

# Stanford

---



## Lara Weed

Ph.D. Student in Bioengineering, admitted Autumn 2020

### Bio

---

#### HONORS AND AWARDS

- Biomedical Engineering Senior Award, University of Vermont (2020)
- Club Sports Leader of the Year, University of Vermont (2020)
- Biomedical Engineering Junior Award, University of Vermont (2018)
- Biomedical Engineering Sophomore Award, University of Vermont (2017)

#### PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Student Member, Society for Research on Biological Rhythms (2022 - present)
- Student Member, IEEE Engineering in Medicine and Biology Society (2022 - present)
- Student Member, Institute of Electrical and Electronics Engineers (2022 - present)
- Council Member, Bioengineering Graduate Student Association (2020 - present)
- Member, Digital Medicine Society (2020 - present)
- Student Committee Member, American Society of Biomechanics (2019 - present)
- Student Member, Biomedical Engineering Society (2017 - present)

#### EDUCATION AND CERTIFICATIONS

- Master of Science, Stanford University , BIOE-MS (2022)
- B.S., University of Vermont , Biomedical Engineering (2020)

#### PATENTS

- Jeffrey Palmer, Brian Telfer, James Williamson, Lara Weed, Mark Buller, Rebecca Fellin, Joseph Seay. "United States Patent US20210338173A1 System and Method for Predicting Exertional Heat Stroke with a Worn Sensor", Massachusetts Institute of Technology , Cambridge , MA ( US ) ; U.S. Army Research Institute of Environmental Medicine , Natick , MA ( US ), Nov 4, 2021

### Research & Scholarship

---

#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

My mission is to characterize and optimize human health, rehabilitation, and performance using physiological and biomechanical signals from wearable sensors.

#### LAB AFFILIATIONS

- Jamie Zeitzer, Zeitzer Circadian Research Lab (6/21/2021)

## Professional

---

### WORK EXPERIENCE

- Co-Op Technical Assistant - MIT Lincoln Laboratory (July 2018 - July 2019)
- Data Scientist Intern - Merck Sharp & Dohme Corp. (May 2020 - August 2020)

## Publications

---

### PUBLICATIONS

- **An umbrella review of systematic reviews of the impact of wrist-worn wearables on health outcomes.** *Physiological reviews*  
Glisic, M., Llane, A., Stojic, S., Llanaj, E., Roa-Díaz, Z. M., Raguindin, P. F., Kastrati, L., Weed, L., Turakhia, M. P., Ashley, E., Muka, T., Ioannidis, J. P.  
2025
- **Circadian Phase Estimation From Ambulatory Wearables With Particle Filtering: Accuracy Depends on Initialization, Recording Duration, and Light Exposure.** *Journal of biological rhythms*  
Weed, L., Jamgochian, A., St Hilaire, M. A., Cheng, P., Kochenderfer, M. J., Zeitzer, J. M.  
2025: 7487304251392289
- **Circadian-informed modeling predicts regional variation in obesity and stroke outcomes under different permanent US time policies.** *Proceedings of the National Academy of Sciences of the United States of America*  
Weed, L., Zeitzer, J. M.  
2025; 122 (38): e2508293122
- **Adverse effects of late sleep on physical health in a large cohort of community-dwelling adults.** *European journal of internal medicine*  
Lok, R., Weed, L., Winer, J., Zeitzer, J. M.  
2024
- **Impact Of Time Of Day On Neuromuscular Performance Of The Star Excursion Balance Test In Young Women**  
Weed, L., Thompson, S., Kraus, E., Delp, S., Zeitzer, J.  
LIPPINCOTT WILLIAMS & WILKINS.2024: 257-258
- **How many days are enough? Sleep-wake timing regularity and fragmentation scores change with the number of days included.** *Journal of sleep research*  
Lok, R., Suh, S., Rue, S., Weed, L., Zeitzer, J. M.  
2024: e14332
- **Perils of the nighttime: Impact of behavioral timing and preference on mental health in 73,888 community-dwelling adults.** *Psychiatry research*  
Lok, R., Weed, L., Winer, J., Zeitzer, J. M.  
2024; 337: 115956
- **Impaired 24-h activity patterns are associated with an increased risk of Alzheimer's disease, Parkinson's disease, and cognitive decline.** *Alzheimer's research & therapy*  
Winer, J. R., Lok, R., Weed, L., He, Z., Poston, K. L., Mormino, E. C., Zeitzer, J. M.  
2024; 16 (1): 35
- **Fatigued but not sleepy? An empirical investigation of the differentiation between fatigue and sleepiness in sleep disorder patients in a cross-sectional study.** *Journal of psychosomatic research*  
Suh, S., Lok, R., Weed, L., Cho, A., Mignot, E., Leary, E. B., Zeitzer, J. M.  
2024; 178: 111606
- **PERILS OF THE NIGHTTIME: IMPACT OF BEHAVIORAL TIMING AND PREFERENCE ON MENTAL AND PHYSICAL HEALTH**  
Zeitzer, J., Lok, R., Weed, L., Winer, J.  
OXFORD UNIV PRESS INC.2023
- **Brief structured respiration practices enhance mood and reduce physiological arousal.** *Cell reports. Medicine*  
Balban, M. Y., Neri, E., Kogon, M. M., Weed, L., Nouriani, B., Jo, B., Holl, G., Zeitzer, J. M., Spiegel, D., Huberman, A. D.

