Allan Garcia-casal

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EDUCATION

Northwestern University — **Evanston, IL**
M.S. in Robotics — Expected Graduation: December 2023

Boston University — **Boston, MA**
B.S. in *Biomedical Engineering - GPA: 3.51/4.00* — 09/18 - *05/22*

AWARDS: Hispanic Scholarship Fund Scholar 2021

RELEVANT COURSEWORK

Current Courses: ME495 Embedded Systems in ROS2, ME449 Robotic Manipulation, CS349 Machine Learning

Future Courses: ME495 Sensing, Navigation, and Machine Learning for Robotics (SLAM) , EE 432 Advanced Computer Vision, CE495 Connected and Autonomous Vehicles

WORK EXPERIENCE

Brigham and Women's Hospital, Department of Radiology — **Boston, MA**
Image Guided Surgery Research Intern — *06/21 - 08/21*

- Assisted in optimizing the registration of 3D meshes from MRI and CT scans using Python point-cloud libraries
- Created different 3D point-cloud meshes for testing using MeshLab

Born Global Foundation — **Boston, MA**
Sustainability Engineering Design Intern — *05/20 - 08/20*

- Designed a prototype of a sustainable zero waste farming process that uses biochar

SELECT PROJECTS

BotChocolate — *09/22 - present*

- Developing software in ROS2 that allows a 7 DOF robot arm to autonomously prepare a cup of hot chocolate
- Using computer vision via the OpenCV library to detect the target scene and objects

EEG Layer Design Prototype — *09/21 - 05/22*

- Designed MRI compatible EEG cap layer that helps attenuate noise from EEG/MRI readings
- Researched novel conductive and insulating materials that could be used for the prototype
- Developed several cap designs using different insulating fabrics and conductive inks
- Tested the prototype with human subjects for performance review

Pulse Oximeter Prototype — *03/21 - 05/21*

- Designed a prototype pulse oximeter with CAD
- Developed the circuitry for accurate signal collection and processing, including filter design and Arduino UNO UI
- Developed the final design that integrated the circuitry into the modeled CAD housing

Human Tissue Cell Incubator — *09/19 - 12/19*

- Designed and built the enclosure for a temperature-regulated cell sample incubator
- Helped in testing and analyzing the materials that would best fit the working and client parameters
- Managed the electrical components and code using Arduino UNO UI, heaters and fans, thermistors, and power supplies
- Ensured temperature data was collected and displayed appropriately for the user

LEADERSHIP EXPERIENCE

BU Technology Innovation Scholars Program (TISP) — **Boston, MA**
FIRST Robotics Engineering Mentor — *09/19 - 05/22*

- Helped a junior robotics team design, build and present LEGO Mindstorm robots for competitions

SKILLS

Software: Python, ROS2/ROS, Git, Arduino UNO, MATLAB, Blender, SolidWorks
Hardware: Circuit Design, Materials Testing