

Sonny T. Jones (He/Him/His)

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[LinkedIn](#), [Website](#), [GitHub](#)

Interests

Machine Learning, Reinforcement Learning, Deep Learning, Artificial Intelligence, Rehabilitation Robotics, Neural Engineering, Video Games, Weightlifting, PC Enthusiast

Education

Doctor of Philosophy, Biomedical Engineering	2023 - 2028
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University of Utah, Salt Lake City, Utah, USA

Advisor: Ashley Dalrymple

Master of Science, Biomedical Engineering	2023 - 2028
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University of Utah, Salt Lake City, Utah, USA

Bachelor of Science, Biomedical Engineering	2021
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University of Utah, Salt Lake City, Utah, USA

Thesis: *"Development of Electrocardiographic Measures for Cognitive Load During Prosthesis Use"*

Advisor: Michael Paskett, Gregory Clark

Experience

Graduate Research Assistant	2023 - Present
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Neural Engineering for Rehabilitation Via Electrical Stimulation (NERVES) Lab

Department of Biomedical Engineering, University of Utah, Salt Lake City, Utah, USA

Mentor: Ashley Dalrymple

Post-Baccalaureate Research Assistant	2022 - 2023
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Utah NeuroRobotics Lab

Department of Electrical and Computer Engineering, University of Utah, Salt Lake City, Utah, USA

Mentor: Jacob George

Research Analyst/Assistant	2021 - 2023
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Trajectories of Resilience, Community, and Health (TORCH) Lab

Division of Epidemiology, Department of Medicine, University of Utah School of Medicine, Salt Lake City, Utah, USA

Mentor: Mary Jo Pugh

Undergraduate Research Assistant	2019 - 2021
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Center for Neural Interfaces

Department of Biomedical Engineering, University of Utah, Salt Lake City, Utah, USA

Mentor: Gregory Clark

Certifications

Deep Learning Certificate	2025
College of Engineering, University of Utah, Salt Lake City, Utah, USA	
Reinforcement Learning Specialization	2023
University of Alberta and Alberta Machine Intelligence Institute on Coursera	
Machine Learning Scientist	2022
DataCamp	
Data Science Professional	2022
DataCamp	

Grants

Trainee Professional Development Award	2025
Society for Neuroscience, San Diego, California, USA	
Graduate Student Travel Assistance Award	2025
The Graduate School, University of Utah, Salt Lake City, Utah, USA	
Undergraduate Research Opportunity Program Grant	2020
Office of Undergraduate Research, University of Utah, Salt Lake City, Utah, USA	
Office of Undergraduate Research Small Grant	2019
Office of Undergraduate Research, University of Utah, Salt Lake City, Utah, USA	
Undergraduate Research Opportunity Program Grant	2019
Office of Undergraduate Research, University of Utah, Salt Lake City, Utah, USA	

Scholarships

Campbell Endowed Fellowship	2023 - 2026
College of Engineering, University of Utah, Salt Lake City, Utah, USA	
John C. Jackson Trust Scholarship	2021
College of Engineering, University of Utah, Salt Lake City, Utah, USA	
Dee Undergraduate Research Scholarship	2020
Office of Undergraduate Research, University of Utah, Salt Lake City, Utah, USA	
President's Scholarship	2017-2021
University of Utah, Salt Lake City, Utah, USA	

Peer-Reviewed Journal Publications

Published

1. AN Dalrymple, **ST Jones**, JB Fallon, RK Shepherd, DJ Weber, "Overcoming Failure: Improving Acceptance and Success of Implanted Neural Interfaces", *Bioelectronic Medicine, Special Issue for Neural Interfaces*, vol 11, **2025**.

2. K North, **ST Jones**, GM Simpson, AN Dalrymple, “Personalized Gait Rehabilitation with Spinal Cord Stimulation and Machine Learning: Recent Advances and Promising Applications”, Invited Review, *Current Opinions in Biomedical Engineering: Bioelectronic Medicine*, vol 34, **2025**.

Pre-Print

1. MD Paskett, JK Garcia, **ST Jones**, MR Brinton, TS Davis, CC Duncan, JM Cooper, DL Strayer, GA Clark, “Improving Upper-limb Prosthesis Usability: Cognitive Workload Measures Quantify Task Difficulty”, *medRxiv*, **2022**.

In Preparation

1. CV Ihediwa*, KJ Valestrino*, J Hernandez-Bello, Aubrey Andrus, **ST Jones**, AS Gandhi, AN Dalrymple, “Automated identification of spinal vertebrae and spinal cord stimulation electrodes from fluoroscopic images”.
2. GM Simpson, **ST Jones**, WMJ Young, K North, AN Dalrymple, “Biomechanical adjustments of the lower-limbs when approaching new terrains during walking”.
3. WMJ Young, GM Simpson, **ST Jones**, K North, PM Pilarski, AN Dalrymple, “Sensor importance for predicting terrains during walking”.

