Preface

Human computation is a relatively new research area that studies how to build intelligent systems that involve human computers, with each of them performing computation (for example, image classification, translation, and protein folding) that leverages human intelligence, but challenges even the most sophisticated AI algorithms that exist today. With the immense growth of the Web, human computation systems can now leverage the abilities of an unprecedented number of Internet users to perform complex computation. Various genres of human computation applications are available today, including games with a purpose (for example, the ESP Game) that generate useful data through gameplay, crowdsourcing marketplaces (for example, Amazon Mechanical Turk) that coordinate workers to perform tasks for monetary rewards, and identity verification systems (for example, reCAPTCHA) that generate useful data through users performing computation for access to online content.

Despite the variety of human computation applications, there exist many common core research issues. How can we design mechanisms for querying human computers in such a way that incentivizes or encourages truthful responses? What are the techniques for aggregating noisy outputs from multiple human computers? How do we effectively assign tasks to human computers to match their particular expertise and interests? What are some programming paradigms for designing algorithms that effectively leverage the humans in the loop? How do we build human computation systems that involve the joint efforts of both machines and humans, trading off each of their particular strengths and weaknesses? Significant advances on such questions will likely need to draw many disciplines, including machine learning, mechanism and market design, information retrieval, decision-theoretic planning, optimization, human computer interaction, and others.

The workshop recognizes the growing opportunity for AI to function as an enabling technology in human computation systems. At the same time, AI can leverage technical advances and data collected from human computation systems for its own advancement. The goal of this workshop is to bring together academic and industry researchers from diverse subfields in AI for a stimulating discussion of existing human computation applications and future directions of this relatively new subject area. The workshop also aims to broaden the definition of human computation, to study systems where humans perform a major part of the computation or are an integral part of the overall computational system.

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