

Duncan T. Tulimieri

PHD CANDIDATE · NEUROMECHANICS - SENSORIMOTOR CONTROL AND ROBOTIC REHABILITATION LABORATORY

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Education

University of Delaware

Newark, DE

PHD IN NEUROMECHANICS [BIOMECHANICS AND MOVEMENT SCIENCE]

June 2019 - Present

- Sensorimotor Control and Robotic Rehabilitation Laboratory

Denison University

Granville, OH

HEALTH, EXERCISE, AND SPORTS STUDIES AND BIOLOGY

August 2015 - May 2019

- Department Fellow
- Undergraduate Researcher
- Tutor and Teaching Assistant

Industry Experience

New Age Alpha (FinTech Startup)

UpWork

PROJECT LEAD - SOFTWARE DEVELOPER AND DATA SCIENTIST

February 2023 - Present

- Optimized run time of 9 MATLAB scripts (~14,516 lines) by an average of 60.22% using class based unit testing to ensure proper refactorization
- Review potential candidate materials (5+) and interview potential candidates (2)
- Lead rewrite of 9 MATLAB files to Python with custom conda environment, git for version control, and Azure DevOps

Research Experience

University of Delaware

Newark, DE

GRADUATE STUDENT

August 2019 - Present

- Developed scientific ideas and methodologies for 5 experiments
- Programmed 4 robotic tasks with KINARM Exoskeleton (using MATLAB and Simulink), 3 of which are used in continuing research
- Wrote custom analyses, abiding by Google's MATLAB Style Guide, using object oriented programming and git for each experiment to ensure accuracy, efficiency, reproducibility, transparency, and ease to build upon
- Mentored 3 graduate students and 3 undergraduate students

Denison University

Granville, OH

UNDERGRADUATE STUDENT

August 2015 - May 2019

- Designed, deployed, and analyzed survey using Qualtrics

Publications & Presentations

PUBLICATIONS

- | | | |
|------|---|--|
| 2023 | Understanding the relationship between limb position sense and oculomotor proprioceptive estimations in individuals with stroke. , Tulimieri, D. T., Singh, T., Semrau, J. A. | In preparation |
| 2023 | Impaired proprioception and magnified scaling of proprioceptive error responses in chronic stroke , Tulimieri, D. T. and Semrau, J. A. | In review -
Neurorehabilitation
& Neural Repair
Frontiers In Human
Neuroscience -
Sensory
Neuroscience
Journal of |
| 2023 | Aging increases proprioceptive error for a broad range of movement speed and distance estimates in the upper limb , Tulimieri, D. T. and Semrau, J. A. | NeuroEngineering
and Rehabilitation
Journal of Sports
Medicine and Allied
Health Sciences |
| 2023 | Validating the measurement of upper limb sensorimotor behavior utilizing a tablet in neurologically intact controls and individuals with chronic stroke , Austin, D. S., Dixon, M. J., Tulimieri, D. T., Cashaback, J. G., and Semrau, J. A. | |
| 2019 | Current Athletic Training Educations Preparation for Dry Needling , Hortz, B., Falsone S., Tulimieri, D. T. | |

