (MEMBER: FALL 2022) - PRESENT

- Co-leading weekly small group inductive Bible studies & planning larger social events and activities
- Drumming in large group worship band ~once per month
- Discipling younger students biweekly to mentor them in their faith journeys

GAIT WALKER TEAM | UIUC MEDLAUNCH | FALL 2023 - SPRING 2024

- Updating a customized gait walker for a community partner to fix maintenance and comfort problems
- Managing and reporting team finances (purchases and fundraising) using Excel
- Utilizing stress analysis and force diagrams to iterate on the handlebars and chassis for the walker

WHEELCHAIR ARM TEAM | UIUC MEDLAUNCH | FALL 2022 - SPRING 2023

- Sketched and designed CAD models using Fusion360 for an attachable, telescoping rear-view mirror gimbal (2 degrees of freedom) arm for a wheelchair
- Collaborated with a technical and non-technical team members to brainstorm potential designs
- Met with community partner to pinpoint unmet needs and insure user-centricity

Class Project Highlights

OSCILLATORY FLUME CONTROL INTEGRATION | ME470 (SENIOR DESIGN) | FALL 2025

- Collaborated in team of 4 to implement a single-user-operable oscillatory flume under Prof. Chamorro
- Tuned ODrive P + PI cascade position controller to achieve square, triangle, and sine waves with amplitude range 10-30 cm and frequency range 0.1-0.5 Hz
- Designed (Fusion 360) and built rack & pinion piston drive system and its structural extrusion framing
- Awarded 2nd out of 32 teams for Best Trade Show Exhibit (faculty-voted)
- Demo Video: https://youtu.be/jESVvx_8YNc

DRAW-BOT | ME461 (COMPUTER CONTROL OF MECHANICAL SYSTEMS) | FALL 2025

- Collaborated in group of 4 to integrate Segbot feature to physically draw digital drawings
- Implemented OpenCV/Scikit-image script to translate MS Paint files to robot trajectory points
- Leveraged straight-line path algorithm utilizing IMU and wheel-encoder data to control robot in C

BIKE FRAME TOPOLOGY OPTIMIZATION | ME498 (MECHANICAL DESIGN OPTIMIZATION) | FALL 2025

- Implemented 2D plane stress optimization in Python to topologically optimize a bike frame structure
- Simulated load patterns to account for various bike and riding styles
- Submitted proposal, report, and oral presentation for a mock-conference

3-LINK MANIPULATOR OBSTACLE COURSE | ME446 (ROBOT DYNAMICS AND CONTROLS) | SPRING 2025

- Implemented task-space PD & impedance control with variable stiffness for compliant interaction and obstacle navigation on a CRS robot arm in C and MATLAB
- Developed forward and inverse kinematics algorithms and integrated Jacobian-based force mapping for real-time trajectory tracking in 3D space
- Programmed straight-line trajectory generation to traverse through peg insertion, zig-zag corridors, and pressing an egg in a certain force-tolerance

LOAD-CARRYING R/C MANUAL TRANSMISSION CAR | ME371 (MECHANICAL DESIGN II) | SPRING 2025

- Collaborated in group of 4 to design an R/C electronic sequential dog-clutch manual transmission car
- Designed the chassis to mount and house electromechanical components for laser cutting and 3D printing using Fusion360
- Obtained top speed of 0.4 m/s and reduced total weight to 688 g (w/ batteries) and volume to bounding box 17 x 19.5 x 11.5 cm

ROPE-CRAWLING ROBOT | ME370 (MECHANICAL DESIGN I) | FALL 2024

- Collaborated in group of 4 to design a ratchet-based rope-crawling robot
- Designed gear and linkage systems for 3D-printing and laser cutting using Fusion360
- Presented at ideation, prototyping, and final stages to improve concepts and demonstrate the goals met
- Demo: youtu.be/Sd0FwrVxagU

REPURPOSED GATORADE BOTTLE CAGE DOE | ME270 (DESIGN FOR MANUFACTURABILITY) | FALL 2023

- Brainstormed, sketched, and CAD modeled a bike bottle cage made from a repurposed Gatorade bottle
- Conducted 2^k factorial DOE to analyze optimal dimensions for 3D printed parts using Python
- Researched user base, manufacturing methods, and sustainability of similar existing products