Ross Brancati

PhD Candidate

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Skills

Python (NumPy, Pandas, Matplotlib)

Matlab

R/R Studio (ggplot, tidyverse, gt, dplyr)

Data Science

Machine Learning (scikit-learn)

Deep Learning (pytorch, tensorflow)

Relational Databases (Pandas, SQL)

Signal Processing (Electromyography, IMUs)

Data Wrangling and Preprocessing

Human Subjects Research

Statistical Analysis and Regression Modeling

Dynamic Programming

Ansys Finite Element Analysis

CAD (SolidWorks)

Project Management (Agile, Kanban, Six Sigma)

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 (*Concentration: Biomechanics*)

University of Massachusetts Amherst
Amherst, MA | August 2020 – Current   *GPA: 3.80/4.0*
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