

課程資訊					
科號 Course Number	ISA5578	學分 Credit	3	人數限制 Size of Limit	30
開課年級 Course Level	資應所碩博士班選修、資工系碩博士班選修、資工系大四選修			先修科目 Prerequisite	
中文名稱 Course Title	社群運算				
英文名稱 Course English Title	Social Computing				
任課教師 Instructor	王浩全				
授課語言 Language	英語授課 Lectures, discussions and assignments will be in English.				
上課時間 Time	W3W4F3	上課教室 Room	台達館 Delta 104		

Social Computing

NTHU ISA/CS graduate-level course
Spring 2013

Instructor: Hao-Chuan Wang 王浩全

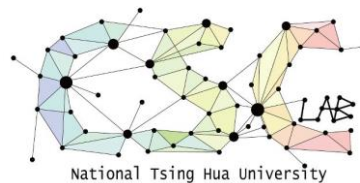
Email: haochuan@cs.nthu.edu.tw

Office hour: Wed 16:30-17:20

TA:

Hsing-Lin Tsai 蔡幸霖 (hltsai9@gmail.com)

Han-Ting Chiang 姜翰廷 (y790930@gmail.com)



Note: The syllabus is subject to change. 教師保有修改課程大綱的權利。

Overview

The course is about understanding key issues around social computing, a field of study concerning with using computing techniques and artifacts to support, mediate, and understand aspects of social behaviors and social interactions. Today, numerous instances and models of social computing are prevalent among end-users, such as Wikipedia, social networking sites (e.g., Facebook), micro blogging (e.g., Twitter), photo sharing (e.g., Flickr), instant messaging (e.g., MSN) and so on. The flourishing of social computing raises the needs to obtain deeper understanding about how these technologies influence human behaviors, and to figure out how to improve existing designs and devise new models based on the understanding of human behaviors in technological contexts.

One way to think about social computing is to focus on *constraints*, factors that prevent certain processes from happening. For example, physical distance is one constraint that makes it difficult for people to communicate in days prior to the availability of telephone. In social computing,

nevertheless, constraints can come from multiple sources. Some of the constraints are more clearly technical, while many of them can be non-technical. For example, users' limited capabilities in communication and collaboration, existing social practices of friend-making, and cultural differences in behaviors can all be non-technical constraints prescribing what technical features are likely or unlikely to be useful.

It is the state-of-the-art of social computing research and practice to take both technical and human factors into consideration, and perform analyses and design at the level of "socio-technical systems", which are abstract systems consisting of both technical components (e.g., the software layer of Facebook) and people interacting with one another over the mediation of technologies (e.g., users of Facebook). This course will guide students to take a close look at some prominent ways that this approach functions in the world today, and to understand certain principles and techniques of social computing.

Course Objective

The course intends to endow students with a base of knowledge and attitudes for them to critically examine existing social computing services, and become familiar with the approach of using socio-technical designs for supporting aspects of social behaviors and activities (e.g., making it easier for people to do X) or enabling new computing applications (e.g., involving people as part of an "algorithm" to solve problem Y more effectively and efficiently).

Course Structure

This is a research-oriented course designed for graduate students and senior undergraduate students interested in social computing research. For the first part of the course, the instructor will give lectures on certain foundational topics of social computing. There will be weekly reading assignments focusing on basic concepts of social computing for students to read and discuss in the class. Students will respond to reading assignments in forms of posting written responses to the course forum and in-class discussion. Students need to read the readings before the class. Posting responses are due by the first course meeting of each week. Starting the second part of the course (week 10), students will take turns to present papers and lead class discussions. Readings for the second part will focus on specific design instances and user studies, so that students may better understand how general ideas of social computing can be applied to specific research and design contexts. There will also be four mini assignments on various aspects of social computing. Students will submit a short paper (1 to 2 pages) for each assignment.

The course requires students to propose and complete a course project. Students can choose to do the project individually or in groups of two to three students. The instructor will facilitate the formation of project groups and make necessary adjustments to ensure that the composition of each group is ideal for the proposed project. In the fifth week of the class, students need to first submit a one-page project proposal, outlining the key idea of the project. In the twelfth week, students will submit a three-page progress report, providing greater detail of the work-in-progress, reporting problems found and projecting work to be done by the end of the semester. In the last week, students will make a poster presentation and submit a final report (at least four pages in ACM SIGCHI archival format). The instructor will arrange a poster session open for faculty and students of related departments to visit (e.g., EECS, Information Systems and Applications, Learning Sciences, Service Science etc.). Also, there will be a "peer-review" mechanism for involving students of the class to choose a number of best projects to receive awards.

