

RIKEN Hackathon FY2019

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- Attending the hackathon with two of my master course students, GOTO and FUJIHARA, and a master course student, TANAKA, of my collaborator in Fukuoka Univ.
- GOTO: Development of a population counting system for soil insect, *Collembola*
- FUJIHARA: Revising a data analysis program for the flight behavior of a bark beetle

OKEON and our software development



OKEON 美ら森プロジェクト

OKinawa Environmental Observation Network

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About

OKEON is a network to monitor the terrestrial environment of Okinawa, involving researchers at OIST, collaborators at various institutions, museums and high schools across Okinawa, and the local community.

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- They are sampling arthropod by SLAM traps
- **Population counting** is a basic analysis of the sample.



We are developing automatic counting system for a small soil insect, *Collembora*.



<https://okeon.unit.oist.jp/>

Japanese oak wither and bark beetle



- Oak wither is caused by oak fungus
- The fungus was brought by a bark beetle, *Platypus quercivorus*.

- Measuring its flight properties by a flight mill



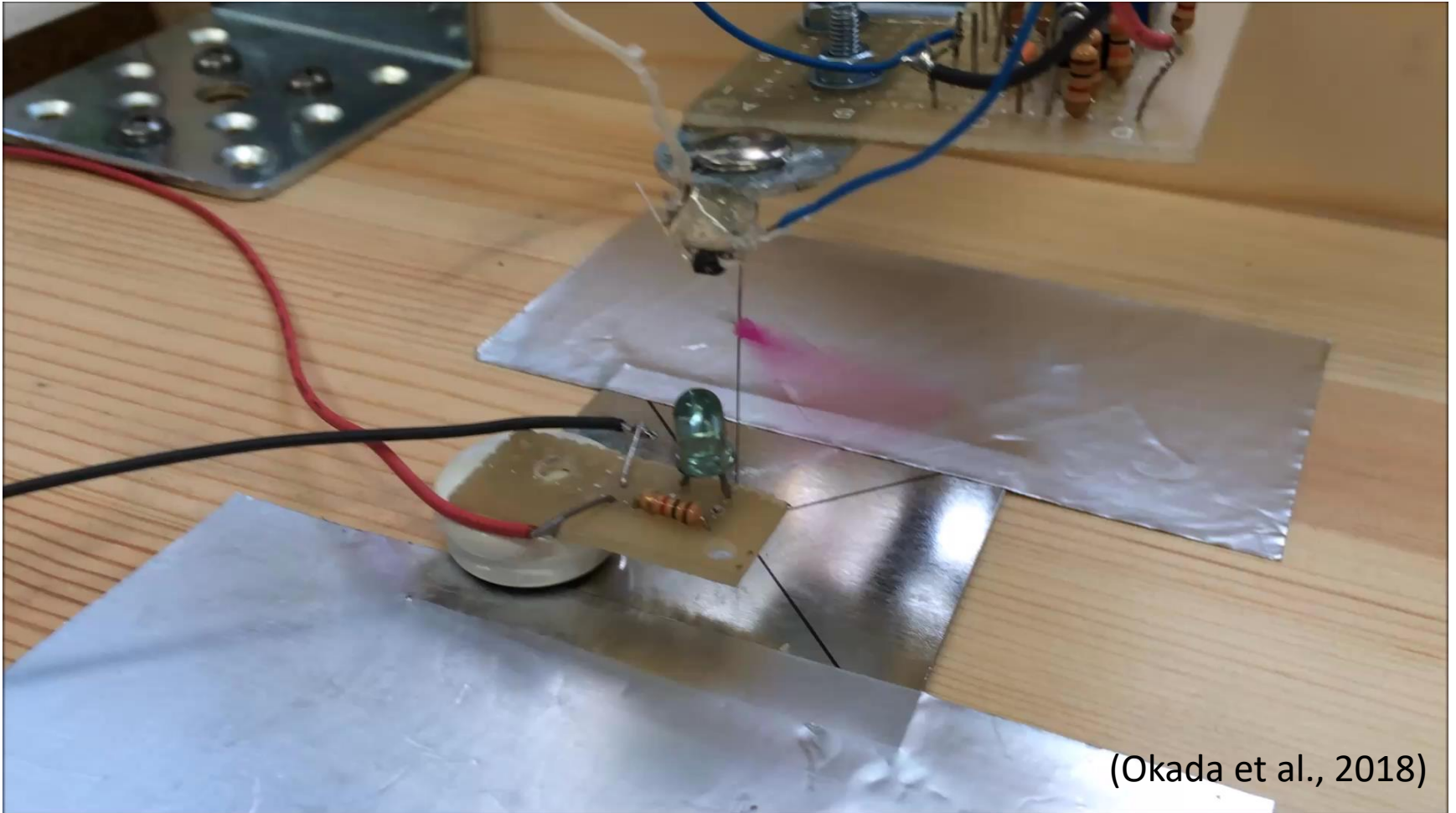
- Changes of behavior before/after flight
- Effects of environmental factors on the flight behavior

