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Editorial: Special Issue on Social Media

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Editorial

Special Issue on Social Media

Detlef Schoder, Peter A. Gloor, Panagiotis Takis Metaxas

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Our call for papers for this special issue intended to solicit works that show 1) how to make sense of Social Media data, i.e. how to condense, distill, or integrate highly decentralized and dispersed data resulting from human communication, and 2) how Social Media contributes to innovation, collaboration, and collective intelligence.

We selected papers covering all aspects of Social Media analysis including Social Media in business, entertainment, as well as art. We invited insightful artifacts and methods as well as analytical, conceptual, empirical, and theoretical approaches (using any kind of research method, including experiments, primary data from Social Media logs, case studies, simulations, surveys, and so on). We provided a list of topics including information/Web mining (e.g. opinion mining); Prognosis (e.g. trend and hot topic identification); Collective Intelligence; Crowdsourcing; Swarm Creativity, Collaborative Innovation Networks; (Dynamic) Social Media Monitoring; Sentiment and Natural Language Processing; Social Media within and for Smart Cities, Smart Traffic, Smart Energy; Social Networks for the collaboration of large communities; User behavior, social interaction; Social Network Analysis (SNA), semantic network analysis; Social search engines and aggregators; Social network games; Personalization and adaptation to user preference; Trust, reputation, social control, privacy; Information reliability, Web spam, and content authenticity (e.g., detecting 'astroturfing').

This special issue attracted 11 submissions and eventually contains three full research papers. Given the editorial directives by the editorial board we complemented the special issue with a survey paper, a project description, two interviews, a tutorial, and two reports on finalized dissertation theses.

In order to ensure highest reviewing standards and to avoid any bias we asked qualified, independent external reviewers to review all submissions. After initial screening all submitted papers were reviewed in the first round by at least three reviewers (with one exception, i.e. for one paper – a clear reject – the review process was shortened). Three author teams were invited to revise their manuscripts according to the reviews. A final check by the Guest Editors that were not

co-authors of any submission ensured that the appropriate steps were taken so that the papers could be further handled by the Editors of Künstliche Intelligenz.

The opener is an overview article by the guest editors of this special issue, in which we focus on the constituting attributes of Social Media and Collective Intelligence, structure the rapidly growing body of literature at the interplay of Social media and Collective intelligence and conclude with some propositions for further research.

In the second article, “Learning to Discover Political Activism in the Twittersverse”, Samantha Finn and Eni Mustafaraj study political discussions on Twitter. They propose a supervised machine learning approach to differentiate Twitter accounts into two groups: “political activists” and “general public”. Incorporating information about classifier probability into the classification, they show that their classifier achieves a high accuracy on single tweets and an even higher accuracy when looking at a bigger bucket of tweets from a user. With this work the authors show that machine learning algorithms can play a critical role in improving the quality of social media analytics and understanding.

The third article, “Can Computers Learn from the Aesthetic Wisdom of the Crowd?” by Christian Bauckhage and Kristian Kersting, addresses the interesting topic of teaching an algorithm to recognize the aesthetic appeal of images. By working on a large dataset of tagged images from flickr, they find that automatic classification of aesthetic appeal is indeed possible based on established low-level image features. Their results have interesting implications on the fields of AI and computer vision as well as Collective Intelligence.

Fourth, we have an article by Peter A. Gloor, Daniel Oster, and Kai Fischbach named “JazzFlow - Analyzing ‘Group Flow’ among Jazz Musicians Through ‘Honest Signals’”, in which the authors aim to analyze the pre-requisites of “group flow” in self-organizing creative teams. By analyzing data from sociometric badges during a live performance of a group of Jazz musicians, they find that “honest signals” play an essential role in enabling the smooth operation of such teams, which holds interesting implications for research in group dynamics and creativity in self-organizing teams not only in music but also in companies relying on creativity and innovation.

Furthermore, we have a project description in this special issue. Joshua Introne, Robert Laubacher, Gary Olson, and Thomas Malone describe in their contribution “Solving wicked social problems with socio-computational systems” how the MIT Climate CoLab project may help to solving global climate change while taking advantage of Collective Intelligence and Collaborative Planning.

We follow with an interview with James A. Hendler, who is an artificial intelligence researcher at Rensselaer Polytechnic Institute, USA, and one of the originators of the Semantic Web. He highlights the evolution of current technologies with the help of semantics and the need for agents that can support the development and evolution of social machines. Next we have another interview with Bernado Huberman, senior HP Fellow and director of the Social Computing Research Group at HP Labs, where he talks about the opportunities and challenges that come with using Social Media as a data source for research.

In his brief tutorial, Marc Egger, summarizes the process steps needed to analyze Social Media data, i.e. textual consumer-generated content. The paper at hand outlines certain challenges that

emerge from finding, collecting and analyzing topic relevant consumer-generated content from the Web and proposes an approach to derive network representations addressed to decision makers who need an overview of online consumer discussions and perceptions.