Conference Proceedings

Published

1. GM Simpson, K North, **ST Jones**, AN Dalrymple, “A Novel Template-Matching Method for Extracting Gait Cycles from Underfoot Pressure Data”, *IEEE International Consortium for Rehabilitation Robotics (ICORR), RehabWeek*, May **2025**.
2. **ST Jones**, GM Simpson, WMJ Young, K North, PM Pilarski, AN Dalrymple, “Comparative Analysis of Temporal-Difference Learning Methods to Learn General Value Functions of Lower-Limb Signals”, *IEEE International Consortium for Rehabilitation Robotics (ICORR), RehabWeek*, May **2025**.

Preprint

1. **ST Jones**, GM Simpson, PM Pilarski, AN Dalrymple, “Hierarchical Reinforcement Learning Framework for Adaptive Walking Control Using General Value Functions of Lower-Limb Sensor Signals”, Accepted to *Multi-Disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, preprint on arXiv:2507.16983, Dublin, IRL, Jun **2025**.

Other Publications

Undergraduate Research Journal

1. **ST Jones**, MD Paskett, GA Clark, CC Duncan, “Development of Electrocardiographic Measures for Cognitive Load During Prosthesis Use”, *Undergraduate Research Journal, University of Utah*, vol 22, **2021**.

Oral Presentations

1. **ST Jones**, GM Simpson, WMJ Young, K North, PM Pilarski, AN Dalrymple. "Comparative Analysis of Temporal-Difference Learning Methods to Learn General Value Functions of Lower-Limb Signals", *IEEE International Consortium for Rehabilitation Robotics (ICORR), RehabWeek*, May **2025**.
2. **ST Jones**, MD Paskett, GA Clark, CC Duncan. "Development of Electrocardiographic Measures for Cognitive Load During Prosthesis Use." *BME Undergraduate Research Symposium*, Salt Lake City, UT, USA, April **2021**.

Poster Presentations

1. **ST Jones**, GM Simpson, PM Pilarski, AN Dalrymple, "Hierarchical Reinforcement Learning Framework for Adaptive Walking Control Using General Value Functions of Lower-Limb Sensor Signals", *Inaugural Utah AI Summit*, Salt Lake City, UT, USA, Jun **2025**.
 - 3rd Place Poster Lightning Talk
2. **ST Jones**, GM Simpson, PM Pilarski, AN Dalrymple, "Hierarchical Reinforcement Learning Framework for Adaptive Walking Control Using General Value Functions of Lower-Limb Sensor Signals", *Multi-Disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, Dublin, IRL, Jun. **2025**.
3. **ST Jones**, GM Simpson, PM Pilarski, AN Dalrymple. "Classification of Walking Terrain Using Actual and Predicted Lower-Limb Sensor Signals". *Rocky Mountain American Society of Biomechanics (RMASB)*, Estes Park, CO, USA, April **2025**.
 - Best PhD Poster in Session
4. **ST Jones**, GM Simpson, WMJ Young, K North, PM Pilarski, AN Dalrymple. "Predicting Sensor Signals During Walking Over Different Terrains Using Reinforcement Learning." *Utah Biomedical Engineering Conference (UBEC)*, Salt Lake City, UT, USA, Sep **2024**.
 - Top 12 Poster Grand Rounds
5. **ST Jones**, GM Simpson, K North, PM Pilarski, AN Dalrymple. "Predicting Terrain Transitions After Stroke Using Reinforcement Learning Methods". *James R. Swenson, MD Scientific Symposium Day*, Salt Lake City, UT, USA, May **2024**.
6. **ST Jones**, GM Simpson, K North, PM Pilarski, AN Dalrymple. "Predicting Terrain Transitions After Stroke Using Reinforcement Learning Methods". *Rocky Mountain American Society of Biomechanics (RMASB)*, Estes Park, CO, USA, April **2024**.
7. **ST Jones**, MD Paskett, GA Clark, CC Duncan. "Development of Electrocardiographic Measures for Cognitive Load During Prosthesis Use". *BME Undergraduate Research Symposium*, Salt Lake City, UT, USA, April **2021**.

