

# My Bristol Robotics Laboratory Experience

Recipient: Michelle Freret

---



Toward the end of my year-long programme abroad, I had the amazing opportunity of participating in an internship at the Bristol Robotics Laboratory in the UK. The laboratory, focused on devices concerned with human-robot interaction, allowed me to explore one of my main engineering interests as well as gain experience in robotics. Just one year prior, I had browsed the Bristol Robotics Laboratory's website with videos and publications for its projects, including aerial, medical, and

interactive robots. I thought that there would be little chance that I would be able to gain an internship at the lab, but it was nevertheless the deciding factor in choosing Bristol University as my host university abroad. Due to being a Student Support Scholarship recipient and through my university's connections, I was able to secure a summer internship with PhD student Maria Elena Giannaccini on her project in collision safety.

The project involves a robotic arm with one end connected to a joint, resembling an elbow, and the opposite end connected to a tentacle-like hydrostatic gripper. In creating a safe device, the gripper was designed with the ability to grip around different shapes of objects while applying enough force to be able to hold an object without crushing it. The mechanical joint was specially designed to allow movement of the extended arm, in such a way that it would stay rigid until the force acting upon it would reach a certain threshold to which it would easily move. Over a period of six weeks, I was assigned the responsibilities of testing, creating an experiment to test the reliability of the joint, and making further improvements. Inside the joint was an adjustable screw that allowed me to change the threshold force to which the arm would "give". In testing the arm, I would record the threshold force for the range of displacements the screw was adjusted and analyze this data to see that it followed a pre-determined curve. My second responsibility was setting up an additional experiment that involved attaching a sensor to the joint in order to determine the distance the arm would travel around its semi-circular path. Over the duration of this project, most of the work I was engaged in was hands-on and I had the chance to use engineering tools, parts, and CAD software to achieve my end-goals. Though some skills I needed were covered with bookwork and lectures in my university classes, it made a difference in my skill set to be able to be shown how to properly use manufacturing and lab tools personally by my mentors.

Being a recipient of a grant from the Student Support Scholarship Fund was invaluable in enabling me to participate in my internship at the Bristol Robotics Laboratory. It was the perfect addition to my engineering studies abroad in Bristol, England. I am grateful that the UCEAP program decided to offer this scholarship and would recommend it to anyone interested in internships and research abroad.

YouTube link: <http://youtu.be/ooQxw1a34JE>