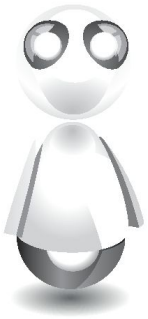
Fall 2015 Student Projects
Autonomous Systems Lab



VERIFIABLE
ROBOTICS
RESEARCHGROUP

The Verifiable Robotics Research Group (www.verifiablerobotics.com) is part of Cornell's Autonomous Systems Lab (www.cornell-asl.org) and is lead by Prof. Hadas Kress-Gazit. This Fall, we are looking for one student for each of the three projects below. If you are interested, please apply as follows:

- Send an email with the subject line "[ASL Fall 2015 Project] Your First and Last Name" to the corresponding PhD student (see info after each project)
    - If you are interested in more than one project, please send a single email, but with multiple recipients.
    - In any case, please CC Prof. Kress-Gazit (hadaskg@cornell.edu)
    - In the email, include your résumé, your up-to-date transcript (unofficial is OK), and a short cover letter.
- We will then contact you to set up a short informal interview.

High-level Control of the KUKA youBot Mobile Manipulator via ROS and Integration with the Flexible Behavior Engine

In the 2015 DARPA Robotics Challenge, we (Team ViGIR) used FlexBE (Flexible Behavior Engine) as the high-level executive to control an ATLAS humanoid robot. We now want to integrate our lab's KUKA youBot, an omni-directional mobile platform with an attached robotic manipulator, with FlexBE.

The project involves the use of (and possibly the development of new) low-level perception, navigation, and manipulation functionality provided by ROS (Robot Operating System), which our youBot is running on. Then, this functionality will be wrapped in "states", small blocks of Python code, each interacting with some lower-level ROS functionality. Finally, these states can be composed to create "behaviors"; state machines that govern the logic and data flow for specific high-level tasks. An example of such a task might be "Drive to the table, grab the cup, and bring it back."

Credits: 4

Contact: Spyros Maniatopoulos (sm2296)