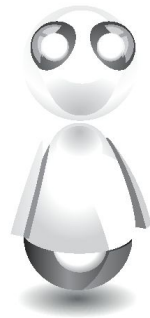


# Fall 2015 Student Projects

## Autonomous Systems Lab



**VERIFIABLE  
ROBOTICS  
RESEARCH GROUP**

The Verifiable Robotics Research Group ([www.verifiablerobotics.com](http://www.verifiablerobotics.com)) is part of Cornell's Autonomous Systems Lab ([www.cornell-asl.org](http://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](mailto: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)