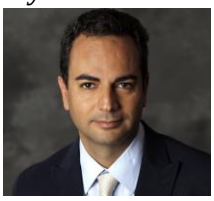
GeoCrowd:

Harnessing the Power of Crowd for On-Demand Geographical Data Collection

GeoCrowd is an online spatial crowdsourcing market (similar to Amazon's Mechanical Turk) that matches geo tasks (i.e., tasks associated with a specific location and time such as "Take pictures of Tommy Trojan during 2012 USC-UCLA game") to human workers. Every person with mobile devices can now act as a multi-modal sensor collecting various types of data instantaneously (e.g., picture, video). With GeoCrowd, subscribers can publish tasks with specific space and time attributes. Subsequently, the workers (with GeoCrowd mobile app) can perform the tasks if they are at the right time and at the right place and upload the results to the GeoCrowd server(s). In this talk, I first introduce our generic framework for GeoCrowd and discuss various techniques for optimal assignment of spatiotemporal tasks to human workers. Next, I show how we can extend this framework to incorporate trust in GeoCrowd in order to ensure workers satisfy a confidence value given by the task requester. Finally, I will show an application of the GeoCrowd framework in a commercial domain.

Bio



Cyrus Shahabi is a Professor of Computer Science and Electrical Engineering and the Director of the Information Laboratory (InfoLAB) at the Computer Science Department and also the Director of the NSF's Integrated Media Systems Center (IMSC) at the University of Southern California. He was also the CTO and co-founder of a USC spin-off, Geosemble Technologies, which was acquired in July 2012. He received his B.S. in Computer Engineering from Sharif University of Technology in 1989 and then his M.S. and Ph.D. Degrees in Computer Science from the University of Southern California in May 1993 and August 1996, respectively. He authored two books and more than two hundred research papers in the areas of databases, GIS and multimedia. Dr. Shahabi has received funding from several agencies such as NSF, NIJ, NASA, NIH, DARPA, AFRL, and DHS as well as several industries such as Chevron, Google, HP, Intel, Microsoft, NCR, NGC and Oracle. He was an Associate Editor of IEEE Transactions on Parallel and Distributed Systems (TPDS) from 2004 to 2009 and IEEE Transactions on Knowledge and Data Engineering (TKDE) from 2010-2013. He is currently on the editorial board of the VLDB Journal, ACM Transactions on Spatial Algorithms and Systems (TSAS), and ACM Computers in Entertainment. He is the founding chair of IEEE NetDB workshop and also the general co-chair of ACM GIS 2007, 2008 and 2009. He chaired the nomination committee of ACM SIGSPATIAL for the 2011-2014 terms. He was a PC co-Chair of IEEE MDM 2013 and IEEE BigData 2013, and regularly serves on the program committee of major conferences such as VLDB, ACM SIGMOD, IEEE ICDE, ACM SIGKDD, and ACM Multimedia. Dr. Shahabi is a fellow of IEEE, and a recipient of the ACM Distinguished Scientist award in 2009, the 2003 U.S. Presidential Early Career Awards for Scientists and Engineers (PECASE), the NSF CAREER award in 2002, and the 2001 Okawa Foundation Research Grant for Information and Telecommunications. He was also a recipient of the US Vietnam Education Foundation (VEF) faculty fellowship award in 2011 and 2012, an organizer of the 2011 National Academy of Engineering "Japan-America Frontiers of Engineering" program, an invited speaker in the 2010 National Research Council (of the National Academies) Committee on New Research Directions for the National Geospatial-Intelligence Agency, and a participant in the 2005 National Academy of Engineering "Frontiers of Engineering" program.

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