Conference Abstracts

1. WMJ Young, GM Simpson, **ST Jones**, K North, PM Pilarski, AN Dalrymple. "Optimizing Sensor Placement for Terrain Classification", *Inaugural Utah AI Summit*, Salt Lake City, UT, USA, Jun **2025**.
2. CV Ihediwa, KJ Valestrino, **ST Jones**, JH Bello, AN Dalrymple, "Image Processing of X-Rays of the Spine and Spinal Cord Stimulation Implants", *Inaugural Utah AI Summit*, Salt Lake City, UT, USA, Jun **2025**.
3. CV Ihediwa, KJ Valestrino, **ST Jones**, JH Bello, AN Dalrymple, "Image Processing of X-Rays of the Lumbar Spine and Spinal Cord Stimulation Implants", *International Functional Electrical Stimulation Society (IFESS)*, Chicago, IL, USA, May **2025**.
4. GM Simpson, K North, **ST Jones**, AN Dalrymple. "A Novel Template-Matching Method for Extracting Gait Cycles from Underfoot Pressure Data", *Rocky Mountain American Society of Biomechanics (RMASB)*, Estes Park, CO, USA, April **2025**.
5. WMJ Young, GM Simpson, **ST Jones**, K North, PM Pilarski, AN Dalrymple. "Optimizing Sensor Placement for Terrain Classification", *Rocky Mountain American Society of Biomechanics (RMASB)*, Estes Park, CO, USA, April **2025**.
6. CV Ihediwa, KJ Valestrino, **ST Jones**, JH Bello, AS Gandhi, AN Dalrymple, "Image Processing of X-Rays of the Lumbar Spine and Spinal Cord Stimulation Implants", *Rocky Mountain American Society of Biomechanics (RMASB)*, Estes Park, CO, USA, April **2025**.
7. CV Ihediwa, KJ Valestrino, **ST Jones**, J Hernandez-Bello, AS Gandhi, AN Dalrymple, "Image Processing of X-Rays of the Lumbar Spine & Spinal Cord Stimulation Implants", *Undergraduate Research Symposium*, Salt Lake City, UT, USA, April **2025**.
8. CV Ihediwa, KJ Valestrino, **ST Jones**, CT Stanley, AN Dalrymple, "Image Processing of X-Rays of the Lumbar Spine & Spinal Cord Stimulation Implants", *Biomedical Engineering Society (BMES)*, Baltimore, MD, USA, Oct **2024**.
9. GM Simpson, **ST Jones**, K North, PM Pilarski, AN Dalrymple, "Finding Optimal Sensor Combinations Across Variable Terrains Using tSNE And Reinforcement Learning", *Utah Biomedical Engineering Conference (UBEC)*, Salt Lake City, UT, USA, Sep **2024**.
10. CV Ihediwa, KJ Valestrino, **ST Jones**, CT Stanley, AN Dalrymple, "Image Processing of X-rays of the Lumbar Spine and Spinal Cord Stimulation Implants", *Utah Biomedical Engineering Conference (UBEC)*, Salt Lake City, UT, USA, Sep **2024**.
11. GM Simpson, **ST Jones**, K North, PM Pilarski, AN Dalrymple, "Optimal Body-Worn Sensors for Predicting Terrain Transitions While Walking", *James R. Swenson Scientific Symposium Day*, Salt Lake City, UT, USA, May **2024**.
12. GM Simpson, **ST Jones**, K North, PM Pilarski, AN Dalrymple, "Optimal Body-Worn Sensors for Predicting Terrain Transitions While Walking", *Rocky Mountain American Society of Biomechanics (RMASB)*, Estes Park, CO, USA, April **2024**.

Accepted

1. **ST Jones**, GM Simpson, PM Pilarski, AN Dalrymple, "Hierarchical Reinforcement Learning Framework for Adaptive Walking Control Using General Value Functions of Lower-Limb Sensor Signals", *Utah Biomedical Engineering Conference (UBEC)*, Salt Lake City, San Diego, UT, USA, Sep **2025**.
2. GM Simpson, I Khimach, K North, **ST Jones**, AN Dalrymple, "A Novel Automated Template-Matching Method for Extracting Gait Cycles from Underfoot Pressure Data", *Utah Biomedical Engineering Conference (UBEC)*, Salt Lake City, San Diego, UT, USA, Sep **2025**.
3. WMJ Young, GM Simpson, **ST Jones**, K North, PM Pilarski, AN Dalrymple, "Optimizing Sensor Placement for Terrain Classification", *Utah Biomedical Engineering Conference (UBEC)*, Salt Lake City, San Diego, UT, USA, Sep **2025**.
4. **ST Jones**, GM Simpson, PM Pilarski, AN Dalrymple, "Predicting Walking Terrains Using Machine Learning and Predictions of Body-Worn Sensor Signals", *Society for Neuroscience*, San Diego, CA, USA, Nov **2025**.
5. GM Simpson, K North, **ST Jones**, WMJ Young, PM Pilarski, AN Dalrymple, "Don't Be Trippin': Understanding the Biomechanics of Walking Across Different Terrains", *Society for Neuroscience*, San Diego, CA, USA, Nov **2025**.
6. K North, GM Simpson, **ST Jones**, C Andersen, AN Dalrymple, "Estimating Ground Reaction Force Waveforms from Shank-Mounted Inertial Measurement Unit Using Bidirectional LSTMs", *Society for Neuroscience*, San Diego, CA, USA, Nov **2025**.
7. WMJ Young, GM Simpson, K North, **ST Jones**, PM Pilarski, AN Dalrymple, "Optimizing Sensor Placement for Terrain Prediction During Walking", *Society for Neuroscience*, San Diego, CA, USA, Nov **2025**.
8. CV Ihediwa, KJ Valestrino, **ST Jones**, JH Bello, AN Dalrymple, "Automated Electrode Identification for Spinal Cord Stimulation Using nnU-Net Segmentation", *Society for Neuroscience*, San Diego, CA, USA, Nov **2025**.

