

Mechanism Design for Monitoring Crop Diseases

Semester project

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1 Description

Crowdsourcing is a method to obtain services or elicit information from a large group of people. One of the key challenges in crowdsourcing is how to motivate individuals to participate, and moreover, provide quality services and accurate information. To do so, one can design a *game* among participants, i.e. a *mechanism*, that encourages participants to report accurate private information. While there are numerous incentive mechanisms with good theoretical properties [1, 2, 3], most of them are suitable only for specific elicitation scenarios, often not met in practice.

The goal of this project is to design a novel incentive mechanism suitable for scenario where crowd-workers monitor crop diseases over a relatively large area. The challenge is to construct a simple mechanism, understandable to crowd-workers, with manipulation resistant properties. Once a suitable mechanism is chosen, it should be evaluated on a realistic data set.

2 Tasks

- Get acquainted with the state of the art incentive mechanisms.
- Design a mechanism with a suitable game-theoretic properties.
- Empirically evaluate the properties of the designed mechanism.

3 Skills

- Good programming skills.
- Some knowledge in game theory/mechanism design
- Being comfortable with probabilities and statistics.

4 Benefits

- Learn more about mechanism design.
- Understand the challenges of the crowdsourcing environment.

References

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- [3] A. Dasgupta and A. Ghosh. Crowdsourced Judgement Elicitation with Endogenous Proficiency. Proceedings of the 22nd international conference on World Wide Web, pp. 319-330, 2013