2021 NSF CYBER-PHYSICAL SYSTEMS PRINCIPAL INVESTIGATORS' MEETING

CPS: Small: Syntax-Guided Synthesis for Cyber-Physical Systems (Award # 1837506 10/1/2018)

PI: Hadas Kress-Gazit
Cornell University

VERIFIABLE ROBOTICS RESEARCHGROUP

Challenge:

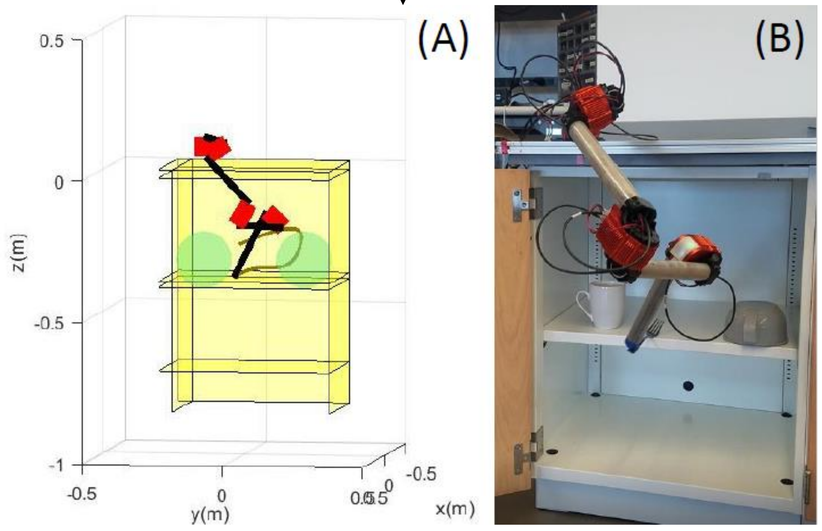
- Correct-by-construction synthesis of both structure and controls of CPS from high-level specifications.
- Defining rich task specifications

Solution:

- Task description languages that include points, shape primitives and physical constraints
- Solving for feasible solutions, in a bounded synthesis approach with verification in the loop

Task

Automated Synthesis of Structure and Controls



Scientific Impact:

- Create framework for correct-by-construction synthesis of CPS that generalize to different CPS domains

Broader Impact:

- Enables non-expert users to create provably-correct CPS from a high-level specification

Cornell University
Hadas Kress-Gazit(hadaskg@cornell.edu)

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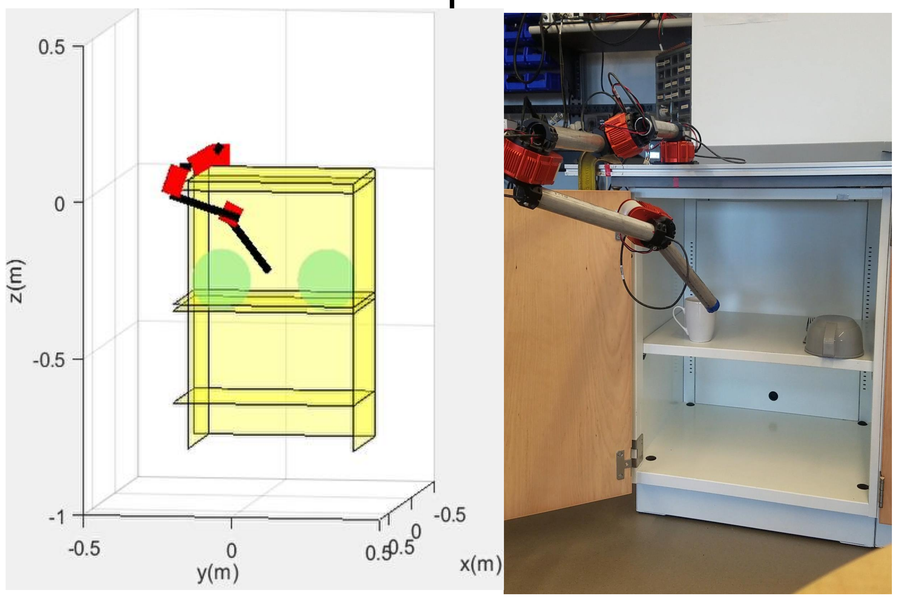

