

# Xiaojuan Ma, Curriculum Vitae

Department of Computer Science and Engineering  
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## Research Interests

- Human-Computer Interaction: design, visualization, games
- Specific application domains: education, healthcare, and e-commerce

## Education

**Computing Innovation Fellow** CRA (Computing Research Association) 2010 ~ 2012  
**Ph.D.:** Computer Science, Princeton University Advisor: Perry Cook 09/2010  
Thesis: *Communication beyond Words: Multimedia Approaches to Bridging Language Disabilities and Barriers.*  
**M.A.:** Computer Science, Princeton University 05/2007  
**B.Sc.:** Computer Science and Technology, Tsinghua University, China 07/2005  
**Minor:** English, Tsinghua University, China 07/2005

## Employment

**Assistant Professor**, Hong Kong University of Science and Technology, Hong Kong 07/2015 ~ present  
Human-Computer Interaction, Department of Computer Science and Engineering  
**Researcher**, Noah's Ark Lab, Hong Kong 12/2012 ~ 06/2015  
Human-Computer Interaction: mobile interactions, mobile intelligence, eye-tracking, etc.  
**Postdoctoral Scholar**, Carnegie Mellon University, Pittsburgh, PA 03/2011 ~ 11/2012  
Human-Computer Interaction, HCI Institute (with Jodi Forlizzi)  
**Research Fellow**, National University of Singapore, Singapore 08/2010 ~ 02/2011  
Information Systems (with Jack Zhenhui Jiang)  
**Research Assistant**, Princeton University, Princeton, NJ 2005 ~ 07/2010  
Computer Science (with Perry Cook)  
**Research Internship**, University of British Columbia, BC, Canada 05/2007 ~ 08/2007  
Dept. of Psychology (with Peter Graf) and Dept. of Computer Science (with Joanna McGrenere)  
**Internship**, Educational Testing Service, Princeton, NJ 09/2006 ~ 03/2007  
User Experience Group

## Selected Publications

- Yue, Y., Ma, X., and Jiang, Z. (2016). Influence of Content Layout and Motivation on Users' Herd Behavior in Social Discovery. In *Proc. CHI2016*. (to appear).
- Wang, Y., Ma, X., Luo, Q., and Qu, H. (2016). Data Ediblization: Representing Data with Food. In *Proc. CHI2016, alt.chi*. (to appear).
- Ma, X., Fang, K., and Zhu, F. (2016). From Breakage to Icebreaker: Inspiration for Designing Technological Support for Human-Human Interaction. In *Proc. DIS2016*. (to appear).
- Silpasuwanchai, C., Ma, X., Shigemasu, H., and Ren, X. Developing a Comprehensive Engagement Framework of Gamification for Reflective Learning. In *Proc. DIS2016*. (to appear).
- Ma, X. From Internet Memes to Emoticon Engineering: Insights from the Baozou Comic Phenomenon in China. In *Proc. HCI2016*. (to appear).

