Eliciting Personal (Fitness) Data from Crowd
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Crowdsourcing is a promising method to collect data in an inexpensive and convenient way. The data can be, for example, subjective opinions such as restaurant reviews or objective evaluations such as image labels and pollution levels in a city. However, the crowd workers can not always be trusted to provide the data truthfully, unless they are appropriately incentivized to do so. Peer-prediction methods [1] are used to incentivize the crowd for truthful reporting, when the ground truth data is not accessible. However, these methods work only when multiple workers provide data about the same object, for e.g. labels for the same image or reviews for the same restaurant.

There is a lot of interest in extending these methods for collecting information such as records of personal sports activity, physiological measurements or diet. The earlier peer-prediction methods can't be applied for such data since the data is personal in nature and no two workers can share the same object. We have developed a method [2] to address this problem and the method works well in theory. The next step is to use this method on a real crowd to elicit personal data and perform a "real-world" evaluation of the method.

We will mainly be focusing on fitness data and probably use Amazon Mechanical Turk for our study. You will design the task, decide which fitness attributes are interesting for eliciting, implement the method for scoring [2], recruit the participants, handle their payments, analyze the data collected for its quality/truthfulness and finally reach a conclusion about the utility of the method.

If you are interested in knowing more about the project, please feel free to get in touch with me. This is meant to be a personal fun project for you to learn new things about game theory and conducting user studies. You can start the project as soon as possible.

[1] Miller, Nolan, Paul Resnick, and Richard Zeckhauser. "Eliciting informative feedback: The peer-prediction method." Management Science 51.9 (2005): 1359-1373.
http://www-bcf.usc.edu/~shaddin/cs699fa17/docs/peer_prediction.pdf

[2] Goel, Naman, and Boi Faltings. "Personalized Peer Truth Serum for Eliciting Multi-Attribute Personal Data." (2018).
https://lia.epfl.ch/~goel/upload/doc/papers/2018/goel_ppts.pdf