Learning to Pick Fruit using Closed Loop Control and In Hand Sensors

Award # 1932205 / Award Date: 6/01/2020

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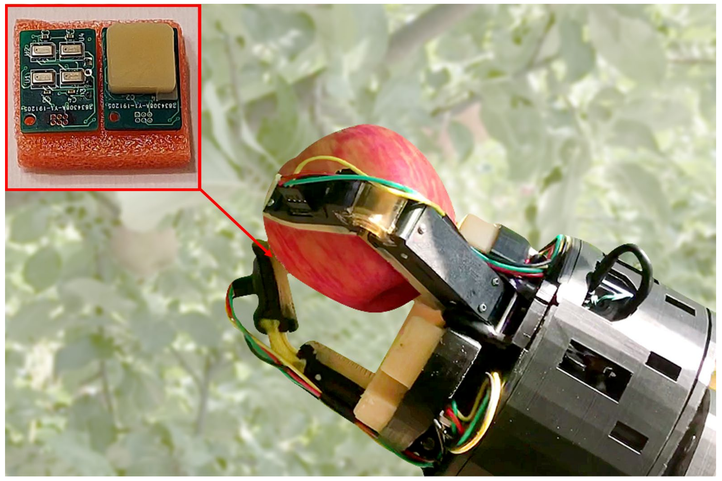
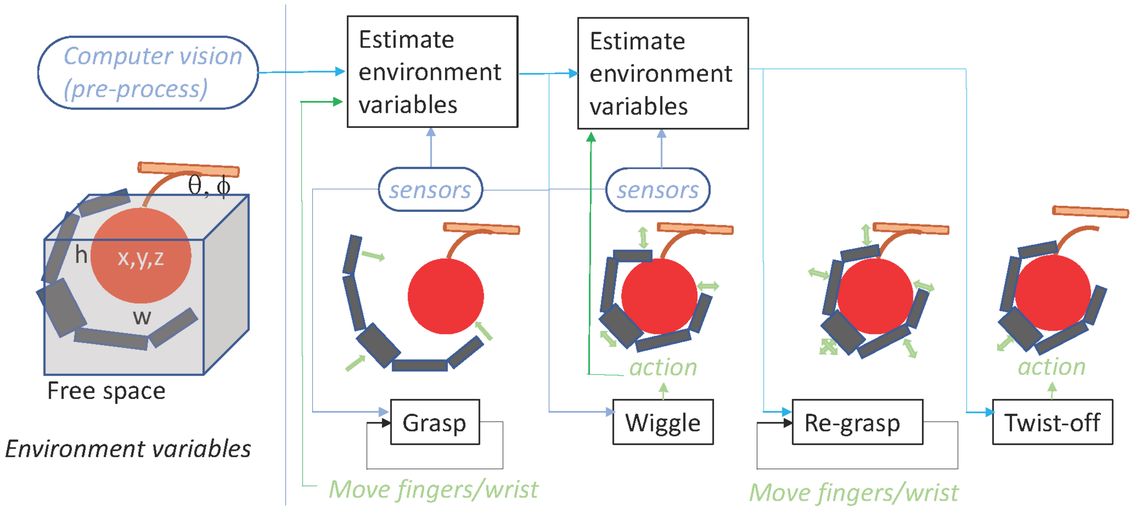
Challenge:

- Growers still rely on a large seasonal workforce for harvesting
- Autonomous fruit picking in the unstructured orchard environment is a complex manipulation problem



Solution:

- Use in-hand sensing in an extended manipulation feedback loop
- Create an instrumented orchard proxy to serve as a physical training environment
- Use structured machine learning to train complex controllers to execute challenging picking motions



USDA NIFA Award # 2020-67021-31525

Scientific Impact:

- A new generalized framework for learning within a physical environment that bridges simulation and the real world

Broader Impact:

- A learning framework using in-hand sensing that can be generalized to other agricultural applications requiring physical manipulation
- Results will be communicated to the tree fruit industry through OSU extension events