Students are highly encouraged to use the course project as an opportunity to experiment with new research ideas or to advance components of a larger research project (e.g., thesis work) that they may be working on outside of the class. The course project can be either technical (e.g.,

designing a computer tool or interface for enabling novel ways of transforming human efforts to perform computation and complete tasks that machine alone cannot do well) or non-technical (e.g., empirical inquiry of users' online behaviors), depending on students' interests and skills.

There's no single textbook. A set of readings will be assigned by the instructor.

Grading

- 10% Student presentation of selected papers
- 24% Postings of reading responses (2% for each posting. Students are encouraged to read and comment more papers, but can only receive credits up to 24% of the final score).
- 30% Assignments (3 to 4 assignments in total)
- 36% Project
 - 6% proposal
 - 8% progress report
 - 10% poster presentation
 - 12% final report

Information Portals

Some major conferences:

ACM CHI- Human Factors in Computing Systems

<http://dl.acm.org/event.cfm?id=RE151&CFID=58260371&CFTOKEN=42465565>

ACM CSCW- Computer Supported Cooperative Work and Social Computing

<http://dl.acm.org/event.cfm?id=RE169&CFID=58260371&CFTOKEN=42465565>

ICWSM- AAAI Conference on Weblogs and Social Media

<http://www.aaai.org/Library/ICWSM/>

SocialCom- IEEE Conference on Social Computing

<http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=5590331>

Related journals and magazines:

ACM TOCHI

<http://dl.acm.org/pub.cfm?id=J756&CFID=58260371&CFTOKEN=42465565>

CACM

<http://dl.acm.org/pub.cfm?id=J79&CFID=58260371&CFTOKEN=42465565>

JCMC

[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1083-6101](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1083-6101)

IEEE Intelligent Systems

<http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=9670>

Schedule and Reading List will be available at the beginning of the class.

Tentative Schedule (reading list subject to revision)

Week	Topic	Reading (done by the Wednesday class)	Wednesday 10:10-12:00	Friday 10:10-11:00
1	Introduction: Overview and logistics		<p><i>Feb 19</i></p> <p><Overview> by TA</p> <p>Professor attending ACM CSCW 2014</p>	<p><i>Feb 21</i></p> <p><FAQ> by TA</p> <p>Professor attending ACM CSCW 2014</p>
2	<p>Conceptual and methodological issues in social computing</p> <p>Notice: Deadline for course enrollment is Mar 4 (Mon).</p>	<p>Shneiderman, B., Preece, J., & Pirolli, P. (2011). Realizing the value of social media requires innovative computing research. <i>Communications of the ACM</i>, 54(9), 34-37.</p> <p>Wang, F-Y., Zeng, D., Carley, K. M., & Mao, W. (2007). Social computing: From social informatics to social intelligence. <i>IEEE Intelligent Systems</i>, 22(2), 79-83.</p> <p>Ackerman, M. (2000). The intellectual challenge of CSCW: The gap between social requirements and technical feasibility. <i>Human-Computer Interaction</i>, 15, 179-203.</p> <p>Bernstein, M. S., Ackerman, M., Chi, E. H., & Miller, R. C. (2011). The trouble with social computing systems research. <i>Proceedings of CHI 2011, Extended Abstracts</i> (alt.chi track).</p>	<p><i>Feb 26</i></p>	<p><i>Feb 28</i></p> <p>National Holiday No Class</p>
<i>Week 3,4,5 - Computing for Supporting People</i>				
3	Computer-mediated communication	<p>Olson, G., & Olson, J. (2000). Distance matters. <i>Human-Computer Interaction</i>, 15, 139-178.</p> <p>Tang, J. C. (2007). Approaching and leave-taking: Negotiating contact in</p>	<p><i>Mar 5</i></p> <p>First assignment out</p>	<p><i>Mar 7</i></p> <p><Brainstorm 1></p>

