Detecting and Studying Honey Bees Visiting Behavior in Lotus Flowers

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1. Introduction

Traditionnal Honey Bees Counting and Classification

Must be done manualy

Is Time Consumming

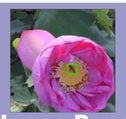
Needs Knowledge About Honey Bees

2.Proposed Method

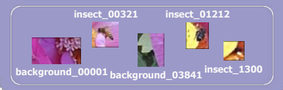
Lotus Field

In Field Lotus Flowers Raw Video

Image Processing



Honey Bees' Bounding Boxes

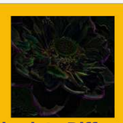


Region Proposals

3.Image Processing in Details

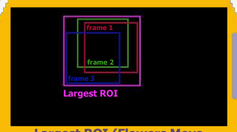
Lotus Flower Videos

Frame by Frame Images



Absolute Difference Between the Image of Interest and the Mean of the Twelve Frames Before

Cropped Flowers



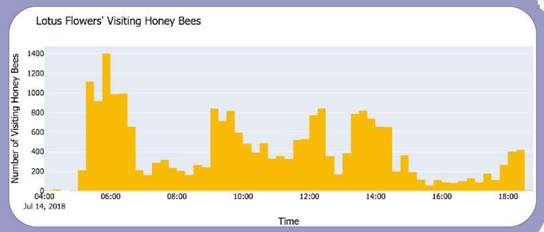
Largest ROI (Flowers Move Because of the Wind)

Masks got by Image Segmentation (using RGB and HSV)

Region Proposals Based on The Elements From the Previous Step

Tresholded Difference

4.Results



70% of honey bees are detected

5.Discussion and Prospects

This Promising Method Should be Adapted with Higher Resolution Inputs to Tackle the Difficulty of Detecting Honey Bees Partially Covered by the Stamens of Lotus Flowers

As this Method is Effective at Detecting Moving Objects, a Thought About Detecting and Classifying more Different Insect Species Should be Considered.

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