Matthew Yough

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EDUCATION

Pursuing a PhD in Biomedical Science in the NeuroEngineering and Rehabilitation Lab at WVU
West Virginia University   Morgantown, WV
                                                                                          Aug 2019 – Current

Bachelor of Science in Biomedical Engineering
Gannon University   Erie, PA
Cumulative GPA: 3.624   Aug 2015 – May 2019
Scholars of Excellence in Engineering and Computer Science, SEECS

TECHNICAL SKILLS

Software: Computer programming (MATLAB, C, C++, Java, Python, R, SQL, JavaScript, HTML, CSS, Bootstrap, Unreal Engine), Databases, CAD (Creo Parametric, AutoCad), Motion analysis (Visual 3D, OpenSim), Adobe Illustrator/Premiere, Microsoft Office)

Hardware: Biodex, Electromyography (Delsys, Grapevine), 3D Printers, Virtual Reality (Oculus game development), Motion Capture Camera Systems (Vicon, Cortex, OptiTrack, Phase Space, Leap Motion Controller)

NOTABLE UNDERGRADUATE WORK

Thermal Prosthetic Sleeve Project   **Duration:** Aug 2018 – April 2019
Team Size: 7   **Role:** Design Specialist
Description: Designing and manufacturing a prosthetic sleeve that can regulate temperature for comfort at the amputation site during cold weather

PMMA Drug Delivery Project   **Duration:** Jan 2017 - May 2017
Team Size: 3   **Role:** Project Leader
Description Collaborated with two classmates in obtaining and testing a sample of PMMA to determine the material's possible drug delivery capabilities. Project won undergraduate research category at Celebrate Gannon.

Running Study: Shriners Hospital for Children   **Duration:** May 2018–Aug 2019
Team Size: 3   **Role:** Technical Analyst
Description: Using motion capture equipment, we study the running patterns of healthy children to compare with patients at Shriners Hospital for Children. Conclusion are made of child gait from this data.

Biomedical Engineering Society Robotic Shoes   **Duration:** Aug 2017 – May 2018
Team Size: 4   **Role:** Design Specialist
Description: Designing, optimizing, and making a pair of 3D printed robotic shoes.

NOTABLE GRADUATE WORK

Assessing Model Assumptions Project   **Duration:** Mar 2020 – May 2021
Team Size: 4   **Role:** Project Leader
Description: Studied common musculoskeletal modeling assumptions for an upper extremity limb in two modeling platforms.

Restore Muscular Function, DoD Funded Project   **Duration:** Jan 2021 – Current
Team Size: 4   **Role:** Researcher
Description: Use electromyography, muscle stimulation, and virtual reality to create a closed-loop control system and study its effects for reinnervating nerves and returning function to damaged or atrophied muscle tissue.

Multifunctional Setup to Assess and Treat Reaching Deficits Using VR   **Duration:** Jan 2021 – Current
Team Size: 4   **Role:** Project Leader
Description: Designed and coded physical therapy tasks in virtual reality and used them to assess reaching performance.

RELAVENT EMPLOYMENT HISTORY

Shriners Hospital for Children (Private Contractor)   Erie, PA
Motion Capture Lab Biomedical Engineer   May 2018-Aug 2019

Sloan Lubrication   Freeport, PA
Research and Development Engineer   Dec 2017-Jan 2018

West Virginia University   Morgantown, WV
Neuro-engineering Research Assistant   Aug 2019- Current

ORGANIZATIONS
BMES (Biomedical Engineering Society)   Aug 2015 – May 2019
SEECS (Scholars of Excellence in Engineering and Computer Science)   Aug 2015- May 2019

LICENSES AND CERTIFICATIONS
Computer Programming:

C for Everyone: Programming Fundamentals   UC Santa Cruz
https://www.coursera.org/account/accomplishments/certificate/46T5HTNN64RR Issued: Nov 2021

