

ANNA GARVERICK

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Education

Northwestern University, M.S. in Robotics, Expected December 2022, 3.975 GPA

University of California, Davis, B.S. in Biomedical Engineering, June 2021, 3.77 GPA with Honors

Awards: *Outstanding Senior Design Project, Outstanding Leadership, Outstanding Senior in Biomedical Engineering*

Skills

Programming: Python, C, C++, MATLAB, Bash, Version Control (Git), Linux, SciPy, Scikit

Robotics: Robotic Operating System (ROS), Computer Vision (OpenCV), Motion Planning (MoveIt!), SLAM, Gazebo, RViz

Prototyping: CAD (Solidworks, Onshape), 3D Printing, Laser Cutting, Soldering, Mechatronics

Experience

Robotic Applications Intern - Hello Robot

Martinez, CA | June 2022 - Sept. 2022

- Collaborated closely with an occupational therapist, acting as R&D and tech support for a field study exploring the use of Stretch, a mobile manipulator designed for home assistive use, in the home of a disabled individual and their care partner
- Implemented and debugged an open source web-based user interface for Stretch in collaboration with an interdisciplinary team
- Created new features including navigating to poses relative to ArUco tags, voice commands, and a robot-lead exercise routine
- Designed and 3D printed custom tools to promote the use of Stretch for daily tasks, including a spinning playing card holder, an arm-mounted dinner service tray, and a letter board holder for hands-free communication

Research Assistant - Orthopedic Biomechanics Laboratory

UC Davis Medical Center | Sept. 2018 - Sept. 2021

- Created and implemented a Python program to automate data collection and significantly improve the efficiency of data analysis
- Developed a protocol to consistently measure anatomical alignment variables and processed the intake images for 30 patients
- Built a MATLAB program to model knee implant instability
- Designed and prototyped a dual x-ray exposure switch box using Solidworks and 3D printing
- Second author on three publications (Journal of Biomechanical Engineering, Journal of Biomechanics)

President - Biomedical Engineering Society Undergraduate Chapter

UC Davis | Sept. 2017 - June 2021

Previous: Vice President, Mentor/Mentee Program Chair

- Managed a 16 officer team for a club with over 200 members, focussing on strengthening the community through new student outreach, collaborating with administration, organizing a career exploration conference and other targeted events
- Won the **BMES Outstanding Mentoring Program Award** and presented 'Best Practices' at the 2019 BMES Annual Meeting

Intern - UC Davis Biomedical Engineering Department Summer Innovation Internship

UCDMC & VMTH | June 2018 - August 2018

- Acted as a student observer while immersed in six different medical and veterinary clinics and practiced biomedical needs finding within a clinical setting, evaluating workflow, procedures, and devices, ultimately working towards developing needs statements

Projects

Adaptive Ankle Exoskeleton Controller

March - December 2022

- Developing a control system with ROS that adapts to user ability to assist rehabilitation with a Technaid H3 ankle exoskeleton
- Utilizing machine learning methods to map multi-muscle high density EMG data to joint torque
- Implementing interaction torque control to improve transparency with a model-based controller

Ball Balancing Robot

January - March 2022

- Designed and built a ball balancing robot from scratch, prototyping the chassis through several iterations using Solidworks CAD software, 3D printing, and laser cutting
- Researched, selected, and assembled electronic components and programmed an RP2040 microcontroller to control 3 stepper motors with PID control using the Raspberry Pi Pico SDK in C

Making Pancakes with a Franka Emika Panda Robot

December 2021

- Integrated contributions from 4 teammates to successfully automate pancake making from batter to plate
- Utilized MoveIt Python interface, ROS action clients, April tags and OpenCV to grasp a squeeze bottle, move it over a griddle, invert it, apply pressure to dispense batter, detect when the pancake is ready to flip, flip the pancake, and finally transfer to a plate