

Chapter 16

Crowdsourcing Dispute Resolution: Survey and Challenges

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ABSTRACT

After almost one decade of active research into human computation and crowdsourcing, several approaches and business models based on crowdsourcing have emerged, managing and distributing work to the crowd. Dispute resolution approaches may incorporate crowdsourcing as a step to retrieve relevant data. The reverse relationship has also become a tendency, where crowdsourcing approaches are close to incorporate dispute resolution techniques to perform quality control and data aggregation or filtering. This chapter provides an introduction to crowdsourcing and its relationship with dispute resolution. A discussion regarding the apparent symbiotic relationship between these two research domains is also presented, along with an overview of several approaches and use cases of particular interest.

INTRODUCTION

As suggested by Levine and Kurzban (2006), humans have developed sophisticated mechanisms to extract benefits from the social world, which are expected to be the product of several adaptations designed to generate mutual benefits to the actors involved.

The Web has opened unprecedented venues for studies on human cooperation and behavior, since much of the information that flows through the Internet contains or represents, either explicitly or implicitly, social interactions. These interactions manifest themselves through technologies like e-mail, mailing list

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archives, hyperlink structure of homepages, co-authorship of documents, chat sessions and many others (Erétéo, Gandon, Corby, & Buffa, 2009). Also, the Web 2.0 came to introduce social features in most web applications and tools, giving birth to multiple explicit social networks for functional or entertainment purposes (Yun & Kim, 2009).

Online social networks seem to be triggering yet another adaptation to the way humans cooperate, bringing forth new tools for interaction that help to either maintain existent social relationships or establish new ones. They also leverage the emergence of collective intelligence (Segaran, 2007) from the combined behavior, ideas and preferences of thousands or even millions of people (Porter, 2008), attracting even more participants on a world-wide scale.

Over the last decades, researchers have been trying to build machines that emulate the creative and cognitive capabilities of humans. This has led to the development of multiple branches of artificial intelligence, such as multi-agent systems, reasoning and negotiation. Back in the 1960s, however, Licklider (1960) believed that machines and computers were just part of a scale which weights humans on one side, and computers on the other. His vision was that computers and humans should work together performing complementary roles (Licklider, 1960; Quinn & Bederson, 2011).

It was only recently that relevant research emerged and brought humans into computer affairs. The early factors contributing to this retake on Lickliders' vision are the social Web and the harnessing of collective intelligence (Gruber, 2008). These new developments have proved that humans can successfully complement computers with their abilities, and that they can act as guided computational units. Some examples include the use of CAPTCHAs to digitize texts and micro-task crowdsourcing (e.g. Mechanical Turk).

As a part of collective intelligence, human computation re-emerged as a relevant research field. Shortly after, the term crowdsourcing was coined by Jeff Howe, leading to yet another field of business and research highly connected to human computation (Howe, 2006; Poblet, García-Cuesta, & Casanovas, 2014; Quinn & Bederson, 2011; Von Ahn, 2009). One decade after, several approaches and business models based on crowdsourcing have emerged, managing and distributing work to the crowd (Doan, Ramakrishnan, & Halevy, 2011; Quinn & Bederson, 2011; Yuen, King, & Leung, 2011).

Dispute resolution approaches may incorporate crowdsourcing as a step to retrieve relevant data. The reverse relationship has also become a tendency, where crowdsourcing approaches are close to incorporate dispute resolution techniques to perform quality control and data aggregation or filtering.

Constitution-making (Landemore, 2014; Luz, Poblet, Silva, & Novais, 2015) is an application scenario where crowdsourcing is an important step in retrieving relevant data, but also a scenario where dispute resolution techniques can be incorporated into the crowdsourcing process in order to (semi-)automatically reach an adequate constitution document.

This chapter provides an introduction to crowdsourcing and its relationship with dispute resolution. A discussion regarding the apparent symbiotic relationship between these two research domains is also presented, along with an overview of both crowdsourcing and dispute resolution approaches and use cases that are of particular interest. Finally, a systematization of the discussed approaches that captures the main challenges and directions for mixed dispute resolution and crowdsourcing approaches is given.

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