Sofya Akhetova

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Education

University of Wisconsin Madison 2019-2023
Bachelors in Electrical Engineering with Machine Learning and Data Science, and Bachelors in Computer Science
Overall GPA: 3.63 2022-2023 GPA: 4.00

Publications

”Influence of Prosthetic ankle-angle and walking speed on pylon moments in the Two Axis aDaptable Ankle”
-Peter G Adamczyk, Kieran Nichols, Rebecca Roembke, Sofya Akhetova
IEEE Transactions on Medical Robotics and Bionics (in progress)

Conferences and Symposium Presentations

UW Madison Undergraduate Symposium in 2023 as first author on a poster.
4th Great Plains Biomechanics Conference in 2023 as first author on a poster.
UW Madison First Wisconsin Robotics Symposium in 2023 as second author on a poster.

Work Experience

Research in Peter Adamczyk’s Lab Group 2022-Current
Research Assistant in the area of Biomechatronics at UW Madison

- Improve and add functionality to a robotic ankle in ROS with a combination of python, C++, and C code that talks to remote nodes, XSENS, Europa+, IMU.
- Design, build, and test electrical and software components for a sheep prosthetic.
- Develop and test real-time gait detection control system with self-adjusting thresholds for conferences and symposiums as a first author.
- Engage in the study of scientific literature to gain insights into the advancements made in the field and identify areas that require further investigation and improvement.
- Conduct and design human trials.
- Process data, draw scientific conclusions, and quantify success of systems and controls.
- Design and 3D print a box to hold all the electrical components for an ankle prosthetic.
- Help with writing and publishing multiple papers as a second author.
- Help to run Dynamic Walking 2022.

Oshkosh Corporation 2023
Software Autonomy Intern

- Developing a pipeline for the conversion of OpenDRIVE to Lanelet2 HD maps in order to facilitate autonomous driving systems.
- Researching and reading academic literature on most novel tools for map format conversions, and talking to researchers about tools that they have developed.
- Developing code to improve tools that were prototyped by other companies and universities.
- Creating simulation scenarios using dSPACE for testing DARPA requirements.
- Designing supplementary DARPA based tests for control systems within SIMPHERA and Simulink.
- Understanding and utilizing control signals using Simulink.

Collins Aerospace 2022
Electrical Engineering Intern

- Designing, making, and testing circuits that consist of sound input and output, op amps, adc, dac, serializer, deserializer, comparators, differentiators, amplifiers, power resistors, resistors, frequency filters, voltage and current sources, and more.
- Prototyping electrical system of devices of Slaves/Masters with Raspberry Pi that communicates through I2C.
- Helping with reverse engineering products.
- Testing hardware and communication buses through the oscilloscope.
- Working with simple hardware designs on Xilinx FPGAs.

NorthStar Medical Radioisotopes 2021-2022
Manufacturing Engineering Intern

- Collaborating with test engineers to finalize a software solution before its deployment in real-world applications.
- Adding features to software that works with a state machine.
- Creating electrical fixtures, softwares, and interfaces for testing using serial communication, python, arduino, pyside2, and pyqt5.
- Calibrating sensors and troubleshooting them with the manufacturer.
- Using SQL and python to parse through data and upload it to the database.

Research in AJ Boydston's Lab Group 2019-2021
Research Assistant in the area of polymers and 3D printers at UW Madison

- Building and coding a 3D printer (Arduino and Marlin based).

Leadership

- UW Madison Fencing Club Vice President.
- IEEE Eta Kappa Nu Vice President.

Teaching

- Undergraduate TA for ECE 532 Matrix Methods in Machine Learning under Eduardo Arvelo.

Awards

- Zarnstorff, William and Beverly University League Endowed (Electrical and Computer Engineering) Scholarship receiver in 2023.
- 3rd place in MadHacks 2023.
- Teresa and Kathleen Strickland Scholarship receiver in 2022.
- Ernest W. Reynolds (Electrical Engineering) Scholarship receiver in 2021.
- Eugene and Patricia Kreger (Research in Chemistry) Scholarship receiver in 2020.
- James Schleifer (Chemical Engineering) Scholarship receiver in 2020.

Skills

Professional	Professional cont.	Concepts	Concepts cont.	Personal
Python	LTSpice	Operating Systems	Digital Circuit Design	Fluent in Russian
Java	Oscilloscope	Algorithms	Analog Circuit Design	Fluent in English
C	Circuit design	AI/Machine Learning	FPGA	
SQL	Soldering	Data Structures	Embedded Systems	
ROS	FPGAs	UI	Motion Control Systems	
Arduino	Vivado	Real-Time Detection	Academic Writing and Reading	
MATLAB	Microsoft	Simulation	Conducting and Designing	
dSPACE	Linux	Signal Processing	Experiments	
XSENS	Simulink	Robotics	Data Processing	