Social Media Analysis
Proposed Syllabus

Prerequisites: CSCI 561 (Introduction to AI)
Time: Spring 2012, Mondays and Wednesdays at 3:30-5pm
Instructors: Professors Kristina Lerman (lerman@isi.edu) and Andrew Gordon (gordon@ict.usc.edu)
Office: ISI 932

Course Introduction
The biggest story of the last few years has been the phenomenal growth of social media, and the technological, social and political transformations that accompanied it. Social media sparked an information revolution by putting knowledge production and communication tools in the hands of the masses. Today on sites such as Twitter, Flickr, and YouTube, large numbers of users publish rich content, annotate it with descriptive metadata, and engage in discussions and collaborations with others. Social media promises to transform how we create and use knowledge, respond to disasters, monitor environment, manage resources, and interact with the world and one another. Social media offers new research opportunities and challenges. We will examine several topics, including social network analysis, information flow and learning from tagging, and show how AI, linguistic and statistical methods were developed to study these topics.

Course Requirements
There are no required text books. The reading material is based on recently published technical papers available via the ACM/IEEE/Springer digital libraries. All USC students have automatic access to these digital archives.

Grading
The class will run as a seminar course with student participation (30% of the grade) and weekly quizzes (30% of the grade). Instructors will introduce each topic after Week 3, and students will choose a research paper from the syllabus and present in-depth report about it. This will count for the participation grade. An integral part of the course is the class project (40% of the grade) using real-world social media data sets.

Topics and Readings
Week 1: Introduction: Social media, computational sociology and data mining?
  - Innovative applications: Collaborative mapping (VGI), Ushahidi

Week 2: Influence
Week 3: Social tagging and folksonomies

- Plangprasopchok, A. Lerman, K., and Getoor, L. 2010 Growing a tree in a forest: constructing folksonomies by integrating structured metadata. In KDD.
- Schmizt, P. 2006 Inducing Ontologies from Flickr Tags, in Proc. of WWW Collaborative Web Tagging workshop.

Week 4: Dynamics of social media


Week 5: Information cascades and social epidemics

- Ver Steeg, G., Lerman, K and Ghosh, R. 2011 “What stops social epidemics”, in Proc. 5th International AAAI Conference on Weblogs and Social Media (ICWSM)

Week 6: Wikipedia analysis


**Week 7: Content analysis: sentiments and topics**


**Week 8: Query logs and real time search**


**Week 9: Geospatial social networks**


**Week 10: Modeling social media: physics perspective**


• Hogg, T. and Lerman, K. 2009 “Stochastic Models of User-Contributory Web Sites”, In *Proceedings of 3rd International Conference on Weblogs and Social Media (ICWSM)*.

• Hogg, T. and Szabo, G. 2009 Diversity of User Activity and Content Quality in Online Communities, In *Proceedings of 3rd International Conference on Weblogs and Social Media (ICWSM)*.

**Week 11: Modeling social media: CS perspective**


• Morrency, L.P., YouTube analysis.
Week 12: Predicting the future

Week 13: Ethical issues: Privacy
- Zheleva, E. and Getoor, L. 2009 To join or not to join : the illusion of privacy in social networks with mixed public and private user profiles, in Proc. of International World Wide Web Conference.

Week 14: Ethical issues: spam and other types of exploitation

Week 15: Project presentations

Class project

The class project requires students to conduct an independent research project in the context of social media. Students will have access to many publicly available data sets. They start by identifying some broad questions they want to answer. After surveying the relevant literature, they will explore the question on real-world data sets. The end product of the project is a paper that will be orally presented in class.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, shosssssssssud there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/studentaffairs/SJACS/.