

Duncan T. Tulimieri

QUANTITATIVE DEVELOPER | PHD CANDIDATE, SENSORIMOTOR CONTROL AND ROBOTIC REHABILITATION LABORATORY

Newark, DE

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Industry Experience

New Age Alpha

Remote

QUANTITATIVE DEVELOPER

February 2023 - Present

- Reduced algorithm run time by 60.22% to improve user experience through refactorization with MATLAB
- Worked to expand team by reviewing and performing technical interviews for 5 potential team members
- Reducing operational expenses by leading a team with the goal of rewriting 9 MATLAB algorithms to Python using class-based unit testing
- Ensure proper refactorization of code base with custom conda environment, git for version control, SQL database, and Azure DevOps
- Lead weekly team updates and priority reviews to confirm all team members are on the same page

ReproRehab [NIH-funded R25]

University of Southern California

TEACHING ASSISTANT - DATA SCIENCE

October 2022 - Present

- Upskill rehabilitation researchers data science techniques through weekly meetings and project assistance with MATLAB, Python, and git
- Encourage 1-on-1 help by hosting weekly office hours for troubleshooting MATLAB, Python, and git

KINARM

BKIN Technologies

TEACHING ASSISTANT - ROBOTICS

May 2020 - May 2022

- Educated neuroscience researchers and promoted research autonomy by teaching robotic programming skills (MATLAB, Simulink, Stateflow)

Education

University of Delaware

Newark, DE

DOCTORATE IN NEUROMECHANICS

June 2019 - May 2024

- Course work included, but not limited to: machine learning, neuromechanics, computational neuroscience, statistics, and data science

Denison University

Granville, OH

HEALTH, EXERCISE, AND SPORTS STUDIES & BIOLOGY

August 2015 - May 2019

- Department Fellow, Undergraduate Researcher, Tutor and Teaching Assistant, Strength and Conditioning Intern (Prentiss Hockey Performance)

Research Experience

University of Delaware

Newark, DE

DOCTORAL STUDENT

August 2019 - Present

- Brought 5 experiments from idea to dissemination (develop idea and methodology, collect and analyze data, and present findings)
- Programmed 4 robotic tasks for KINARM Exoskeleton (using MATLAB and Simulink), 75% of which are used in continuing research
- Analyzed robotic experimental data by writing custom analysis scripts in MATLAB and Python
- Mentored 3 doctoral students and 3 undergraduate students to maximize learned content and conceptual/theoretical understanding
- Communicate findings by presenting at various conferences via podium talks and posters
- Collaborate with therapists (physical and occupational) and engineers to optimize projects

Denison University

Granville, OH

UNDERGRADUATE STUDENT

August 2015 - May 2019

- Designed, deployed, and analyzed survey using Qualtrics resulting in a publication to support Athletic Trainers' scope of practice expansion

Projects

2023	Determining exercise dose for individuals with stroke via machine learning models
2023	Automated jump-landing scoring of markerless motion capture data for researchers and clinicians
2021	Development of a maze generation algorithm to be used as sensorimotor assessment
2022	Prediction of forest cover type on open-source data set with machine learning models
2019	Assessing the effect of speed and distance on kinesthetic matching in individuals with chronic stroke
2023	The perception of speed in the arms via psychophysical methods for individuals with chronic stroke
2020	Position matching with arms and eye movements for individuals with chronic stroke
2023	Robust optimization of minimum number of trials needed for experimental protocols
2022	Proprioceptive training for individuals with chronic stroke via robotic-joystick integration

Technical Skills

Python | MATLAB | Data Analysis | Data Visualization | Object-Oriented Programming | Test-Driven Development | Statistical Modeling | git | Non-Parametric Statistics | Class-based Unit-Testing | SQL | Style | Microsoft Office | LaTeX | Simulink Real-Time | Stateflow | C