# Sonny T. Jones (He/Him/His)

Email: sonny.jones@utah.edu
LinkedIn, Website, GitHub

## Interests

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

## Education

**Doctor of Philosophy, Biomedical Engineering, Data Science and Computation Track** *2023 - 2028*

University of Utah, Salt Lake City, Utah, USA

Thesis: "*Predicting Terrain Transitions After Stroke Using Reinforcement Learning Methods*"

Advisor: Ashley Dalrymple

**Master of Science, Biomedical Engineering, Data Science and Computation Track** *2023 - 2028*

University of Utah, Salt Lake City, Utah, USA

GPA: 4.00

**Bachelor of Science, Biomedical Engineering, NeuroEngineering Emphasis** *2021*

University of Utah, Salt Lake City, Utah, USA

GPA: 3.79

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

Advisor: Michael Paskett, Gregory Clark

## Experience

**Graduate Research Assistant** *2023 - Present*

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*

Utah NeuroRobotics Lab

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

Mentor: Marshall Trout, Jacob George

**Research Analyst/Assistant** *2021 - 2023*

Trajectories of Resilience, Community, and Health Lab (TORCH)

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*

Center for Neural Interfaces

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

Mentor: Michael Paskett, 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

**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*

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*

University of Utah, Salt Lake City, Utah, USA

## Peer-Reviewed Publications

**In Review/Revision**

1. 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.*
2. AN Dalrymple, **ST Jones**, JB Fallon, RK Shepherd, DJ Weber. "Overcoming Failure: Improving Acceptance and Success of Implanted Neural Interfaces", *Biosensors and Bioelectronics*.

**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.**

## 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,* **2021**.

## Conference Abstracts

1. 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,* Baltimore, MD, USA, Oct **2024**.
2. **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*, Salt Lake City, UT, USA, Sep **2024.**
3. 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*, Salt Lake City, UT, USA, Sep **2024.**
4. CV Ihediwa, KJ Valestrino, **ST Jones**, CT Stanley, AN Dalrumple. "Image Processing of X-rays of the Lumbar Spine and Spinal Cord Stimulation Implants." *Utah Biomedical Engineering Conference*, Salt Lake City, UT, USA, Sep **2024**.
5. **ST Jones**, GM Simpson, WMJ Young, K North, PM Pilarski, AN Dalrymple. "Predicting Terrain Transitions After Stroke Using Reinforcement Learning Methods." *Rocky Mountain American Association of Biomechanics*, Estes Park, CO, USA, April **2024**.

6. GM Simpson, **ST Jones**, K North, PM Pilarski, AN Dalrymple. "Optimal Body-Worn Sensors for Predicting Terrain Transitions While Walking." *Rocky Mountain American Association of Biomechanics*, Estes Park, CO, USA, April **2024**.

## Oral Presentations

1. **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, WMJ Young, K North, PM Pilarski, AN Dalrymple. "Predicting Sensor Signals During Walking Over Different Terrains Using Reinforcement Learning." *Utah Biomedical Engineering Conference*, Salt Lake City, UT, USA, Sep **2024**.
2. **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**.
3. **ST Jones**, GM Simpson, K North, PM Pilarski, AN Dalrymple. "Predicting Terrain Transitions After Stroke Using Reinforcement Learning Methods". *Rocky Mountain American Association of Biomechanics*, Estes Park, CO, USA, April **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**.

## Teaching and Lectures

**Guest Lecturer**

- **"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 - Present*
  Undergraduate Student, Department of Biomedical Engineering, University of Utah, Salt Lake City, UT, USA

Role: Graduate Student Mentor

- **Wyatt Young** *2024 - Present*

  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. Machine Learning Gait Front End

## Academic Honors/Awards

Phi Eta Sigma Honors Society, University of Utah *2017 - 2021*

Dean's List, University of Utah *2017 - 2021*

## Service and Volunteerism

**University**

- **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**

- **First Robotics Competition Mentor** *2023 - Present*

  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

## Other

**Programming Languages**

- Python, MATLAB, C/C++, LabView (Proficient)
- Java, SQL, R (Familiar)