Ryan Nagle

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EDUCATION

Carnegie Mellon University **Pittsburgh, PA**
Master of Science in Mechanical Engineering *December 2024*

- Cumulative GPA: 4.0/4.0
- Focus on Product Design, Electromechanical Systems, and Prototyping

Relevant Coursework: Electromechanical Systems Design, ML+AI, Applied FEA, DIY Design and Fabrication

Bachelor of Science in Biomechanics and Applied Physiology (with University Honors) *December 2023*

- Cumulative GPA: 3.8/4.0
- Mellon College of Science – Dean's List, High Honors (2020 – 2023)

Relevant Coursework: Dynamics, Mechanics 2: 3D Design, Fundamentals of Programming and CS, Organic Chemistry I & II

WORK & RESEARCH EXPERIENCE

Computational Engineering and Robotics Lab, Carnegie Mellon University **Pittsburgh, PA**
Graduate Research Assistant *February 2024 – Present*

- Developing novel robotic golf simulator with 10 degrees of freedom to accurately simulate golf course terrain indoors.
- Project Lead and Electromechanical System Lead for 7-person team.
- Designed electromechanical actuators capable of handling more than 1,000 lbs per plate assembly.
- Developed electrical circuit to power all devices required and used I2C for serial communication between microcontrollers.
- Designed numerous FDM 3D-printed parts including custom ball joints, housings, and gear trains and performed FEA simulations to ensure they would withstand various loading conditions with appropriate factors of safety.
- Implemented user friendly GUI in Python and PID control system in C++/Arduino to achieve actuator accuracy within 2 mm.

SetPoint Medical **Santa Clarita, CA**
Manufacturing Engineering Intern *May 2023 – August 2023*

- Led the manufacturing of various production-level electromechanical test stations for a neuro-stimulating implant and associated charging devices resulting in a 110% increase in total test stations built or reworked per month and a 76% decrease in non-conformances per test station.
- Spearheaded CAPA failure investigation of thermistors in the thermal protection circuit of a charging device and used statistical analysis to improve screening process and understanding of failure modes.
- Collaborated with overseas manufacturing to implement thermistor screening process and decrease field failures.

Musculoskeletal Biomechanics Lab, Carnegie Mellon University **Pittsburgh, PA**
Undergraduate Research Assistant *August 2022 – December 2023*

- Compared the gait and composition of the injured and contralateral lower limb at multiple timepoints after ACL reconstruction using electromyography (EMG), inertial measurement units, force plates, computational MRI, and marker-based motion capture.
- Validated commercial wearable sensors against the lab-standard to investigate biomechanical analysis in natural environments.

PROJECT EXPERIENCE

Automatic Continuously Variable Transmission Bicycle (Electromechanical Systems Design) **Pittsburgh, PA**

- Electrical and Control Systems Lead for a CVT bike system using IMU and GPS control system. *August 2024 – Present*

PvP Chess Game (Fundamentals of Programming and CS) **Pittsburgh, PA**

- Implemented piece movement, check, checkmate, castling, en passant, and displaying legal moves using OOP. *December 2023*

LEADERSHIP EXPERIENCE

Carnegie Mellon Strength and Conditioning **Pittsburgh, PA**
Volunteer Strength Coach *March 2022 – May 2023*

- Coached Men's and Women's Varsity sports (Basketball, Football, Volleyball) on Olympic lifting and sport-specific training.
- Developed interpersonal skills through coaching 150+ athletes; created personalized training programs.

NCAA DIII Men's Basketball Team Member *August 2020 – May 2022*
PIKA Racing Push-team Captain (2023 Buggy Champions) *April 2023 – Present*

SKILLS & INTERESTS

Software: ANSYS Mechanical, Autodesk Fusion, Python, Arduino, C++, SOLIDWORKS, MATLAB/Simulink, OpenSim
Hardware: GD&T, 3D Printing, Laser Cutting, Soldering, Crimping, Dremel, CNC, Woodworking, Other Hand Tools
Interests: Traveling, Basketball, Vertical Jump, LA Lakers, Olympic Weightlifting, Italian Cooking, Baking, Golf, 3D Printing