<https://www.kanaloco.jp/article/entry-36355.html>

<https://www.pref.miyagi.jp/soshiki/sinrin/narakare.html>

<https://www.pref.chiba.lg.jp/shinrin/kashinaga.html>

Measurement of flight properties



Counting a number of passing on a photo sensor



Calculation of flight distance, flight speed

Automatic counting system for collembola

- The counting system was realized using image processing and deep learning.
- In hackathon, I improved and took over the system.

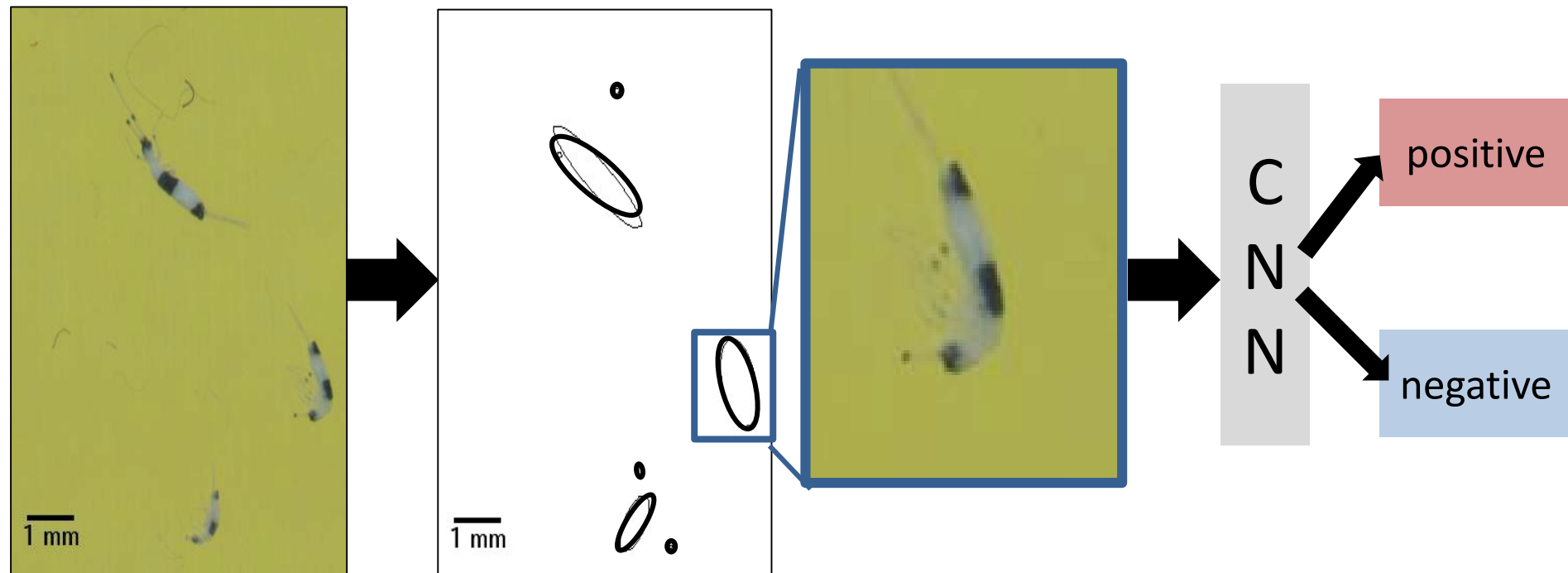


fig.Processing flow