Teaching and Lectures

Teaching

- **Graduate Teaching Assistant, BME 3101 Biosignals Analysis** 2025
University of Utah, Salt Lake City, Utah, USA

Guest Lecturer

- **Graduate Student Panel** 2024
BME 1010 Careers in Biomedical Engineering, University of Utah, Salt Lake City, Utah, USA
- **"Rehabilitative Robotics and Its Application in Stroke/Amputee Populations"** 2024
Robotics, West High School, Salt Lake City, Utah, USA

- **“Rehabilitative Robotics and Its Application in Stroke/Amputee Populations”** 2024
Principles In Engineering, West High School, Salt Lake City, Utah, USA

Student Mentorship

- **Chimdi Ihediwa** 2024 - 2025
Undergraduate Student, Department of Biomedical Engineering, University of Utah, Salt Lake City, UT, USA
Role: Graduate Student Mentor
- **Wyatt Young** 2024 - 2025
Undergraduate Student, Department of Biomedical Engineering, University of Utah, Salt Lake City, UT, USA
Role: Graduate Student Mentor

Open-Source Software and Data Repositories

1. [BlynscySFT](#)
Fine-tuning package for Faster R-CNN models.
2. [Machine Learning Gait Front End](#)
Custom graphical user interface (GUI) and control software for synchronized data collection from Delsys Trigno EMG and XSensor wireless pressure insoles.

Academic Honors/Awards

Phi Eta Sigma Honors Society, University of Utah 2017
Dean's List, University of Utah 2017 - 2021

Service and Volunteerism

University

- **Chair, Curriculum Committee** 2025 - Present
Biomedical Engineering Graduate Student Advisory Committee (GSAC), University of Utah, Salt Lake City, Utah, USA
- **Volunteer, Inaugural Utah AI Summit** 2025
John and Maria Price College of Engineering, University of Utah, Salt Lake City, Utah, USA
- **Volunteer, Biomedical Engineering Recruitment Weekend** 2025
Department of Biomedical Engineering, University of Utah, Salt Lake City, Utah, USA
- **Volunteer, National Biomechanics Day** 2024
University of Utah, Salt Lake City, Utah, USA
- **Volunteer, Biomedical Engineering Recruitment Weekend** 2024
Department of Biomedical Engineering, University of Utah, Salt Lake City, Utah, USA

- **External Vice President** 2019 - 2020
Vietnamese American Student Association (VASA), University of Utah, Salt Lake City, Utah, USA

Community

- **Judge Advisor Assistant** 2025
Utah Regional First Robotics Competition, Salt Lake City, Utah, USA
- **Software Mentor** 2023 - 2024
First Robotics Competition, Red Rock Robotics, West High School, Salt Lake City, Utah, USA
- **Director of Patient Impact** 2022 - 2023
Project Embrace, West Jordan, Utah, USA
- **Member, Research Committee** 2021 - 2023
Project Embrace, West Jordan, Utah, USA
- **Director of Marketing and Community Engagement** 2021 - 2022
Project Embrace, West Jordan, Utah, USA
- **Community Outreach and Engagement Chair** 2020 - 2021
Southwest Union of Vietnamese Student Associations (SWUVSA)
- **Counsel of School Representatives (CoSR) Member** 2019 - 2020
Southwest Union of Vietnamese Student Associations (SWUVSA)
- **Emergency Room Volunteer** 2019 - 2020
University of Utah Hospital, Salt Lake City, Utah, USA
- **Medical Interpreter & Patient Assistance Program** 2019 - 2020
Maliheh Free Clinic, Salt Lake City, Utah, USA
- **Camp Counselor** 2018, 2019
Camp Anytown, Inclusion Center, Salt Lake City, Utah, USA

Media

Television

- [“Medical Innovations at the University of Utah”](#) 2022
University of Utah, The College Tour, Amazon