		<p>computer-mediated communication. <i>ACM Transactions on Computer-Human Interaction</i>, 14(1).</p> <p>Clark, H. H. & Brennan, S. E. (1991). Grounding in communication. In L. B. Resnick, R. M. Levine, & S. D. Teasley (Eds.). <i>Perspectives on socially shared cognition</i> (pp. 127-149). Washington, DC: APA.</p> <p>Scissors, L. E., Gill, A. J., Geraghty, K., & Gergle, D. (2009). In CMC we trust: The role of similarity. <i>Proceedings of CHI 2009</i>.</p>		Project group member list due
4	Distributed collaboration and online communities	<p>Jones, Q., Moldovan, M., Raban, D., & Butler, B. (2008). Empirical evidence of information overload constraining chat channel community interactions. <i>Proceedings of CSCW 2008</i>.</p> <p>Kittur, A., Suh, B., Pendleton, B. A., & Chi, E. H. (2007). He says, she says: Conflict and coordination in Wikipedia. <i>Proceedings of CHI 2007</i>.</p> <p>Kiesler, S., Kittur, A., Kraut, R. E., & Resnick, P. (In press). Regulating behavior in online communities. In R. E. Kraut & P. Resnick (Eds.), <i>Evidence-based social design: Mining the social sciences to build online communities</i>. Cambridge MA: MIT Press.</p>	Mar 12	<p>Mar 14</p> <p><Method 1 Self-report data></p>
5	Social media and social networking	<p>“Twitter shows how the world is feeling” CNN http://thechart.blogs.cnn.com/2011/09/29/twitter-shows-how-the-world-is-feeling/</p> <p>Naaman, M., Boase, J., Lai, C-H. (2010). Is it really about me? Message content in social awareness streams. <i>Proceedings of CSCW 2010</i>.</p> <p>Lampe, C., Ellison, N., & Steinfield, C. (2007). A familiar face(book): Profile elements as signals in an online social network. <i>Proceedings of CSCW 2007</i>.</p> <p>Ellison, N. B., Steinfield, C., & Lampe, C (2007). The benefits of Facebook “Friends”: Social capital and college students’ use of online social network sites. <i>Journal of Computer-Mediated Communication</i>.</p>	Mar 19	<p>Mar 21</p> <p><Brainstorm 2></p> <p>First assignment due at class (hard copy submission only)</p>

<i>Week 6,7,8 - Computing for Understanding People</i>				
6	Social network analysis	<p>Garton, L., Haythonthwaite, C., & Wellman, B. (1997). Studying online social networks. <i>Journal of Computer-Mediated Communication</i>, 3. http://jcmc.indiana.edu/vol3/issue1/garton.html</p> <p>Chapter 1 and Chapter 4, Easley, D. & Kleinberg, J. (2010). <i>Networks, crowds, and markets: Reasoning about a highly connected world</i>. Cambridge University Press. http://www.cs.cornell.edu/home/kleinber/networks-book/</p> <p>Polites, G. L., & Watson, R. T. (2008). The centrality and prestige of CACM. <i>Communications of the ACM</i>, 51(1), 95-100.</p>	<p><i>Mar 26</i> Second assignment out</p>	<p><i>Mar 28</i> <Guest lecturer></p>
7	Modeling social behaviors	<p>Golder, S. A., & Macy, M. W. (2011). Diurnal and seasonal mood vary with work, sleep, and daylength across diverse cultures. <i>Science</i>, 333, 1878-1881.</p> <p>Dietz, T., Ostrom, E., & Stern, P. (2003). The struggle to govern the commons. <i>Science</i>, 302(5652), 1907-1912.</p> <p>Zhu, Y., Yang, Z., Meng, H., Li, B., Levow, G., & King, I. (2010). Using finite state machines for evaluating spoken dialog systems. <i>Proceedings of IEEE Workshop on Spoken Language Technology</i>.</p>	<p><i>Apr 2</i> Project proposal due (submit both the hard copy and the original file)</p>	<p><i>Apr 4</i> University Spring Break. No Class</p>
8	Behavioral data analysis	TBD	<p><i>Apr 9</i></p>	<p><i>Apr 11</i> <Method 2 Behavioral data analysis></p>
<i>Week 9,10 – Involving People in Computation</i>				