We conclude this special issue with the presentation of two PhD dissertations. “Crowd-Powered Systems” by Michael S. Bernstein shows how hybrid systems that combine computation with human intelligence from the crowd enable new applications and experiences. In her PhD thesis, “From Texts to Networks: Detecting and Managing the Impact of Methodological Choices for Extracting Network Data from Text Data”, Jana Diesner addresses methodological problems related to extracting information about networks from text data.

We hope you enjoy reading!

Detlef Schoder, Peter A. Gloor, Panagiotis Takis Metaxas

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We owe our thanks to many friends, colleagues, and scholars who helped make this special section possible. First, we are grateful to all the authors of the articles for prompt response and the members of the editorial review board for timely and thorough reviews. The board included Ioannis Anagnostopoulos, Roman Beck, Alexander Benlian, Sascha Costanza-Chock, James Danowski, JC deMartin, Jana Diesner, Kai Fischbach, Cristobal Garcia, Georg Groh, Julia Gluesing, Bruno Goncalves, Francesca Grippa, Georg Groh, Takashi Iba, Minhyung Kang, Ralf Klamma, Michael Koch, Hong Joo Lee, Yoshiaki Matsuzawa, Eni Mustafaraj, Dimitar Nikolov, Ken Riopelle, Mathias Trier, and Michalis Vafopoulos. We owe special acknowledgement to Johannes Putzke for his contributions to the editorial survey paper and Puja Abbassi, who expediently helped us to manage the review process. We are also thankful to the board of Künstliche Intelligenz, i.e. Klaus Althoff (Editor-In-Chief) and Bernd Ludwig for enduring support throughout the whole process and finally to the staff at Springer realizing this project online and offline.

Content

Articles

- Social Media and Collective Intelligence - Ongoing and Future Research Streams
Detlef Schoder, Peter A. Gloor, Panagiotis Takis Metaxas
- Learning to Discover Political Activism in the Twitterverse
Samantha Finn, Eni Mustafaraj
- Can Computers Learn from the Aesthetic Wisdom of the Crowd?
Christian Bauckhage, Kristian Kersting
- JazzFlow - Analyzing "Group Flow" among Jazz Musicians Through "Honest Signals"
Peter A. Gloor, Daniel Oster, Kai Fischbach

Project

- Solving wicked social problems with socio-computational systems
Joshua Introne, Robert Laubacher, Gary Olson, Thomas Malone

Interviews

- Interview with James A. Hendler (Artificial intelligence researcher at Rensselaer Polytechnic Institute, USA, and one of the originators of the Semantic Web)
- Interview with Berndo Huberman (Senior HP Fellow and director of the Social Computing Research Group at HP Labs)

Tutorial

- N.N.
Marc Egger

Dissertations

- Crowd-Powered Systems
Michael S. Bernstein
- From Texts to Networks: Detecting and Managing the Impact of Methodological Choices for Extracting Network Data from Text Data
Jana Diesner

Journals

Journals with a dedicated focus on Social Media include the following:

- International Journal of Advanced Media and Communication
<http://www.inderscience.com/jhome.php?jcode=ijamc>
- International Journal of Knowledge and Web Intelligence
<http://www.inderscience.com/jhome.php?jcode=ijkwi>
- International Journal of Social Media and Interactive Learning Environments
<http://www.inderscience.com/jhome.php?jcode=ijsmile>
- International Journal of Web Based Communities
<http://www.inderscience.com/jhome.php?jcode=ijwbc>
- International Journal of Web Science
<http://www.inderscience.com/jhome.php?jcode=ijws>
- Networks***

In addition, Social Media related articles are regularly published in Journals from the fields of information systems, social network analysis, data mining, and marketing.

Conferences and workshops

Some conferences specifically dedicated to Social Media are the following:

- ACM Web Science (WebSci)
- ACM Web Search and Data Mining (WSDM)
- IEEE International Conference on Social Computing (SocialCom)
<http://www.iisocialcom.org/>
- International Conference on Weblogs and Social Media (ICWSM)
<http://www.icwsm.org/>
- International World Wide Web Conference (WWW)
<http://www.iw3c2.org/>
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In addition a multitude of conferences in the fields of information systems, social network analysis, data mining, and marketing include tracks on or related to Social Media.

Software

Some software with a main focus on Social Media analysis are the following:

- Condor computes and visualizes the structure of social communication networks by automatically generating interactive movies of communication flows:
<http://www.ickn.org/condor.html>
- Gephi is an interactive visualization and exploration platform for all kinds of networks and complex systems, dynamic and hierarchical graphs:
<http://gephi.org/>
- NetMiner is a premium software tool for Exploratory Analysis and Visualization of Network Data. NetMiner allows you to explore your network data visually and interactively, and helps you to detect underlying patterns and structures of the network:
<http://www.netminer.com/>
- NodeXL is a free, open-source template for Microsoft® Excel® 2007 and 2010 that makes it easy to explore network graphs:
<http://nodexl.codeplex.com/>
- Weka is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a dataset or called from your own Java code. Weka contains tools for data pre-processing, classification, regression, clustering, association rules, and visualization. It is also well-suited for developing new machine learning schemes
<http://www.cs.waikato.ac.nz/ml/weka/>
- ***

In addition there is many more tools and frameworks stemming mostly from network analysis or machine learning streams that enable the analysis of social media data.