Crowdsourcing And HCI

Yassine Serrid
Computer Engineering
Kuwait University
Kuwait
yassine.serrid@eng.ku.edu.kw

Yousef Alfezea
Computer Engineering
Kuwait University
Kuwait
yousef.alfezaia@ccse.ku.edu.kw

Mohamed Alaswad
Computer Engineering
Kuwait University
Kuwait
mohamed.alaswad@ccse.ku.edu.kw

Abstract— This paper explores the concept of crowdsourcing and its applications in various domains. Crowdsourcing involves gathering work, information, or opinions from a large group of people through the Internet, social media, or smartphone apps. It has the potential to revolutionize the way we work, hire, research, manufacture, and market. Governments are embracing crowdsourcing to empower citizens and enhance problem-solving. This paper also discusses how Human-Computer Interaction (HCI) researchers can leverage crowds for conducting online surveys, training machine-learning algorithms, and analyzing text or images. Examples of crowdsourcing platforms and projects are provided, including Wikipedia, the Waze traffic-reporting app, and Amazon Mechanical Turk. The paper concludes by highlighting the pros and cons of crowdsourcing and emphasizing the importance of ensuring quality work and accurate information in the crowdsourcing process.

Keywords— Crowdsourcing, HCI, Human-Computer Interaction, Online Surveys, Machine Learning, Text Analysis, Image Analysis, Wikipedia, Waze, Amazon Mechanical Turk, Cost-effectiveness, Brand Promotion, Intellectual Property Rights, Pros and Cons of Crowdsourcing.

I. WHAT IS CROWDSOURCING ?

Crowdsourcing is the process of gathering work, information, or opinions from a large group of people via the Internet, social media, or smartphone apps. Crowdsourcing participants work as paid freelancers in some cases, while others perform simple jobs for free. For example, road apps like Waze encourage drivers to report accidents and other incidents on the road so that app users can get real-time, up-to-date information.

II. WHERE CAN IT BE APPLIED ?

Crowdsourcing affects all aspects of social and professional interactions. It is going to change the way we work, hire, research, manufacture, and market. Governments are turning to crowdsourcing to empower citizens and give them a stronger voice. Crowdsourcing can democratize problem-solving and accelerate innovation in science and health care.

III. HOW HCI RESEARCHERS CAN LEVERAGE CROWDS ?

Conducting online surveys: Because the ability to reach large populations allows researchers to target specific demographics and recruit diverse samples, crowdsourcing is an excellent tool for survey and questionnaire recruitment.

Training of machine-learning algorithms: Other researchers have gathered training data for machine learning applications by utilizing online crowds. A researcher hired a team of Amazon Mechanical Turk (Mturk) workers to fine-tune an algorithm that converts the Document Object Model (DOM) of one website into another. they were asked to find the corresponding element on the second page. With enough of these judgments, the machine-learning algorithm can "learn" the structural patterns that map content across different designs.

Analyzing text or images: One of the first and best examples of crowdsourcing was the ESP Game. The game displays one identical image to two players to score points, the players must guess the same word or phrase at the same time without communicating. For diverse research aims, HCI researchers have used crowdsourcing to evaluate text and images. Crowds have been utilized by a variety of researchers to evaluate and categorize texts such as blog posts, Wikipedia entries, and tweets.

IV. EXAMPLES OF CROWDSOURCING

A. The Father Of Crowdsourcing (Wikipedia) :

- Wikipedia is now the most popular reference site on the internet.
- Anyone with a computer can create or rewrite Wikipedia articles and users can choose to contribute anonymously.
- Although the information is easily accessible, Wikipedia is not a reliable source, because it can be edited by anyone.

B. Phone application (Waze) :

- It's a traffic-reporting app that also provides automatic directions for the best route to follow.
- Waze gathers data by tracking drivers' speeds to identify traffic jams and asking users to report road closures.
- It's an application that demonstrates how a dedicated crowd can sometimes be all a company needs.

C. Amazon Mechanical Turk (Amazon MTurk) :

- It is a crowdsourcing marketplace that makes it easier for individuals and businesses to outsource their processes and jobs to a distributed workforce who can perform these tasks.
- Amazon MTurk enables companies to harness the collective intelligence, skills, and insights from a global workforce to streamline business processes, augment data collection and analysis, and accelerate machine learning development.

V. HOW TO ENSURE QUALITY WORK?

A researcher may design the most straightforward task but still get a significant number of fraudulent responses.

And because crowdsourcing deals with diverse audiences, it is important to be able to minimize poor-quality responses, and the easiest way to increase work quality is by preventing workers with bad reputations from participating. So that some crowdsourcing platforms allow requesters—those posting tasks—to leave feedback about each of their workers.

VI. PROS AND CONS OF CROWDSOURCING

Pros	***Coins***
1- Cost-effectiveness 2- Hands-off approach 3- Fresh perspective 4- Brand promotion 5- New hires	1- Confidentiality 2- Plagiarism 3- Intellectual property rights 4- Amateurs 5- Potential for failure

VII. CONCLUSION

Crowdsourcing is a very useful tool in the digital age, as it can save money and time for companies and businesses, and it can also bring essential and valuable ideas from huge groups of members and participants. Along with all advantages, crowdsourcing has its shortcomings. It can risk the integrity of a product or website with inaccurate information due to being an open source. Although it is beneficial, a filter must be in place to make sure that information is accurate and reliable.