<p>9</p>	<p>Human computation and crowdsourcing</p>	<p>Quinn, A. J., & Bederson, B. B. (2011). Human computation: A survey and taxonomy of a growing field. <i>Proceedings of CHI 2011</i>.</p> <p>Von Ahn, L., & Dabbish, L. (2004). Labeling images with a computer game. <i>Proceedings of CHI 2004</i>.</p> <p>Von Ahn, L., & Dabbish, L. (2008). Designing games with a purpose. <i>Communications of the ACM</i>, 51(8), 58-67.</p> <p>Kittur, A., Chi, E. H., & Suh, B. (2008) Crowdsourcing user studies with Mechanical Turk. <i>Proceedings of CHI 2008</i>.</p> <p>Little, G., Chilton, L. B., Miller, R. C., & Goldman, M. (2009). TurkIt: Tools for iterative tasks on Mechanical Turk. <i>Proceedings of KDD-HCOMP 2009</i>. Long version: http://glittle.org/Papers/TurKit.pdf</p>	<p><i>Apr 16</i></p> <p>Third assignment out</p>	<p><i>Apr 18</i></p> <p><Method 3 Experiment></p> <p>Second assignment due</p>
<p>10</p>	<p>Social tagging and collaborative filtering</p>	<p>Sen, S., Lam, S. K., Rashid, A. M., Cosley, D., Frankowski, Osterhouse, J., Harper, F. M., & Riedl, J. (2006). Tagging, communities, vocabulary, evolution. <i>Proceedings of CSCW 2006</i>.</p> <p>Chi, E. H., & Mytkowicz, T. (2008). Understanding the efficiency of social tagging systems using information theory. <i>Proceedings of HyperText 2008</i>. http://www-users.cs.umn.edu/~echi/papers/2008-hypertext/2008-04-29-hypertext08-tagging-info-theory-fp-046-chi.pdf</p> <p>Resnick, P., Iacovou, N., Suchak, M., Bergstrom, P., & Riedl, J. (1994). GroupLens: An open architecture for collaborative filtering of netnews. <i>Proceedings of CSCW 1994</i>.</p> <p>Cosley, D., Lam, S. K., Albert, I., Konstan, J. A., & Riedl, J. (2003). Is seeing believing? How recommender interfaces affect users' opinions. <i>Proceedings of CHI 2003</i>.</p>	<p><i>Apr 23</i></p>	<p><i>Apr 25</i></p> <p><Brainstorm 3></p>

11	CHI Week. Professor attending ACM CHI 2014 (Apr 26-May 2)		Apr 30 No Class	May 2 No Class
<i>Week 12 to 15- Design Instances and User Studies</i>				
12 13 14 15	Students' directed discussions of selected papers	See appendix for a list of candidate papers. Suggest papers you'd like to present by emailing to the instructor.	May 7 Third assignment due May 14 Project progress report due May 21 May 28	May 9 May 16 May 23 May 30
<i>Week 16 - Special Topics</i>				
16	Social relevance and big picture - Responding to social problems - Human-centered computing	Wang, H.C., Fussell, S. R., & Setlock, L. D. (2009). Cultural difference and adaptation of communication styles in computer-mediated group brainstorming. <i>Proceedings of CHI 2009</i> . Yang, J., Ackerman, M., & Adamic, L. A. (2011). Virtual gifts and guanxi: Supporting social exchange in a Chinese online community. <i>Proceedings of CSCW 2011</i> . Mankoff, J., Fussell, S. R., Blaise, D., Dillahunt, T., Glaves, R., Johnson, M., Matthews, D., McGuire, R., Setlock, L. D., & Shick, A., (2010). StepGreen.org: Increasing energy saving behaviors via social networks. <i>Proceedings of ICWSM 2010</i> . Newell, A., & Card, S. (1985). The prospects for psychological sciences in human-computer interaction. <i>Human-Computer Interaction, 1</i> , 209-242. Chapter 1, Simon, H. A. (1999). <i>The sciences of the artificial</i> (3rd ed.). MIT Press.	June 4	June 6 <Method 4>

		Snir, M. (2010). Computer and information science and engineering: One discipline, many specialties. <i>Communications of the ACM</i> , 54(3), 38-43.		
17	Final presentation: Poster presentation of course project		June 11 Project time	June 13 Poster session June 18 (Wed) Final report due

*Appendix- Candidate papers for student-directed discussion (subject to revision)***Computer-mediated communication:**

Ames, M. G., Go, J., Kaye, J., & Spasojevic, M. (2010). The benefits and work of family videochat. *Proceedings of CSCW 2010*.

Bos, N., Olson, J., Gergle, D., Olson, G., & Wright, Z. (2002). Effect of four computer mediated communications channels on trust development. *Proceedings of CHI 2002*.

Rodenstein, R. & Donath, J. S. (2000). Talking in circles: Designing a spatially-grounded audioconferencing environment. *Proceedings of CHI 2000*.