PRESENTATIONS

2023	Targeted training of proprioception using an integrated robotic-joystick approach improves sensorimotor function in chronic stroke. , Tulimieri, D. T., Kim, G., Semrau, J. A., Society for Neuroscience	Poster
2023	Proprioceptive signaling of the upper limb influences oculomotor function and may suggest impaired multisensory integration after stroke. , Decarie A., Tulimieri, D. T., Singh T., Semrau, J. A., Society for Neuroscience	Poster
2023	How to Use AI to be a Better Programmer , Tulimieri, D. T., Reproducible Rehabilitation Research Summit	Panelist
2023	Virtual environments to improve reproducibility. , Tulimieri, D. T., Reproducible Rehabilitation Research Summit	Presentation
2023	Oculomotor estimates of limb proprioception scale with magnitude of proprioceptive limb error in chronic stroke. , Tulimieri, D. T., Singh T., Semrau, J. A., Progression in Clinical Motor Control II	Poster
2023	Understanding the relationship between limb position sense and oculomotor proprioceptive estimations in individuals with stroke. , Tulimieri, D. T., Austin, D. A., Eskander, J., Singh, T., Semrau, J. A., College of Health Science Research Day	Podium
2023	Understanding the relationship between limb position sense and oculomotor proprioceptive estimations in individuals with stroke. , Tulimieri, D. T., Austin, D. A., Eskander, J., Singh, T., Semrau, J. A., College of Health Science Research Day	Poster
2022	Measuring proprioceptive accuracy using limb and oculomotor output. , Tulimieri, D. T. and Semrau, J. A., KINARM User Knowledge Exchange	Presentation
2022	Integrating a peripheral with KINARM Exoskeleton. , Tulimieri, D. T., KINARM Camp	Presentation
2022	Using a computerized tablet device to understand spatial precision and movement time of the upper limbs in individuals who have had a stroke. , Austin, D. S., Dixon, M., Hoh, J. E., Tulimieri, D. T., Cashaback, J. G., Semrau, J. A., College of Health Science Research Day	Poster
2022	Understanding the relationship between limb position sense and oculomotor proprioceptive estimations in individuals with stroke. , Tulimieri, D. T., Austin, D. A., Eskander, J., Singh, T., Semrau, J. A., Society for Neuroscience	Poster
2022	Using a computerized tablet device to understand spatial precision and movement time of the upper limbs in individuals who have had a stroke. , Austin, D. S., Dixon, M., Hoh, J. E., Tulimieri, D. T., Cashaback, J. G., Semrau, J. A., Society for Neuroscience	Poster
2021	Determining the influence of movement speed and distance on the accuracy of upper limb proprioceptive estimates. , Tulimieri, D. T. and Semrau, J. A., College of Health Science Research Day	Poster
2021	Determining the influence of movement speed and distance on the accuracy of upper limb proprioceptive estimates. , Tulimieri, D. T. and Semrau, J. A., Society for Neuroscience	Poster
2021	Proprioceptive accuracy to trial-by-trial changes in speed, direction, and length of movement. , Tulimieri, D. T., Faunce, A., Semrau, J. A., Society for the Neural Control of Movement	Poster
2021	Proprioceptive accuracy to trial-by-trial changes in speed, direction, and length of movement. , Gray, J., Tulimieri, D. T., Eskander, J., Semrau, J. A., University of Delaware Summer Scholars Symposium	Poster
2018	A Review of Dry Needling's Effects and Athletic Trainers Education Relative to Dry Needling Tasks , Tulimieri, D. T., Hortz, B. V., Denison University Summer Scholars Symposium	Poster

Academic Experience

ReproRehab	University of Southern California
TEACHING ASSISTANT	October 2022 - Present
<ul style="list-style-type: none"> Teach data science skills to neurorehabilitation researchers Host weekly office hours for troubleshooting MATLAB and Python code Host mini-boot camp for local research community 	
University of Delaware	University of Delaware
RESEARCH ASSISTANT	February 2020 - Present
<ul style="list-style-type: none"> Perform research duties in laboratory 	
KAAP428: Motor Control and Learning	University of Delaware
TEACHING ASSISTANT	September 2019 - January 2020
<ul style="list-style-type: none"> Lead two lab sections of 20+ students in successful completion of weekly experiments 	
Student Faculty Learning Partnership Pilot Program	Denison University
STUDENT MEMBER	November 2018 - May 2019
<ul style="list-style-type: none"> Collaborate with faculty partners to deepen culture of engaged teaching and learning 	

Health, Exercise, and Sports Studies Program

DEPARTMENTAL FELLOW

- Represent 95+ departmental students to department faculty and staff
- Host weekly study tables to help department students

Denison University

September 2018 - May 2019

Health, Exercise, and Sports Studies Program

TUTOR

- Tutored students 4-6 hours per week in one or more of the following topics: Applied Anatomy, Orthopedic Injury and Illness Assessment, Therapeutic Exercise in Athletic Training, Fundamental of Health and Exercise, Kinesiology, Molecular Biology and Unicellular Life, and Therapeutic Modalities

