

# 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

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<b>Doctor of Philosophy, Biomedical Engineering</b>	2023 - 2028
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University of Utah, Salt Lake City, Utah, USA

Advisor: Ashley Dalrymple

<b>Master of Science, Biomedical Engineering</b>	2023 - 2028
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University of Utah, Salt Lake City, Utah, USA

<b>Bachelor of Science, Biomedical Engineering</b>	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

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<b>Graduate Research Assistant</b>	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

<b>Post-Baccalaureate Research Assistant</b>	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

<b>Research Analyst/Assistant</b>	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

<b>Undergraduate Research Assistant</b>	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

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

## Grants

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

## Scholarships

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

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#### 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

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#### 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

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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**, 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**.
  - 3<sup>rd</sup> Place Lightning Talk
3. **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**.
4. **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

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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**.
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

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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

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### 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. [BlyncsySFT](#)  
Fine-tuning package for Faster Region-based Convolutional Neural Network (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

### Print

- ["AI Summit: Cutting-Edge Talks From Across Campus and Beyond"](#) 2025  
John and Maria Price College of Engineering, University of Utah, Salt Lake City, Utah, USA