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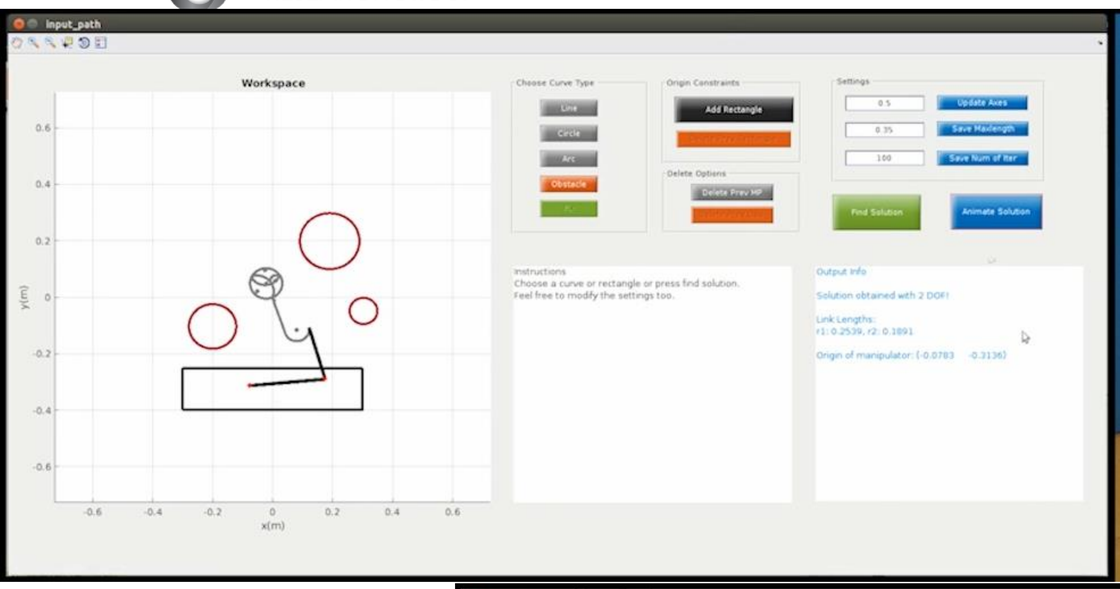
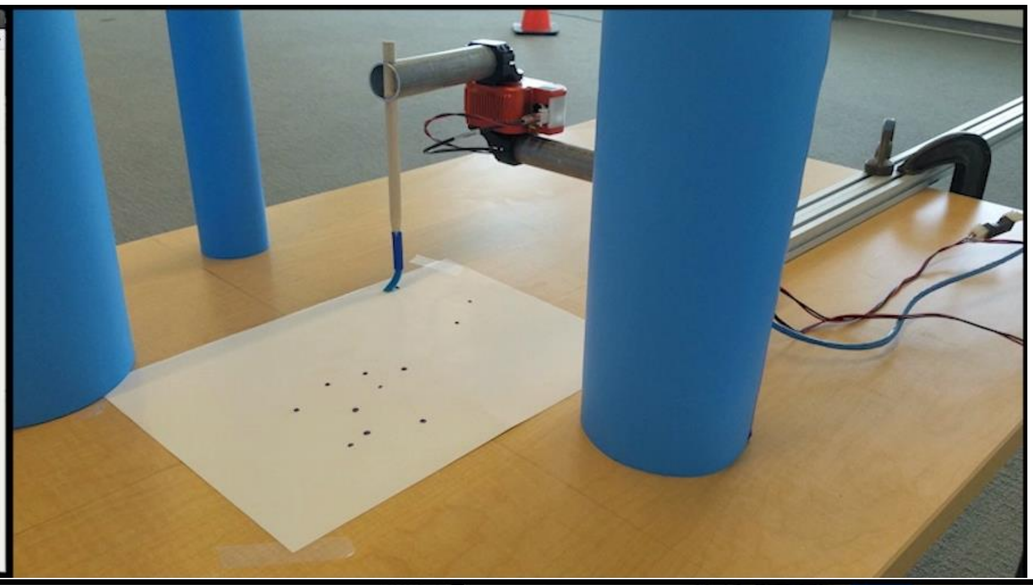