2023: 100895

- **The Impact of Missing Data and Imputation Methods on the Analysis of 24-Hour Activity Patterns.** *Clocks & sleep*  
Weed, L., Lok, R., Chawra, D., Zeitzer, J.  
2022; 4 (4): 497-507
- **SLEEP-WAKE STABILITY AND VARIABILITY IN THE MIDDLE-AGED ADULT POPULATION: A UK BIOBANK STUDY**  
Lok, R., Weed, L., Chawra, D., Winer, J., Zeitzer, J.  
OXFORD UNIV PRESS INC.2022: A73-A74
- **Gait instability and estimated core temperature predict exertional heat stroke** *BRITISH JOURNAL OF SPORTS MEDICINE*  
Buller, M., Fellin, R., Burse, M., Galer, M., Atkinson, E., Beidleman, B. A., Marcello, M. J., Driver, K., Mesite, T., Seay, J., Weed, L., Telfer, B., King, et al  
2022
- **A Preliminary Investigation of the Effects of Obstacle Negotiation and Turning on Gait Variability in Adults with Multiple Sclerosis** *SENSORS*  
Weed, L., Little, C., Kasser, S. L., McGinnis, R. S.  
2021; 21 (17)
- **Estimating Sedentary Breathing Rate from Chest-Worn Accelerometry From Free-Living Data**  
Telfer, B. A., Williamson, J. R., Weed, L., Burse, M., Frazee, R., Galer, M., Moore, C., Buller, M., Friedl, K. E., IEEE  
IEEE.2020: 4636-4639

## PRESENTATIONS

- Sleep Detection and Disturbance Characterization from Chest Accelerometer for Multiple Sclerosis - Biomedical Engineering Society (October 2020)
- Implementing High Intensity Gait Training to Improve Recovery Following Stroke Using Knowledge Translation - APTA CSM 2020 (2020)
- Characterizing Marching Gait Parameters in the Field During Load Carriage Using a Shank-Borne Sensor - ASB/ISB 2019 (August 2019)
- Pedestrian Movement Tracking Using Adaptive Zero-Velocity Updates From Shank IMU - ASB/ISB 2019 (8/1/2020)
- Comparison of Raw Accelerometry from Four Research-Grade Devices - ICAMPAM (June 2019)
- Transitioning Assessments from the Clinic to Daily Life: Exploring Sit-to-Stand Transition Rates As a Means for Assessing Symptom Fluctuation - ACTRIMS (2019)
- Wearable Sensor-Based Characterization of Gait Biomechanics in Persons with Multiple Sclerosis: Comparing in-Lab and Daily life Observations - ACTRIMS (2019)
- Gait Kinematics and Muscle Activity from Wearable Sensors Associated with Disability in Persons with Multiple Sclerosis - BMES 2018 (October 2018)
- Open-Source Wearable Sensor Based Method Feasible for Tracking Steps in Patients Recovering from Stroke - BMES 2018 (October 2018)
- Effect of EMS Loading Configuration On Stair Ascent and Descent Biomechanics Using a Kalman Filter and Wearable Inertial Sensors - BMES 2018 (October 2018)
- Validation of GaitAnalysisPro App for 10m Walk Test - BMES 2017 (10/1/2017)