

Ross Brancati

PhD Student

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Skills

Python (NumPy, Pandas, Matplotlib)
Matlab
R/R Studio (ggplot, tidyverse, gt, dplyr)
Machine Learning (scikit-learn)
Deep Learning (pytorch, tensorflow)
Relational Databases (Pandas, some SQL)
Signal Processing (Electromyography, IMUs)
Human Subjects Research
Dragonfly ORS (microCT and MRI analysis)
Data Analysis and Statistics
Dynamic Programming
Ansys Finite Element Analysis
CAD (SolidWorks)
Project Management (Agile, Kanban, Six Sigma)
Code testing, debugging, and optimization

Leadership

2020 - Present: Vice President - American Society of Biomechanics Student Chapter
2020 – Present: Management of multiple undergraduate students in our lab
2015 – 2019: President of club ice hockey team at University of Connecticut

Projects

Development of interpretable machine learning models to classify runners with and without patellofemoral pain syndrome
Data visualization dashboard of ski resorts across the United States
Movie recommender using collaborative filtering technique and simulated user ratings

Education

University of Massachusetts Amherst

Amherst, MA | August 2020 – Current

GPA: 3.93/4.0

Doctorate of Philosophy in Kinesiology (Biomechanics)

Graduate Certificate in Statistical and Computational Data Science

University of Connecticut

Storrs, CT | August 2018 – May 2019

GPA: 3.87/4.0

Master of Science in Biomedical Engineering

Concentration: Biomechanics

University of Connecticut

Storrs, CT | August 2014 – May 2018

GPA: 3.4/4.0

Bachelor of Science in Biomedical Engineering

Concentration: Biomechanics

Experience

Musculoskeletal and Orthopedic Biomechanics Lab

University of Massachusetts Amherst | Amherst, MA | August 2020 – Current

Graduate Research Assistant | Director: Dr. Katherine Boyer

Collect, process, and analyze large sets of biomechanics data related to musculoskeletal injuries and the aging population.

Build interpretable machine learning models to understand the complex behavior patellofemoral pain syndrome.

Streamline time-taxing data collection and processing procedures by developing automated pipelines using Python and Matlab.

Create visualizations for presentations and publications using R / R Studio.

UMass Men's Ice Hockey Team

University of Massachusetts Amherst | Amherst, MA | May 2022 – Current

Sports Science Intern | Supervisor: Brandon Wickett

Leverage Catapult's wearable tech to assess movements of athletes on the ice

Support dashboard development for seamless transition of player performance data to coaches and team staff to optimize player output and limit injury risk.

Analyze athlete's data to inform staff of potential overexertion

Orthopedic Research and Biomechanics Lab

University of Michigan | Ann Arbor, MI | May 2019 – August 2020

Laboratory Technician | Director: Dr. Lindsey Lepley

Examine biomechanical implications of anterior cruciate ligament tears in both human and non-invasive animal models using deep learning-based motion tracking.

Overhauled biomechanics laboratory from start to finish including installation of equipment and development/automation of data processing pipelines.

Sports Optimization and Rehabilitation Laboratory

University of Connecticut | December 2018 – May 2019

Graduate Research Assistant | Co – PIs: Dr. Lindsey Lepley and Dr. Adam Lepley

Investigated anatomical and pathological outcomes after ACL reconstruction

Collected and analyzed data including kinematic, strength, and muscle mechanics.

Honors and Awards

2020 – UMass School of Public Health and Health Science Research Day Winner

2020 – UMass Kinesiology Department Student Travel Award Grant

2019 – American Collegiate Hockey Association Academic All American

2018 – UConn School of Engineering Dean's List

2017 – UConn School of Engineering Dean's List