Evan R. Tulsky

• e-mail: ertulsky@syr.edu • website: https://evantulsky.netlify.app/ • google scholar

EDUCATION

Syracuse University, Syracuse, NY

Ph.D., Mechanical Engineering, Expected Class of 2028, Current GPA: N/A/4.0

- *Advisor: Dr. Victor Duenas*

M.S., Mechanical Engineering, Expected Class of 2025, Current GPA: N/A/4.0

B.S., Mechanical Engineering, May 2024, GPA: 3.7/4.0

- Magna Cum Laude
- Renee Crown Honors Distinction
- *Advisor: Dr. Victor Duenas*
- Thesis Topic: Targeting the Soleus and Quadriceps Muscles Using Powered Robotic Rehabilitation Devices and Neuromuscular Control. *Earned best thesis in the natural sciences and engineering.*

RESEARCH EXPERIENCE

Syracuse University, Bionics, Systems, and Controls Laboratory

Research Assistant Spring 2021 - Present

My research uses control methods integrating powered machines and neuromuscular control techniques to address inherent nonlinear effects in the hybrid machines, compensate for human input, and mitigate muscle fatigue.

- Development of an exoskeleton and bicycle for spinal cord injury rehabilitation solutions.
- Conducted human subject experiments to analyze effectiveness of assistive robotics.
- Collective work with peers in Research Experience for Undergraduates program, (REU) and Syracuse Office for Undergraduates Research and Creative Engagement scholarship (SOURCE).

Microsoft, Redmond, WA (Remote)

Capstone Project Fall 2023 - Spring 2024

- Designed a cold plate to meet increased power demands using a new water-cooled system for a bifacial chip in high-powered servers.
- Developed and tested a heat sink prototype to thermal and mechanical constraints.
- Enhanced skills in 3D modeling (SolidWorks) and finite element analysis (Ansys) to meet client needs.

Constellation, Oswego, NJ

Nuclear Power Plant Engineer Intern Summer 2023

- Participated in various cross departmental activities, training, and exercises.
- Developed knowledge of nuclear plant operations, nuclear industry standards, and clean energy initiatives.

- Led and prepared two change modifications apart of operational fleet initiative that will be implemented during the 2024 outage.
- Performed quality control tasks on nearly 200 engineering change requests.

PUBLICATIONS

1. **E. Tulsky**, N. Rubino, J. Carter, A. K. Thompson and V. H. Duenas, "Extremum Seeking Control of a Robotic Ankle-Foot Orthosis Targeting the Soleus Muscle Activation During Walking," *2024 IEEE Conference on Control Technology and Applications (CCTA)*, Newcastle upon Tyne, United Kingdom, 2024, pp. 14-19, doi: 10.1109/CCTA60707.2024.10666517.
2. **E. Tulsky** "Targeting the Soleus and Quadriceps Muscles Using Powered Robotic Rehabilitation Devices and Neuromuscular Control" *Honors Thesis*, Syracuse University, April 22, 2024.
3. **E. Tulsky**, J. Casas, C. Chang, S. Brose, V. H. Duenas "Influence of vibration stimuli applied on the quadriceps femoris muscles during functional electrical stimulation induced cycling," *Artificial Organs*, Vol. 46, No. 3, E77-E81, March 2022, doi.org/10.1111/aor.14132.

PRESENTATIONS

1. **"Extremum Seeking Control of a Robotic Ankle-Foot Orthosis Targeting the Soleus Muscle Activation During Walking",** IEEE Conference on Controls Technology and Application, Expected August 20, 2024.
2. **"Targeting the Soleus and Quadriceps Muscles Using Powered Robotic Rehabilitation Devices and Neuromuscular Control"** Thesis Presentation, Syracuse University, April 22, 2024
3. **"Bifacial Cold Plates for High Powered Servers"** Poster and Presentation, Syracuse University and Microsoft, April 20, 2024
4. **"Bifacial Cold Plates for High Powered Servers"** Presentation, Syracuse University and Microsoft, December 19, 2023
5. **"EMG Tracking Controller with Integral Anti-Windup Compensation in Motorized FES Cycling Experiments"** Poster Presentation, SOURCE Symposia, Syracuse University, April 10, 2023
6. **"Influence of Vibration Stimuli Applied on the Quadriceps Femoris Muscle during Functional Electrical Stimulation Induced Cycling"** Presentation, International Functional Electrical Stimulation Society (IFESS) Conference, September 17, 2022
7. **"Why are Aspirin and Acetaminophen Dosed Primarily as Solids?"** Presentation, Nokia Bell Labs North Jersey Science Fair, March 9, 2019

HONORS & AWARDS

Richard A. Bernard Scholar	2024
Best Thesis in the Natural Sciences & Engineering Award (**$1000**)	2024
Honors Crown Scholar (**$2641**), Syracuse University	2023
SOURCE Scholar (**$5000**), Syracuse University	2022
Research Experience for Undergraduates (**$3200**), Syracuse University	2021
Maxwell Citizenship Scholarship Competition Finalist, Syracuse University	2020

President's Award for Educational Excellence 2020
Yale Science and Engineering Award 2018

COMMUNITY SERVICE & OUTREACH

Syracuse University, College of Eng. and Comp. Sci. Undergraduate Admissions
STEM Outreach Ambassador Fall 2022 – Spring 2024

- Represented Syracuse University in student led panels to undergraduate applicants about student life and academic opportunities.

Hendricks Chapel Quilters (HCQ), Syracuse, NY
Volunteer Fall 2023

- Fabricated a children's (40" x 60") quilt for the local Syracuse refugee population.

Mentorship, Syracuse, NY Summer 2021

- Mentored a high school student to rehabilitation robotics in the BSC lab.

RELATED PROJECTS

Motorized Window Blinds Opener

- Develop a Bluetooth window blinds opener for improved sleep and ease of home automation.
- Verified reduced drowsiness through personal use.

Concussion Sensor

- Utilized an accelerometer to measure large accelerations that might mimic a concussion.
- Advocated to local school district for the implementation of sensors earning Maxwell Citizenship finalist award.

TECHNICAL SKILLS

- Hardware: rapid prototyping using 3D printers, machine shop tools (mill & lathe).
- Software: CAD (Solidworks), Programming (C++, Matlab/Simulink, Arduino), LaTeX, Ansys, Microsoft Office.