

An Overview of Human Computation

Ling-Jyh CHEN

Institute of Information Science, Academia Sinica, Taiwan

ccljj@iis.sinica.edu.tw

“Human Computation” represents a new paradigm of computer applications that outsources certain steps of the computational process to humans. The human computation problems are the problems that computers are not good at solving but are trivial for humans. By exploiting “human cycles” in computation, human computation has shown promise in solving a wide variety of problems, such as image annotation and commonsense reasoning, which computer computation has been unable to resolve completely thus far.

There are various genres of human computation applications available today. For instance, Games with a purpose (GWAP) take advantage of people’s desire to be entertained, and also produce useful metadata as a by-product (e.g., the ESP Game and the Google Image Labeler). Crowdsourcing marketplaces coordinate online users to perform tasks in exchange for monetary rewards (e.g., Amazon Mechanical Turk). Moreover, in identity verification tasks, users need to perform some computation in order to access some online content; a recent example of such a human computation application is reCAPTCHA, which leverages millions of users who solve CAPTCHAs every day to correct words in books that optical character recognition (OCR) programs fail to recognize with certainty.

In this talk, I will first introduce human computation and present a number of popular human computation systems. Then, I will discuss how to apply human computation to real-world problems, and how to make human computation more efficient. Finally, I will present some open issues of human computation and conclude the talk.