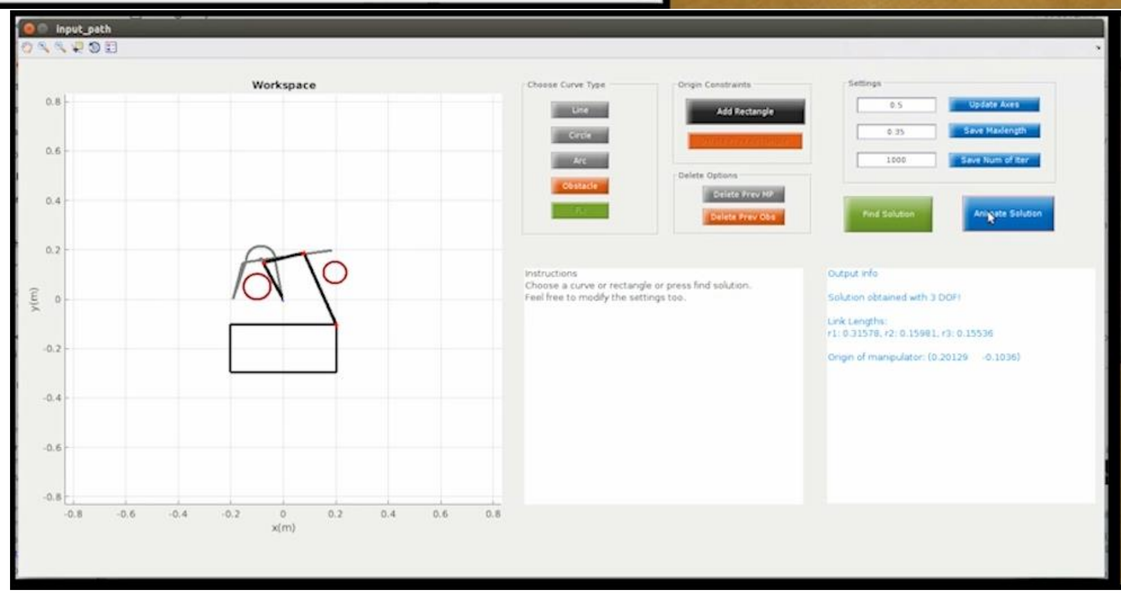


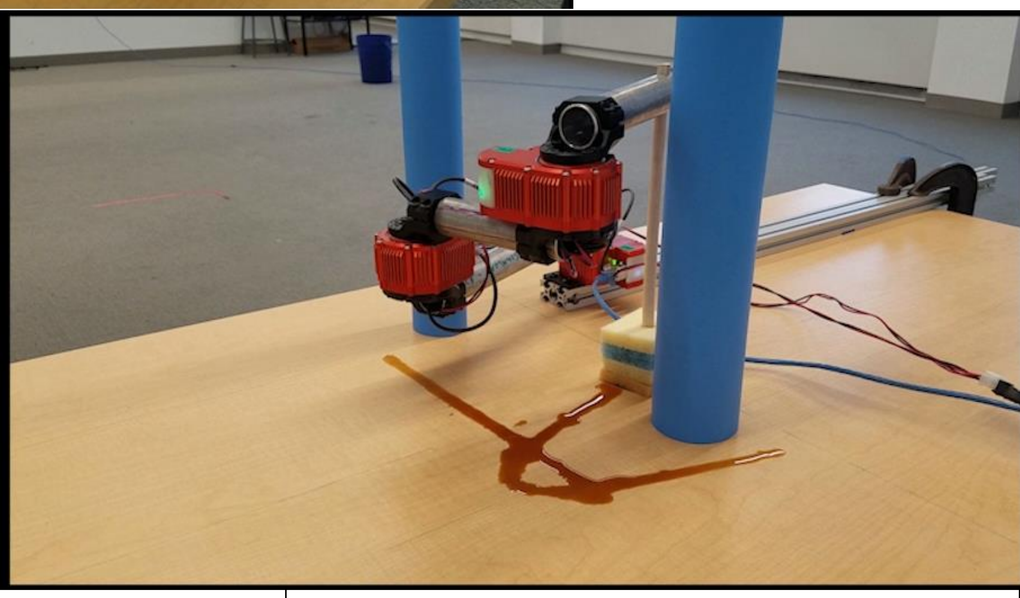
Task:

Paint a rose

Task:

Clean the table





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