

Using crowdsourcing to solve complex problems

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If two minds are better than one, what could thousands of minds accomplish? The possibilities are endless—if researchers can learn to effectively harness and utilize all that knowledge.

Northwestern University professor Haoqi Zhang designs new forms of crowd-supported, mixed-initiative systems that tightly integrate crowd work, community process and intelligent user interfaces to solve complex problems that no machine nor person could solve alone. Zhang's systems can ease challenges in designing a custom trip or planning an academic conference, for example.

Zhang will discuss his research in a presentation titled "Crowds, Communities, and Mixed-Initiative Systems" at the American Association for the Advancement of Science (AAAS) annual meeting in Chicago. His presentation is part of the symposium "People and Computing: On Human-Computer Collaborations for Tackling Hard Problems" to be held on Sunday, Feb. 16, in Regency A of the Hyatt Regency Chicago.

Spanning the fields of computation and design, Zhang, an assistant professor of computer science and electrical engineering at the McCormick School of Engineering and Applied Science and the Segal Design Institute, studies and designs social computing systems that promote desired behaviors and outcomes. His programs, called "crowdware," enable users to contribute while providing actionable feedback to indirectly coordinate their output.



Zhang created Mobi, a tool that uses crowdsourcing—the collection of information from numerous, often anonymous people via the Internet—to plan custom trip itineraries.

Reading natural language, Mobi takes a request ("I want to take a twoday trip to Phoenix") and special requirements ("I want to visit a museum, a park and a café, but I don't want to walk too much"), then crowdsources the requests to users, who are incentivized to create and refine an itinerary in a collaborative-workspace application. A crucial component is the "Brainstream," a sidebar that suggests to-do items so users know what information or decisions are most needed.

A second program, Cobi, enables an academic community to plan a conference by "community-sourcing" to committee members and presenters, who weigh in about what sessions they should be part of as well as scheduling constraints.

Program committee members group papers sharing a common theme, providing affinity information between papers; authors mark other papers they find relevant to their own, and those they would personally like to attend; and conference chairs use a Web-based, visual scheduling interface that combines community input and constraint-solving intelligence to refine the schedule. In addition to creating sessions and developing a schedule, Cobi provides session recommendations to attendees during the conference.

Provided by Northwestern University

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