

Ross Brancati, PhD
Research Engineer III

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Skills Summary

Technical:

- Signal processing
- Supervised machine learning
- Unsupervised learning (clustering)
- Time-series analysis
- Quantitative analysis
- Dimensionality reduction
- Event detection
- Statistics
- Human participants research
- Biomechanics

Languages and tools:

- Python (scikit-learn, pandas, numpy, pytorch, tensorflow)
- R (ggplot, tidyr, dplyr, plotly)
- Matlab
- SQL
- Unity (C#)
- Docker, FastAPI, Joblib
- OpenCV

Hardware and sensing systems:

- Wearable sensors (HR monitors)
- Inertial measurement units
- Electromyography
- Motion capture

Soft skills:

- Analytical thinking
- Problem solving
- Communication
- Teamwork and collaboration
- Time management
- Adaptability and flexibility
- Leadership
- Prioritization and organization

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
Doctor of Philosophy – Kinesiology (*Biomechanics*)
GPA: 3.93/4.0

University of Massachusetts Amherst

Amherst, MA | August 2020 – December 2022
Graduate Certificate in Statistical and Computational Data Science
GPA: 3.80/4.0

University of Connecticut

Storrs, CT | August 2018 – May 2019
Master of Science in Biomedical Engineering (*Biomechanics*)
GPA: 3.87/4.0

University of Connecticut

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

Experience

Warfighter Systems Integration Lab

Galvion | Portsmouth, NH | September 2025 - Present
Research Engineer III | Lab Manager: Martin Fultot, PhD, PhD

- Design and implement reinforcement learning models for biped and quadruped locomotion, enhancing fidelity of warfighter VR simulations.
- Build algorithms, ETL pipelines, and machine learning models to support advanced virtual simulation capabilities and accelerate model development.
- Collaborate with cross-functional engineers and stakeholders to identify product performance issues and deliver data-driven insights that inform design improvements.
- Served as a subject matter expert on human-machine interfaces, data science, biomechanics, and experimental methods, providing guidance across research and development efforts.

Warfighter Systems Integration Lab

Galvion | Portsmouth, NH | January 2025 – September 2025
Human Systems Integration Engineer II | Lab Manager: Martin Fultot, PhD, PhD

- Designed and implemented algorithms for multimodal data synchronization and signal processing (e.g., IMU, eye tracking, motion capture), focusing on time-series feature extraction, event detection, clustering, and classification.
- Applied mixed methods human factors engineering and user experience research into pre-product exploration and product development lifecycle.
- Led the design and execution of human-participant experiments integrating AR/VR systems, motion capture, and multimodal sensor platforms to assess cognitive and physical load associated with advanced soldier-worn systems.

Musculoskeletal & Orthopedic Biomechanics Laboratory

University of Massachusetts | Amherst, MA | August 2020 – January 2025
Graduate Research Assistant | Director: Katherine Boyer, PhD

- Optimized supervised and unsupervised machine learning models to robustly identify and classify subgroups of runners with distinct injury mechanisms from time-series biomechanical and inertial sensor data.
- Designed and led human participant experiments focused on collection, processing, and analysis of multimodal physiological data streams.
- Built research-oriented software tools for signal processing and data science applications such as filtering, feature extraction, and time-series analysis.

Warfighter Systems Integration Lab

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

- Developed a visual-inertial simultaneous localization and mapping (SLAM) algorithm to improve object pose estimation in virtual reality environments.
- Applied signal processing and statistical techniques to enhance spatial accuracy and temporal stability of objects in immersive simulations.
- Collaborated with cross-functional engineering and human factors teams to translate research findings into applied solutions for soldier training scenarios.