Denison University

September 2017 - May 2019

Health, Exercise, and Sports Studies Program

TEACHING ASSISTANT

- Demonstrate proper dissection technique to 20+ students per semester

Denison University

September 2017 - May 2019

Involvement & Leadership

Pandemic Professors

TUTOR

- 1 hr/week of 1:1 Python tutoring for a 4th grade student

Remote

January 2021 - Present

Kinesiology Graduate Student Organization

COMMUNICATIONS CHAIR

- Create monthly newsletter

University of Delaware

August 2019 - August 2020

Senior Gift Committee

STUDENT MEMBER

- Encourage classmates to make donations to the senior gift
- Meet with Board of Trustees, President, and important donors

Denison University

September 2018 - May 2019

Denison Coalition for Sexual Respect

CERTIFIED PEER EDUCATOR

- Continue education for first year students on sexual respect and available resources

Denison University

July 2018 - May 2019

Campus Affairs Council

STUDENT MEMBER

- Design solutions for campus issues like social spaces and blue light program

Denison University

September 2017 - May 2019

Student Government

SENATOR

- Discuss and help create legislation around current issues

Denison University

September 2018 - March 2019

Policy Committee

MEMBER

- Amend policy when necessary

Denison University

September 2018 - March 2019

Denison Ice Hockey

ALTERNATIVE CAPTAIN

- Developed program from local club to finalists in ACHA Men's D2
- Secured funding ~\$7,500 from alumni and donors for new locker room, equipment, and team transportation

Denison University

September 2020 - May 2019

Denison Ice Hockey

VICE PRESIDENT

- Initialize alumni hockey network
- Implement yearly volunteer event for community outreach (Try Hockey For Free)

Denison University

September 2020 - May 2019

CheckIt

FOUNDER

- Developed business model to solve multiple campus problems and help surrounding community

Denison University

June 2018 - December 2018

Health, Exercise, and Sports Studies Faculty Search Committee

STUDENT MEMBER

- Interview potential candidates

Denison University

June 2018

Chief of Campus Safety Search Committee

STUDENT MEMBER

- Interview potential candidates

Denison University

June 2018

Becoming and Active, Empowered Patient

STUDENT TEACHER

- Co-designed and co-taught course on how patients can take healthcare into their own hands to 8 undergraduate students

Denison University

January 2018 - May 2018

Committee for Intercollegiate Athletics

STUDENT MEMBER

- Represented student athletes to administrators and organized events

Denison University

September 2017 - May 2018

Intramural Sports

FIRST-AID RESPONDER

- Supervised students and provided on-site care when needed
- American Red Cross Certification: Lifeguarding, AED, CPR, and First-Aid

Denison University

September 2016 - May 2018

Boy Scouts of America

EAGLE SCOUT

Portland, CT

July 2015

Internships

Prentiss Hockey Performance

STRENGTH AND CONDITIONING COACH INTERN

- Assisted and observed summer training of clients ranging from NHL players to geriatrics.

Stamford, CT

May 2017 - August 2017

Honors & Awards

Kinesiology and Applied Physiology

SCHOLARSHIP

University of Delaware

March 2023

Graduate College

TRAVEL AWARD

University of Delaware

February 2020

Health, Exercise, and Sports Studies

NATALIE SHEPARD PHYSICAL EDUCATION AWARD

Denison University

May 2019

Denison Men's Ice Hockey

55 AWARD

Denison University

April 2019

Health, Exercise, and Sports Studies

LIVINGSTON MEMORIAL SCHOLARSHIP

Denison University

August 2018

Alpha Epsilon Delta - United States Health Preprofessional Honor Society

MENTOR

Denison University

January 2018 - May 2019

University Conduct Board

BOARD MEMBER

Denison University

February 2018 - May 2019

Men's Ice Hockey

ACADEMIC ALL-AMERICAN

Denison University

January 2016 - May 2019

Denison Founders Scholarship

RECIPIENT

Denison University

August 2015 - May 2019