



CPSS240

Joseph Dalia

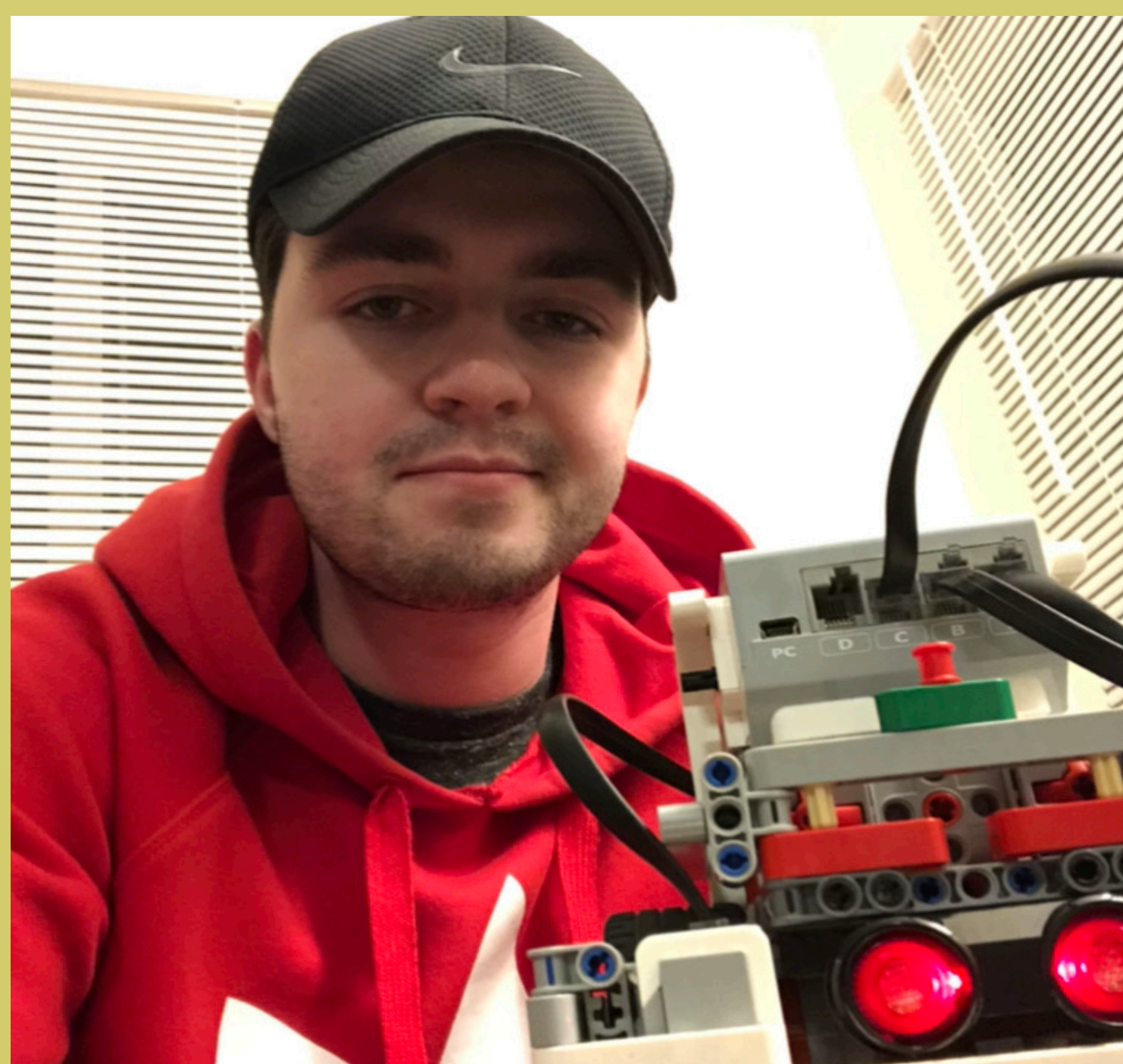
College Park Scholars – Science & Global Change Program
Bioengineering
jdalia@umd.edu



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Introduction

Lego EV3 is a Lego Robotics program for elementary to middle school students to develop introductory coding skills. There are endless design types for designing the robot as well as many imaginable strings of code to control the robot. The CPSS240 class has UMD students teach the program to students who don't have the opportunities to learn robotics.



This is a picture of me with the robot we built. We did a simple tank build that focuses mainly on navigation challenges.

Site Information:

College Park Scholars

<https://scholars-d8.umd.edu/programs/science-technology-and-society>

“The socially responsible application of science and technology”

Supervisor: Tim Reedy

Goal: To teach robotics coding skills to underprivileged elementary/middle school students

Issues Confronting Site:

