



Introduction to the Special Issue on Advances in Social Computing

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We are pleased to bring you this special issue in the *ACM Transactions on Internet Technology* (TOIT) titled *Advances in Social Computing*. Social computing is an emphasis area for TOIT and the current special issue follows an earlier one on the topic [Chopra et al. 2014].

Social computing is a growing interdisciplinary area of research. As editors, we cast our net wide, calling for contributions on themes such as models (e.g., interactions, organizations, and societies), methods (e.g., data mining, natural language, and social informatics), value (e.g., collective intelligence, trust, and privacy), and technology (e.g., cloud computing, the IoT, and wearables). The call attracted 35 fairly diverse submissions, each of which underwent rigorous peer review. We gratefully acknowledge the contribution of our many reviewers in providing timely and informative reviews. We list below the nine articles that made the cut and are included in this special issue.

In *Detecting Influencers in Multiple Online Genres*, Rosenthal and McKeown present results on identifying *influencers* in online conversations by doing language analysis. Their methodology is informed by work in social science and based on identifying language patterns such as *claims*, *agreements*, *argumentation*, and so on. The authors report an extensive analysis of datasets from Twitter, LiveJournal, Create Debate, Wikipedia, and Political Forum demonstrating the wide applicability of their method.

In *Anonymous or Not? Understanding the Factors Affecting Personal Mobile Data Disclosure*, Perentis et al. investigate the factors that influence a user into revealing personal information in mobile applications. Their methodology is based on conducting a participant study. Based on the study, they claim to be able to identify the key factors that influence users' privacy behaviors. They also discuss the implications of their study for the design of more transparent Internet services.

In *Eliciting Structured Knowledge from Situated Crowd Markets*, Goncalves et al. investigate the challenge of producing highly structured user responses, that is, *knowledge*, for arbitrary user questions. Their methodology is based on crowdsourcing, and it consists of not only getting answers from the crowd but also the criteria for evaluating the answers and a ranking for them. An interesting aspect of their approach is that they use *situated* (local) crowdsourcing, which they claim produces better information for context-dependent queries.

In *Formation and Reciprocation of Dyadic Trust*, Roy et al. report a detailed empirical study of interpersonal trust in a multi-relational online social network. The

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authors define computational models of trust formation and utilize a dataset from a Massively Multiplayer Online Game to identify different patterns for trust formation. Their findings underscore the *scaffolding* role played by lower familiarity interactions in the formation of high familiarity relationships.

In *Measurement Theory Based Trust Management Framework for Online Social Communities*, Ruan et al. describe a trust management framework based on measurement theory to infer indirect trust in online social communities. A key element of their approach is trust transitivity. The authors propose a new trust metric, composed of impression and confidence, which captures both the trust level and its certainty. Based on experiments using two online datasets, the authors report an ability to connect more users by inferring their trust levels indirectly.

In *Cyber-Physical Social Networks*, von der Weth et al. motivate and ground the creation of cyber-physical social networks—those that also consider users' virtual locations for connecting them to new *friends*. In addition to physical places, they regard a web page as a *place* where people can meet and interact. The prototype implementation and the results obtained pave the way for an interesting era of connections across people using both online and offline shared locations as enablers.

In *Can We Predict a Riot? Disruptive Event Detection Using Twitter*, Alsaedi et al. present an end-to-end integrated framework for detecting real-world events, focusing on small-scale related incidents that could threaten social safety and security or, in general, could disrupt social order. Using a large-scale dataset of tweets posted on Twitter during the August 2011 riots in England, they show that their system can perform as well as traditional terrestrial sources and even better in some cases.

In *Dual Structure Constrained Multimodal Feature Coding for Social Event Detection from Flickr Data*, Yang et al. suggest a three-stage framework to discover real-world social events from social media data such as Flickr, based on multimodal fusion, feature coding, and event discovery. In addition to the flexible design of the framework that allows each stage to exploit different algorithms, the authors suggest novel algorithms for each of the stages. In the reported evaluation, their framework achieves the highest performance in terms of detection accuracy, memory consumption, and runtime.

In *Progressive Random Indexing: Dimensionality Reduction Preserving Local Network Dependencies*, Ciesielczyk et al. propose a new dimensionality reduction method based on reflective random indexing. Their method is tailored for the vector space model, which is commonly used in information retrieval tasks. Through extensive evaluation, the authors demonstrate that their method can potentially reduce the dimensionality of the vector space model while retaining many important local relationships between objects, thereby leading to useful predictions and recommendations.

We hope you will find this collection of articles interesting.

REFERENCES

- Amit K. Chopra, Raian Ali, and Maja Vukovic. 2014. Introduction to the special issue on foundations of social computing. *ACM Trans. Internet Technol.* 14, 4 (Dec. 2014), 22:1–22:2.