NAO Humanoid Robot Demos for STEM Robotics Education

Client

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Description

Robotics is the fastest growing field and one of the largest technological innovations used in research and education. Humanoid robots have always fascinated students within and outside of classroom, which are an ideal platform to connect theory with practice and discover various robotics-related fields, including computer science, engineering, and mathematics. In this project, the team of students will have the opportunity to develop and implement software programs to demonstrate the advanced NAO humanoid robots to promote science, technology, engineering, and mathematics (STEM) education.

Objectives

Students will develop software packages to control and interact with the NAO robots, as demonstrations for STEM robotics education and outreach, including:

- NAO robot dancing demos,
- NAO robot soccer demos,
- Demos of speech-interaction with NAO robots (a preliminary code will be provided),
- Demos of Simon-says games with a NAO robot and a Kinect camera (a preliminary code will be provided).
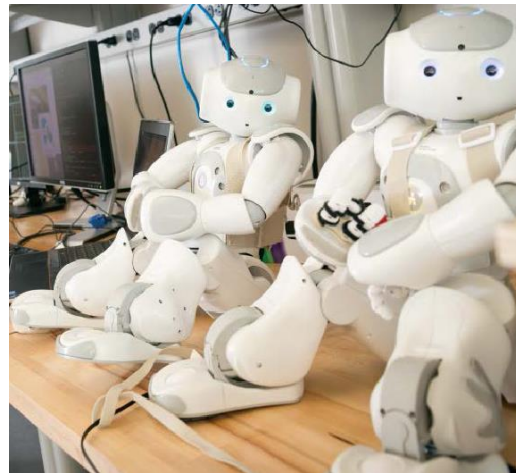
Figure: NAO humanoid robots that will be used in this project.

Required and Desired Skills

- Experience of programming in Ubuntu is required,
- Strong software engineering skills are required (the code *must* be maintainable),
- Familiarity with Robot Operating System (ROS) is preferred (but not required).

Student Benefits

Students will have the opportunity to access the fully interactive, versatile, and fun NAO robots, work on cutting edge robotics educational applications, and obtain experience of system development that is highly relevant to graduate education and systems jobs.

Location

Students will work in the Human-Centered Robotics Laboratory (HCRobotics Lab) in the Brown Building at CSM.