C for Everyone: Structured Programming   UC Santa Cruz
https://www.coursera.org/account/accomplishments/certificate/4K9RBZ5Z5VAZ Issued: Dec 2021

C++ for C Programmers, Part A   UC Santa Cruz
https://www.coursera.org/account/accomplishments/certificate/DGPYC9MUD6YS Issued: Jan 2022

C++ for C Programmers, Part B   UC Santa Cruz
https://www.coursera.org/account/accomplishments/certificate/4GWWG5U5FJZV Issued: Feb 2022

Programming for Everybody (Getting Started with Python)   University of Michigan
https://www.coursera.org/account/accomplishments/certificate/NEJDQ2XKJH9J Issued: March 2022

Python Data Structures   University of Michigan
https://www.coursera.org/account/accomplishments/certificate/GG5M4Y43JKFF Issued: March 2022

Using Python to Access Web Data   University of Michigan
https://www.coursera.org/account/accomplishments/certificate/JUSGLSZENHTT Issued: March 2022

Using Databases with Python   University of Michigan
https://www.coursera.org/account/accomplishments/certificate/RRAU7CH4R33X Issued: March 2022

Capstone: Retrieving, Processing, and Visualizing Data with Python University of Michigan
https://www.coursera.org/account/accomplishments/certificate/ZVZ6YL43FXHZ Issued: March 2022

Introduction to HTML5   University of Michigan
https://www.coursera.org/account/accomplishments/certificate/AXFR6GPHFEVE Issued: April 2022

Introduction to CSS3   University of Michigan
https://www.coursera.org/account/accomplishments/certificate/GQJYT64ULVU3 Issued: April 2022

Interactivity with JavaScript   University of Michigan
https://www.coursera.org/account/accomplishments/certificate/SJU7ZGYSAGJ9 Issued: April 2022

Advanced Styling with Responsive Design   University of Michigan
https://www.coursera.org/account/accomplishments/certificate/86MSAUG7VSNU Issued: April 2022

Programming Foundations with JavaScript, HTML, and CSS   Duke University
https://www.coursera.org/account/accomplishments/certificate/6VZFM4MV2Y73 Issued: May 2022

Java Programming: Solving Problems with Software (with Honors) Duke University
https://www.coursera.org/account/accomplishments/certificate/MQWHJCEZJVRQ Issued: May 2022

GRANTS
T32:

Stroke and its Co-morbidities Predoctoral Training Program (Grant #: 5T32AG052375-05). February 2021.

PUBLICATIONS
Posters:
C. Devine, **M. Yough**, E. Petrosky, C. Miller, L. Wasielewski, M. Wieczorek. *PA Soldiers and Sailors Home Artifact Preservation Project.* American Society for Engineering Education. March 2018. Akron, OH.

R. Grubbs, **M. Yough**, O. Rose, T Sicree, A. Lee, S. Tiari. *Heat Generating Prosthetic Sleeve.* American Society of Biomechanics East Coast Meeting. April 2019. Penn State Berks, Reading, PA.

Papers:
R. Grubbs, **M. Yough**, O. Rose, T. Sicree, A. Lee, S. Tiari, D. Piovesan. *Temperature Regulated Sleeve for Leg Prosthesis.* American Society of Mechanical Engineers: International Mechanical Engineering Congress and Exposition. November 2019. Salt Lake City, UT.

M. Yough, R. Hardesty, S. Yakovenko, V. Gritsenko. *A segmented forearm model of hand pronation-supination approximates joint moments for real time applications*. IEEE Xplore. June 2021.

OTHER CONTRIBUTIONS
Musculoskeletal Models:
M. Yough, R. Hardesty, M. Boots, S. Yakovenko, V. Gritsenko. *Kinematic Arm Model with Articulated Hand.* OpenSim Model Contribution. December 2021. https://simtk-confluence.stanford.edu:8443/display/OpenSim/Musculoskeletal+Models