Book Announcement: *Human Computation*

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We announce our book, *Human Computation*, published in August 2011 in the Morgan & Claypool Synthesis Series on Artificial Intelligence and Machine Learning. Our announcement is based on the preface of the book.

Human computation is a new and evolving research area that centers around harnessing human intelligence to solve computational problems (e.g., image classification, language translation, protein folding) that are beyond the scope of existing Artificial Intelligence (AI) algorithms. With the growth of the Web, human computation systems can now leverage the abilities of an unprecedented number of people to perform complex computation. There are various genres of human computation applications that exist today. Games with a purpose (e.g., the ESP Game) specifically target online gamers who generate useful data (e.g., image tags) while playing an enjoyable game. Crowdsourcing marketplaces (e.g., Amazon Mechanical Turk) are human computation systems that coordinate workers to perform tasks in exchange for monetary rewards. In identity verification tasks, users perform computation in order to gain access to some online content; an example 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.

Despite the variety of human computation applications, there exist many common core research issues. How can we design mechanisms for querying human computers such that they are incentivized to generate truthful outputs? What are some techniques for aggregating noisy or complex outputs from multiple human computers in the absence of ground truth? How do we effectively assign tasks to human computers in order to satisfy the objectives of both the system (e.g., quality, budget and time constraints) and the workers (e.g., desire to succeed, to learn, to be entertained)? What classes of computational problems can be efficiently answered using human computation? What are some programming paradigms for designing human computation algorithms? How can human computation systems leverage the joint efforts of both machines and humans?

In the past few years, research on human computation has steadily grown, with new works emerging and scattered across conferences and workshops. This book is an attempt to (1) better define human computation as a research area, (2) provide a comprehensive review of existing work, (3) draw connections to a wide variety of disciplines, including AI, Machine Learning, HCI, Mechanism/Market Design and Psychology, and capture their unique perspectives on the core research questions in human computation, and (4) suggest promising research directions in the field.

For many academic and research institutions, this book is free for download at `http://www.morganclaypool.com/toc/aim/1/1`. Based on the materials of this book, we also presented a tutorial at AAAI 2011 entitled "Human Computation: Core Research Questions and State of the Art", the slides for which can be found at `http://humancomputation.com/Tutorial.html`. As this is a rapidly growing field, it is expected that there will be an updated version of the book in the future. We hope that this book will be a useful resource in the years to come for both newcomers and seasoned researchers who are interested in human computation, or more generally, the study of computational systems with humans in the loop.