Ross Brancati, PhD

Human Systems Integration Engineer II

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Skills Summary

Research methods:

- Human factors engineering
- User experience research
- Study and experimental design
- Human subjects research
- Biomechanics
- Quantitative and qualitative methods
- Statistical modeling
- Data interpretation

Hardware, sensors, and software:

- Motion capture
- Inertial measurement units
- Electromyography
- Heart rate sensors
- Virtual and augmented reality
- Force plates
- Computer vision (OpenCV)
- Sensor fusion

Languages:

- Python
- R
- Matlab
- SQL
- HTML

Soft skills:

- Communication
- Teamwork and collaboration
- Time management
- Adaptability and flexibility
- Leadership
- Problem solving and critical thinking
- Interpersonal
- Prioritization
- Organization
- Resilience
- Self-motivation

Grants and Awards

- IALS Translational Research Fellowship for Grad Students (UMass)
- SPHHS Research Day Award (UMass)
- MCB Outstanding TA Award (UConn)

Certifications

- CITI Human Research (Biomedical)
- CPR

Education

University of Massachusetts Amherst
Amherst, MA | August 2020 – January 2025 *GPA: 3.93/4.0*
Doctor of Philosophy – Kinesiology (*Biomechanics*)

University of Massachusetts Amherst
Amherst, MA | August 2020 – December 2022 *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 (*Biomechanics*)

University of Connecticut
Storrs, CT | August 2014 – May 2018 *GPA: 3.50/4.0*
Bachelor of Science in Biomedical Engineering (*Biomechanics*)

Experience

Warfighter Systems Integration Lab
Galvion | Portsmouth, NH | January 2025 - Present
Human Systems Integration Engineer II | Lab Manager: Martin Fultot, PhD, PhD

- Apply mixed methods human factors engineering and user experience research into pre-product exploration and product development lifecycle.
- Design experiments, leverage technical hardware and software, and apply quantitative analytic methods to assess physical/cognitive load of equipment.
- Focus on warfighter situational awareness through the integration of HUDs, visual augmentation systems, and aural/haptic communication systems.

Musculoskeletal & Orthopedic Biomechanics Laboratory
University of Massachusetts | Amherst, MA | August 2020 – January 2025
Research Assistant | Director: Katherine Boyer, PhD

- Explored biomechanical adaptations of orthopedic running injuries with rigorous experimental design, statistical analysis, and machine learning.
- Utilized unsupervised and supervised machine learning models and statistical and computational approaches to identify biomechanical mechanisms of joint injury and classified injury mechanisms with wearable sensor data.

Warfighter Systems Integration Lab
Galvion | Portsmouth, NH | March 2024 – January 2025
Data Science Intern | Lab Manager: Martin Fultot, PhD, PhD

- Leveraged hardware and software capabilities to optimize soldier training and performance in immersive, virtual environments.
- Developed and implemented a sensor fusion algorithm to improve object pose and position in VR/AR with IMUs and camera based fiducial marker tracking.

Center for Health and Human Performance
University of Massachusetts Amherst | Amherst, MA | May 2023 - February 2024
Data Science Intern | Director: Michael Busa, PhD

- Developed a gait event detection algorithm for a novel smart wearable insole that records signals from pressure and movement sensors.
- Utilized techniques such as data windowing, data reduction, statistical modeling, and machine learning to optimize algorithms and end-user outputs.
- Created high quality visualizations and presentations to translate findings to key stakeholders including startup founders and other research scientists.

UMass Men's Varsity Ice Hockey Team
University of Massachusetts Amherst | Amherst, MA | May 2022 – January 2023
Sports and Data Science Intern | Supervisor: Brandon Wickett, MS

- Leveraged wearable sensors (Catapult Sports) to assess movement of elite athletes informing coaches and staff of player load and exertion.
- Collected, processed, and analyzed IMU data through various statistical techniques such as regression models and hypothesis testing.