JEEVAN JAYASURIYA

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SUMMARY

Ph.D. student in Industrial and Systems Engineering with a focus on human factors, ergonomics, biomechanics, multimodal data analysis, and machine learning. Experienced in IMU-based human motion capture (MoCap), human biomechanical software, musculoskeletal simulations, human-machine co-simulations, and time-series modeling using deep learning. Seeking Summer 2026 internship opportunities to contribute to data-driven engineering problem solving.

EDUCATION

UNIVERSITY OF WISCONSIN - MADISON
Ph.D., Industrial & Systems Engineering (Expected May 2027)

CLARKSON UNIVERSITY, POTSDAM, NEW YORK
M.S., Mechanical Engineering, 2022 - 2023

THE OPEN UNIVERSITY OF SRI LANKA, NUGEGODA
B.Tech., (Hons.), Mechatronics Engineering, 2013 - 2017

UNIVERSITY OF SRI JAYEWARDENEPURA, SRI LANKA
B.S., (Hons.), Physics, 2011 - 2015

EXPERIENCE

UNIVERSITY OF WISCONSIN - MADISON   Madison, Wisconsin
Graduate Research Assistant - NeuroErgonomics Lab 2024-Present

- Collaborating with the Neuroscience Laboratory at NASA Johnson Space Center to characterize and mitigate the combined effects of altered gravity and fatigue on astronaut sensorimotor performance.
- Designed and executed complex, long-duration human subject experiments (7-hour and 18-hour sessions), integrating multimodal physiological data collection while synchronizing all sensor data through the Lab Streaming Layer (LSL).
- Performed data acquisition, preprocessing, data analysis, and time-series modeling of full body motion capture data (Xsens), ambulatory brain activation (fNIRS), eye tracking (Tobii Glasses 3), surface EMG (Noraxon), heart rate monitoring (Actiheart; Empatica Embrace Plus), and force plate measurements (AMTI).

CLARKSON UNIVERSITY   Potsdam, New York
Graduate Research Assistant - Astronautics and Robotics Lab 2022-2023

- Designed and executed full-body MoCap data collection using the Xsens MVN Awinda wireless human motion-capture suit on professional firefighters performing operational tasks.
- Processed MoCap in the AnyBody Musculoskeletal Modeling System to develop a comprehensive biomechanical dataset, including joint moments, reaction forces, joint angles, and muscle activations.
- Used MoCap data in the AnyBody Modeling System to conduct subject-specific human–exoskeleton co-simulations, recreating external forces from firefighter equipment and the exoskeleton within the simulation environment.

UNIVERSITY OF SRI JAYEWARDENEPURA   Gangodawila, Sri Lanka
Lecturer – Embedded Systems..2020-2021

- Lectured undergraduate courses in Control Systems, Mobile App Development, Advanced Programmable Logic Controllers (PLCs), Object-Oriented Programming (OOP) for Embedded Systems, and Data Communication.

PEOPLES BANK   Colombo, Sri Lanka
Assistant Manager – Corporate Banking 2017-2020

- Conducted feasibility studies for credit package approvals in the Corporate Banking Division, handling large credit profiles from leading private and government institutions in Sri Lanka, while applying analytical and project management skills.

SRI LANKA ATOMIC ENERGY BOARD   Wellampitiya, Sri Lanka
Scientific Officer 2017

- Led the Radiation Protection Section, managing a team to ensure compliance with international radiation safety standards and regulations for radiation workers in Sri Lanka.

ENGINEERING TRAINEE ROLES   Sri Lanka
Trainee 2015-2017

- Arthur C. Clarke Institute for Modern Technologies – Contributed to research and development projects in robotics and automation.
- OREL Corporation – Designed mechanical, pneumatic, and electro-pneumatic automation circuits using SolidWorks and FluidSim.
- State Development & Construction Corporation – Programmed traffic automation systems using PLCs.

PUBLICATIONS

- Jayasuriya, J., Bazzocchi, M. C. F., Fite, K., & Martinez, M. (2025). Firefighter motion capture data set and biomechanical analysis of task-specific gear effects and loading asymmetries. Ergonomics (just accepted).
- Shanghavi, A. A., Jayasuriya, J., Cai, Y., & Mehta, R. K. (2025). Pulse Rate Variability From Wearable Wristwatches as a Surrogate for Heart Rate Variability? We Think Not Yet. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, https://doi.org/10.1177/10711813251357929
- Hayes, J., Fairchild, B., Nichols, K., Jayasuriya, J., & Mehta, R.K. (2024). Selective Sensorimotor Impairments With Mental Fatigue Associated With G-Transitions During and After Spaceflight. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, https://doi.org/10.1177/10711813241275073
- Jayasuriya, J., Moser, I., & de Mel, R. (2022). Automated Water Dispensing System for Controlling Fires in Coal Yards. International Journal of Coal Science and Technology, https://doi.org/10.1007/s40789-022-00488-y

TECHNICAL SKILLS

Physiological & Biomechanical Data Analysis:
Full-body kinematics (Xsens MVN Analyze, AnyBody Modeling System, AnyScript, OpenSim), 3DSSPP, Functional near-infrared spectroscopy (fNIRS: Aurora, Homer3, MNE-Python), Electrophysiological signals (EMG: Noraxon; ECG/heart rate: Actiheart, Empatica Embrace Plus), Eye tracking (Tobii Glasses 3, Tobii Pro Lab), Force plate data (AMTI)

Machine Learning, Statistics & Data Visualization:
Python, PyTorch, TensorFlow, C++, R

Engineering & Simulation Tools:
MATLAB, Simulink, SolidWorks, PTC Creo, Autodesk 3ds Max, FluidSim, Visual Studio, Arduino, OpenCV, Java

AWARDS & AFFILIATIONS

Best Student Work Award in the Aerospace Systems Technical Group (ASTG) in ASPIRE (2024 & 2025)
Academic Excellence Awards in Engineering (2016 & 2017)
Associate Member, Institute of Engineers Sri Lanka (IESL) (2018 - present)
Student Affiliate Human Factors and Ergonomics Society (HFES) (2024 - present)