### Background

Crop Monitoring under Occlusions of the Fruits

- Inefficient coverage by traditional next-best view planning methods
- Improved by the view motion planner, in IROS 2023: [Graph-Based View Motion Planning for Fruit Detection](#) ([Video](#)) ([Code](#)).

### Potential Improvements

- Greedily searching a path maybe not optimal
- Use graph optimization to find the optimal path
- Define Set Covering and Traveling Salesman Optimization Problems on graph, reference: [One-Shot View Planning for Fast and Complete Unknown Object Reconstruction](#) ([Video](#)) ([Code](#)).

### Task

- Setup and familiarize with current view motion planner software
- Integrate the proposed graph optimization solver to the software
- Perform experiments to check benefits using the graph optimization
- Accelerate the graph optimization (optional)
- Participate in possible scientific publications after the thesis (optional)

### Requirements

- Interested in Linear Programming and Active Perception
- Good programming skills of C++ (required), Python (optional)
- Experience with ROS and Linux
- Enrolled in a computer science master program or similar

### Supervisor

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