- Marcus, A. and Ma, X. Cuteness Design in the UX: An Initial Analysis. In *Proc. HCI2016*. (to appear).
- Chen, L., Zhang D., Pan, G., Ma, X., Yang, D., Kushlev K., Zhang W., and Li, S. (2015). Bike sharing station placement leveraging heterogeneous urban open data. In *Proc. UbiComp2015*. (Honorable Mention).
- Ma, X. (2015). Developing Design Guidelines for a Visual Vocabulary of Electronic Medical Information to Improve Health Literacy. *Interacting with Computers*.
- Ma, X., Yu, L., Forlizzi, J., and Dow, S. (2015). Exiting the Design Studio: Leveraging Online Participants for Early-Stage Design Feedback. In *Proc. CSCW2015*.
- Cheng, S., Sun, Z., Ma, X., Forlizzi, J., Hudson, S. and Dey, A. (2015). Social Eye Tracking: Gaze Recall with Online Crowds. In *Proc. CSCW2015*. (Honorable Mention).
- Ma, X. (2015). Data-Driven Techniques to Assist Design of Perceptually Effective Visual Displays. *Information Design Journal*. 21 (3).
- Zhu, B., Zhang, Y., Ma, X., and Li, H. (2015). Bringing Chinese Aesthetics into Designing the Experience with Live Personal Informatics. In *Proc. DeSForM2015*. (to appear).
- Chen, C., Zhang, D., Guo, B., Ma, X., Pan, G., and Wu, Z. (2014). TRIPPLANNER: Personalized Trip Planning Leveraging Heterogeneous Crowdsourced Digital Footprints. *IEEE Transactions on Intelligent Transportation Systems*. (to appear).
- Yue, Y., Ma, X., and Jiang, Z. (equal contribution) (2014). Share your View: Impact of Co-Navigation Support and Status Composition in Collaborative Online Shopping. In *Proc. CHI2014*.
- Wei, J., Ma, X., and Zhao, S. (2014). Food Messaging: Using an Edible Medium for Social Messaging. In *Proc. CHI2014*.
- Chen, L., Zhang, D., Pan, G., Wang, L., Ma, X., Chen, C., and Li, S. (2014). Container Throughput Estimation Leveraging Ship GPS Traces and Open Data. In *Proc. UbiComp2014*.
- Chen, C., Zhang, D., Wang, L., Ma, X., Han, X., and Sha, E. (2014). TaxiExp: A Novel Framework for Inner-City Package Express via Taxi CrowdSourcing. In *Proc. UIC2014*.
- Ma, X. (2014). Augmenting Text with Multiple Pictures can Facilitate Online Information Processing across Language Barriers. In *Proc. Chinese CHI 2014*. (Best paper award).
- Chen, Y., Ma, X., Cerezo, A., and Pu, P. (2014). Empatheticons: Designing Emotion Awareness Tools for Group Recommenders. In *Proc. Interaccion 2014*.
- Ma, X. (2013). Evocation: Analyzing and Propagating a Semantic Relation based on Free Word Association. *Language Resources and Evaluation special issue on WordNet and Relations*. 47(3): 819-837.
- Ma, X., Forlizzi, J. and Dow, S. (2012). Guidelines for Depicting Emotions in Storyboard Scenarios. In *Proc. 8<sup>th</sup> International Conference on Design & Emotion*.
- Ma, X. and Fellbaum, C. (2012). Rethinking WordNet's Domains. In *Proc. Global WordNet Conference 2012*.
- Oh, K.E., Bemis, K., Ma, X., Tremaine, M., and Silver, D. (2012). Uncovering Visualization Properties that Confuse. In *Proc. the American Society for Information Science and Technology*. 49 (1): 1-4.
- Jianqiang, D.S., Ma, X., Zhao, S., Khoo, J.T., Bay, S.L. and Jiang, Z. (2011). Farmer's Tale: a Facebook Game to Promote Volunteerism. In *Proc. CHI2011*, ACM Press.
- Ma, X., Fellbaum, C. and Cook, P. (2010). Environmental Sounds as Concept Carriers for Communication. In *Proc. Conference of the International Community of Auditory Display (ICAD'10)*.
- Ma, X., Fellbaum, C. and Cook, P. (2010). A Multimodal Vocabulary for Augmentative and Alternative Communication from Sound/Image Label Datasets. *HLT'2010 Workshop of Speech and Language*

