Jacob Sindorf

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Education

Arizona State University, Tempe, AZ
PhD, Systems Engineering, (Expected May 2023)
Masters in Passing, August 2021
GPA- 4.0

The University of Arizona, Tucson, AZ
Bachelor of Biomedical Engineering, May 2020
Minor of Mechanical Engineering
GPA- 3.917

Technical Skills

Programming: Python/Jupyter, MATLAB, Arduino (C/C++), TensorFlow
Software: Solidworks, Simulink, GitHub, Virtual Machine, Edge Impulse

Projects

Graduate Researcher | Arizona State University August 2020 – Present
- Studied wearable sensor systems and the applications of machine learning through Python
- Researched photoplethysmography (PPG) sensor signals and the underlying mathematics behind the signal's dynamics through MATLAB

Embedded Deep Learning Heart Rate Estimation Device | Course project January 2022 – May 2022
- Developed an embedded wrist-worn heart rate sensor with PPG and Arduino
- Deployed a trained deep neural network through TensorFlow lite to Arduino
- Generated Python and Arduino/C++ scripts for training and preprocessing

Reinforcement Learning in UR5 Task Training | Course project August 2021 – December 2021
- Programmed two reinforcement learning algorithms on a UR5 for reaching tasks
- Organized software dependencies to allow for seamless use and deployment to the hardware
- Debugged Python scripts and UR5 software to allow for real time reaching task training

PBVI for Motion Artifact and Sensor System Energy Savings | Course project August 2021 – December 2021
- Compiled a partially observable Markov decision process (POMDP) based point-based value iteration (PBVI) algorithm through MATLAB to maximize rewards
- Derived extensive mathematical formulations that were used to run simulations in MATLAB
- Found maximum rewards with high accuracy and low energy cost in a multi-wearable sensor system

Undergraduate Researcher | University of Arizona October 2018 – May 2020
- Analyzed statistics of multi-subject MRI data in MATLAB and JMP
- Identified statistically significant brain region trends between healthy adults, mild cognitive impairment (MCI), and young adults
- Contributed towards published paper, https://doi.org/10.1111/jon.12845, Journal of Neuroimaging

Work Experience

ASU Teaching Experience August 2020 – Dec 2022
- Instructor, FSE100, *Introduction to Engineering (F22)*: Instructed 40 student and 2 teaching assistants. Delivered lectures covering the engineering design process, circuits, Arduino, TinkerCAD, Matlab, and design.
- TA, EGR304, *Embedded Systems (F22)*: Reviewed and debugged student circuit projects and PCB designs. Assisted students in PSoC microcontroller programming and advised students with KiCAD and Cadence.
- Other TA Courses (F20-S22): EGR280, EGR201, EGR202

BIO5 Public Affairs Assistant | University of Arizona September 2017- May 2020
- Managed and co-created professional development-focused BIO5 Ambassador Internship for UA students
- Led tours on BIO5 research/building and Moderated professional science discussion panels

For more details and projects visit jsindorf.github.io or scan