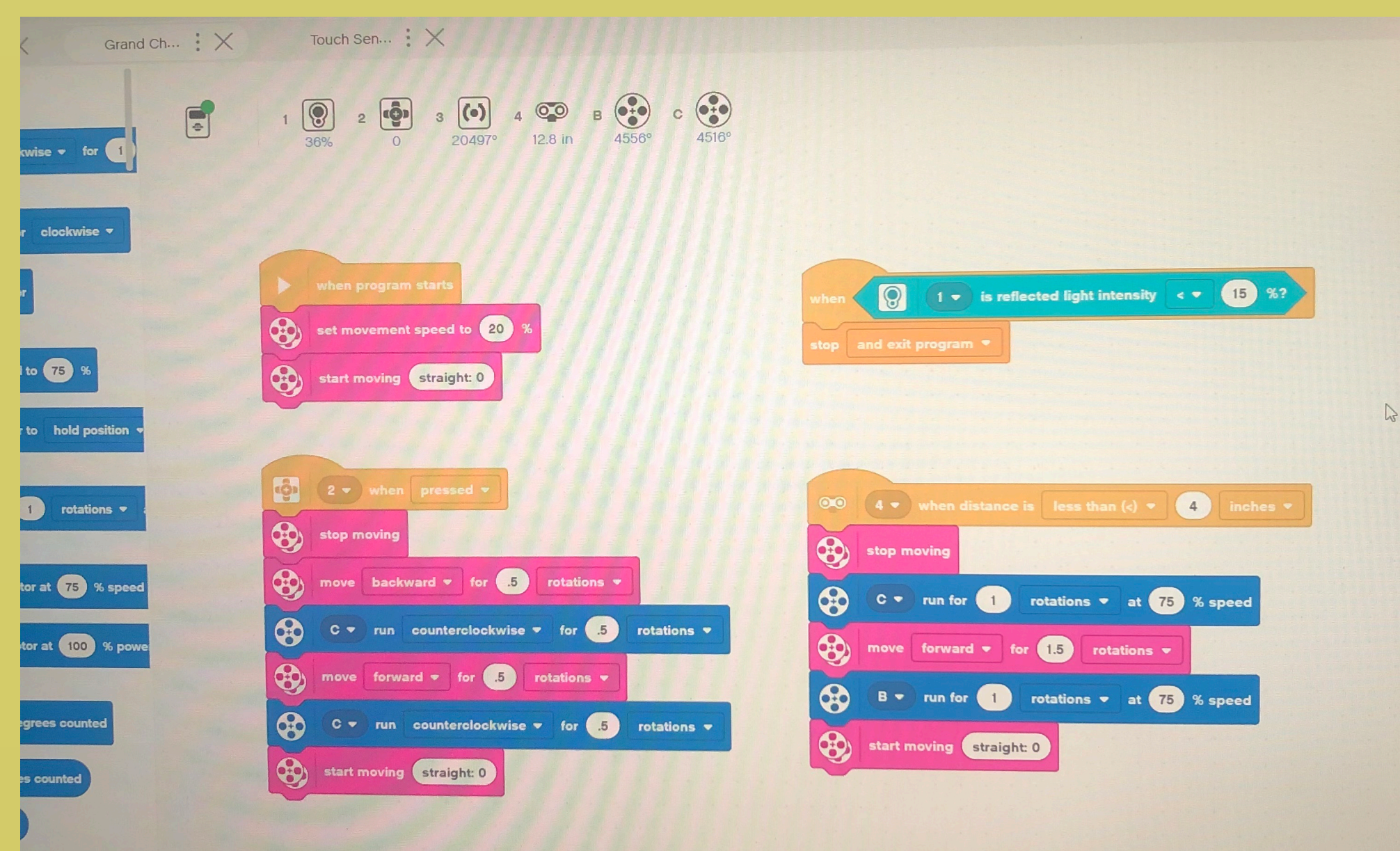
The main issue that CPSS240 addresses is the lack of opportunities in STEM classes and robotics courses that minorities and underprivileged students are presented with. It is such a great course because the general problem around STEM education is that certain minorities don't have access to STEM programs, a problem that when addressed at an early age shows results down the road.

Activities:

In CPSS240, we taught middle schoolers robotics and other introductory coding lessons. Once a week we would create lesson plans and carry out the lesson to progressively teach how to code a Lego EV3 robot. At the end of the semester, we did the “Grand Challenge” which combined all the skills the students learned over the course. Along with the lessons we put forth for the students, we also would learn the importance and current state of STEM education.

Impact:

The impact this course had was developing teaching skills while also giving students opportunities they are not initially presented. It was great to know that I had a positive effect on someone's learning experience. The impact goes beyond the lessons because I also learned how important it is to narrow the gap that is present with minorities in STEM education.



This is a picture of some of the code we used. This specific combination of code is what we used for the Grand Challenge, our obstacle course. Introductory blocks of code make it easier for the younger students to learn.

Discussion:

This course was a great way to learn teaching skills and feel the benefits of helping younger students learn something that they otherwise might not have the opportunity to. This course will be very beneficial to my career outside of College Park Scholars. There were some issues ran into with the course. Because of COVID-19 the class had to be online which meant the lessons with the students lacked face-to-face experience. The future of STEM education is about closing the gap with women and minorities in the STEM field. To accomplish this, it is on STEM educators at lower levels to create more engagement with the students and generate more interest.

Future Work:

This course sets up the future for STEM education and robotics. Both us as instructors and the students we taught will be able to use coding skills in the future. The students of College Park Academy that were able to learn from us hopefully gained an appreciation and passion for robotics and can continue to look to have an impact in the STEM field.

Acknowledgments:

I would like to thank Tim Reedy for supervising this course and teaching me the importance of STEM Education. I would also like to thank Dr. Holtz and Dr. Merck for their guidance the last two years in College Park Scholars. I know the experiences I have gone through in the last two years will have a lasting impact in the future.

