DAVID SPIELMAN

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EDUCATION

Macaulay Honors College at The City College of New York **December 2022**
Bachelor of Engineering in Mechanical Engineering GPA: 3.8

- Honors & Awards: Macaulay Scholar (Four-Year Merit Scholarship), Dean's List (Spring 2019-Spring 2020)

TECHNICAL SKILLS

- ***Software:*** Robot Operating System (ROS), Gazebo Simulator, SolidWorks, Microsoft Office
- ***Operating Systems:*** Windows, macOS, Ubuntu
- ***Programming Languages:*** Python, MATLAB
- ***Microcontroller:*** Arduino
- ***Languages:*** Fluent in Russian

RESEARCH EXPERIENCE

Biomechatronics and Intelligent Robotics Lab, The City College of New York **October 2020-July 2021**
Undergraduate Research Assistant - Robotic Simulation
Principle Investigator: Dr. Hao Su; Mentor: Dr. Antonio Di Lallo

- Simulated the behavior of a servo-actuated configurable robot utilizing the Robot Operating System and the Gazebo Simulator in a team of two
- Developed custom URDF files of the parallel robot whose joints can be controlled via keyboard teleoperation using a custom python script, a custom MATLAB script that accepts user-defined joint angles, the joint state publisher GUI interface in Rviz, and a custom UI made with python
- Tuned PID gains for ROS joint position controllers and adjusted simulation physics to ensure smooth and realistic motion of the robot

Biomedical Engineering Department, The City College of New York **February 2019-March 2020**
Undergraduate Research Assistant, Ultrasound Stimulation Device
Principle Investigator: Dr. Luis Cardoso

- Conducted literature review of research papers on low-intensity pulsed ultrasound stimulation of mesenchymal stem cells to define design parameters and address experimental limitations
- Utilized SolidWorks to design device used to stimulate mesenchymal stem cells with low-intensity pulsed ultrasound
- Manufactured and built stimulation device in collaboration with Dr. Cardoso to standardize the methodology used to analyze stem cell differentiation under low-intensity pulsed ultrasound

PROJECTS

Personal Project
Webcam MIDI Controller **July 2021-Present**

- Utilizing OpenCV, ROS, and a Teensy microcontroller to create a MIDI controller that uses a webcam to track the position of a table tennis paddle to let the user select musical notes to play

Computer Aided Drafting Course, The City College of New York **September 2019-December 2019**
Reverse Engineering

- Applied the principles of reverse engineering to create a technical sketch of a battery-operated nail dryer fan to better understand the fundamentals of product design
- Collaborated with a team to create a representation of the nail dryer fan as a single SolidWorks feature to develop technical facility creating SolidWorks features
- Implemented design modifications by removing DC power jack to cut manufacturing costs by 4%

AFFILIATIONS

President, Macaulay Musicians' Collective August 2020-Present
Student Member, Biomedical Engineering Society (BMES) August 2020-Present
Student Member, American Society of Mechanical Engineers (ASME) February 2020-Present