Setlock, L. S. & Fussell, S. R. (2010). What's it worth to you? The costs and affordances of CMC tools to Asian and American users. *Proceedings of CSCW 2010*.

Social media:

Enrlich, K., & Shami, N. Sadat. (2010). Microblogging inside and outside the workplace. *Proceedings of ICWSM 2010*.

Hancock, J.T., Toma, C. & Ellison, N. (2007). The truth about lying in online dating profiles. *Proceedings of CHI 2007*.

Newman, M. W., Lauterbach, D., Munson, S. A., Resnick, P., & Morris, M. E. (2011). It's not that i don't have problems, i'm just not putting them on facebook: challenges and opportunities in using online social networks for health. *Proceedings of CSCW 2011*.

Twitter and the development of an audience: those who stay on topic thrive. CHI 2012

Human computation and crowdsourcing:

Ho, C-J., & Chen, K-T. (2009). On formal models for social verification. *Proceedings of Human Computation Workshop 2009*.

Jain, S., & Parkes, D. C. (2009). The role of game theory in human computation systems. *Proceedings of KDD 2009*.

Ma, H., Zhou, T. C., Lyu, M. R., & King, I. (2011). Improving recommender systems by incorporating social contextual information. *ACM Transactions on Information Systems*, 29(2).

Shaw, A. D., Horton, J. J., & Chen, D. L. (2011). Designing incentives for inexperienced human raters. *Proceedings of CSCW 2011*.

Dong, W., & Fu, W-T. (2010). Cultural difference in image tagging. *Proceedings of CHI 2010*.

Tools for collaboration and social interaction:

Farzan, R., Dabbish, L., Kraut, R. & Postmes, T. (2011). Increasing commitment to online communities by designing for social presence. *Proceedings of CSCW 2011*.

Kim, T. J., Chu, M., Brdiczka, O., & Begole, J. (2009). Predicting shoppers' interest from social interactions using sociometric sensors. *Proceedings of CHI 2009, Extended Abstracts*.

Wang, H-C., Fussell, S. R., & Cosley, D. (2011). From diversity to creativity: Stimulating group brainstorming with cultural differences and conversationally-retrieved pictures. *Proceedings of CSCW 2011*.

CSCW and Education:

Dimond, J. P., Yardi, S., & Guzdial, M. (2009). Mediating programming through chat for the OLPC. *Proceedings of CHI 2009, Extended Abstracts*.

Lampe, C., Wohn, D. Y., Vitak, J., Ellison, N. V., & Wash, R. (2011). Student use of Facebook for organizing collaborative classroom activities. *International Journal of Computer-Supported Collaborative Learning (ijCSCL)*, 6, 329-347.

Mullins, D., Rummel, N., & Spada, H. (2011). Are two heads always better than one? Differential effects of collaboration on students' computer-supported learning in mathematics. *International Journal of Computer-Supported Collaborative Learning (ijCSCL)*, 6, 412-443.

Schwind, C., Buder, J., & Hesse, F. W. (2011). Fostering social navigation and elaboration of controversial topics with preference-inconsistent recommendations. In H. Spada, *Proceedings of CSCL 2011*.

Modeling online users:

Canini, K. R., Suh, B., & Pirolli, P. L. (2011). Finding credible information sources in social networks based on content and social structure. *Proceedings of IEEE Social Computing (SocialCom) 2011*.
http://www.cs.berkeley.edu/~kevin/research_files/caniniSP11.pdf

Fisher, K., & Counts, S. (2009). Your brain on Facebook: Neuropsychological associations with social versus other media. *Proceedings of ICWSM 2010*.

Kahanda, I., & Neville, J. (2009). Using transactional information to predict link strength in online social networks. *Proceedings of ICWSM 2009*.

Sharma, A., & Cosley, D. (2011). Network-Centric Recommendation: Personalization with and in Social Networks. *Proceedings of IEEE Social Computing (SocialCom) 2011*.

Wang, Y-C., Kraut, R., & Levin, J. M. (2012). To stay or leave? The relationship of emotional and informational support to commitment in online health support groups. *Proceedings of CSCW 2012*.

Computers as social actors:

Nass, C. & Lee, K. M. (2000). Does computer-generated speech manifest personality? An experimental test of similarity-attraction. *Proceedings of CHI 2000*.

Torrey, C., Powers, A., Marge, M., Fussell, S. R., & Kiesler, S. (2006). Effects of adaptive robot dialogue on information exchange and social relations. *Proceedings of Human-Robot Interaction (HRI) 2006*.