

# NRI: Co-Robots to Enhance Motivation and Self-efficacy in Formal STEM Education

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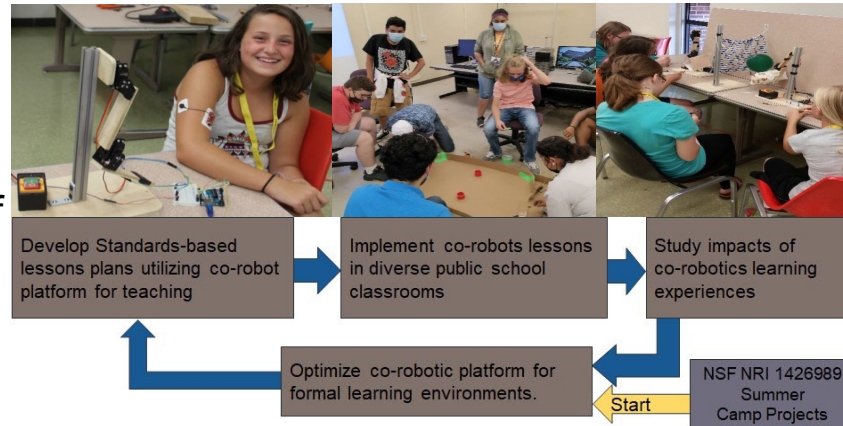
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### Challenge

- Healthcare is becoming robotics reliant. Hands-on learning of assistive and rehabilitation robotics in meaningful contexts such as improving quality of life will broaden participation of underrepresented students including females and ethnic minorities.

### Solution

- A low-cost educational platform called Neu-pulator resembles a human arm, actuated by servo motors at the shoulder, elbow and hand. Students will control each joint with a different type of sensor.
- Lesson plans are developed for formal classroom teaching in public middle schools. Indiana and Georgia teachers will implement this in classroom. Lesson plans are flexible and can be edited as needed.



### Scientific Impact

- This work will identify the potential impacts of positioning the student as a co-roboticist in the context of design thinking.

### Broader Impact

- This project will engage teachers and public-school students in diverse environments. The research is established in an internationally implemented 9th-grade course—logical for the levels of student development and career decision making—offered through the International Technology and Engineering Educators Association STEM Center, which reaches up to 60,000 students annually.