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: 3.81

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

TECHNICAL SKILLS

- ***Software:*** SolidWorks, Robot Operating System (ROS), Gazebo Simulator, Microsoft Office
- ***Operating Systems:*** Windows, macOS, Ubuntu
- ***Programming Languages:*** Python, MATLAB
- ***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
Principal Investigator: Dr. Hao Su

- 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
Principal Investigator: Dr. Luis Cardoso

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

PROJECTS

Workforce Development Program
L'SPACE NASA Proposal Writing and Evaluation Experience (NPWEE) **September 2021-Present**

- Developed a seven-page concept proposal in a team of seven to address a NASA pain point during space exploration
- Learning the fundamentals of proposal writing, proposal evaluation and review, and Siemens NX

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

- Utilizing OpenCV, ROS, and a Teensy microcontroller to develop 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

- Collaborated with a team of three to create a representation of the nail dryer fan as a single SolidWorks feature to develop technical facility creating SolidWorks features
- 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
- Implemented design modifications by removing DC power jack to cut manufacturing costs by 4%

AFFILIATIONS

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