### *Processing for Assistive Technologies.*

- Ma, X., Fellbaum, C. and Cook, P. (2010). Semantic Labeling of Non-Speech Audio Clips. *EURASIP Journal on Audio, Speech, and Music Processing*.
- Ma, X., Fellbaum, C. and Cook, P. (2010). SoundNet: Investigating a Language Composed of Environmental Sounds. In *Proc. CHI2010*, ACM Press. (Honorable Mention)
- Nikolova, S., Ma, X., Tremaine, M., and Cook, P. (2010). Vocabulary Navigation Made Easier. In *Proc. IUI2010 (Intelligent User Interface)*.
- Ma, X., Boyd-Graber, J., Nikolova, S. and Cook, P. (2009). Speaking Through Pictures: Images vs. Icons. In *Proc. ASSETS2009*, ACM Press.
- Ma, X. (2009). An Online Multimedia Language Assistant for People with Aphasia and Other Language Barriers. *ASSETS2009 Doctoral Consortium*.
- Ma, X., Nikolova, S., and Cook, P. (2009). W2ANE: When Words Are Not Enough – Online Multimedia Language Assistant for People with Aphasia. In *Proc. Multimedia2009*, ACM Press.
- Ma, X. and Cook, P. (2009). How Well do Visual Verbs Work in Daily Communication for Young and Old Adults? In *Proc. CHI2009*, ACM Press.
- Ma, X. and Cook, P. (2008). Creating and Evaluating a Video Vocabulary for Communicating Verbs for Different Age Groups (Extended Abstract). In *Proc. ASSETS2008*, ACM Press.
- Nikolova, S. and Ma, M. (2008). Mobile Communication Support for People with Speech and Language Disabilities. In *Proc. ACL2008 Mobile Language Processing Workshop*.

## **Professional Experience and Referee Service**

<b>Secretary General</b> , International Chinese Association of Human Computer Interaction	2014 ~ present
<b>Board</b> , International Chinese Association of Human Computer Interaction	2012 ~ 2016
<b>Associate Chair</b> , ACM Designing Intelligent Systems (DIS 2016)	2016
<b>Publicity Chairs</b> , International Symposium on Interactive Technology and Ageing Populations	2016
<b>Program Committee</b> , IEEE CBDCOM 2016 Big Data Visualization Track	2016
<b>Program Committee</b> , Work-in-Progress Papers Associate Chair, <i>CHI</i> (2012~ 2014)	2012 ~ 2015
<b>Panel &amp; Tutorial Chair</b> , IEEE Int. Conf. on Ubiquitous Intelligence & Computing (UIC 2015)	2015
<b>Program Committee</b> , Chinese CHI2015	2015
<b>Co-Organizer</b> , Designing Tools for Crafting Interactive Artifacts Workshop, SIGGRAPH Asia	2014
<b>Industrial Panel Chair</b> , Chinese CHI2014	2014
<b>Program Committee</b> , Asia Pacific Conference on Computer Human Interaction (APCHI 2013)	2013
<b>Program Committee</b> , CTS (Collaboration Technologies and Systems) CR-HRI	2012 ~ 2013
International Workshop on Collaborative Robots and Human Robot Interaction	
<b>Planning Committee</b> , New Jersey World Usability Day 2008, NJ	09/2008

## **Patents**

- Ma, X., (2014). System and Method for Personalized Recommendation and Persuasion Based on Eye or Gesture Tracking. (filed).
- Ma, X., Fang, Y. and Dai, W. (2013). A System and Method for Interface Adaption Based on Automatic Learning of Handheld Mode and Hand Parameters. (filed).
- Ma, X., Au Yeung, C.M. and Leung, W.K. (2013). A System and Method for Optimizing Interface Usability Based on Gaze and/or Gesture Tracking and Prediction. (filed).
- Ma, X., Leung, W.K. and Au Yeung, C.M. (2013). A Gaze-based, Password-Powered, Context-Sensitive Eye-tracking Calibration Method. (filed).

- Ma, X. and Dai, W. (2013). A Method for Prevention of Mis-interaction Based on Eye-Hand Coordination. (filed)
- Au Yeung, C.M., Ma, X. and Leung, W.K. (2013). A Method and Apparatus for Detecting Potential Danger Based on Situation and for Controlling Mobile Applications. (filed).

## Invited Talks

- Invited Speaker**, Information and Interaction Design Submit, Beijing, China 12/2014  
 “The Art of Persuasion in Information, Interaction, and Service Design”
- Keynote Speaker**, Interaction and UX Design Forum, Shanghai, China 09/2014  
 “From Broken to Breaking: Recycle, Reuse, and Repurpose Design” Tongji Design Week
- Keynote Speaker**, Huxiu.com Innovation Festival, Shenzhen, China 09/2014  
 “How Computer Computes and Persuade your Emotion: The Story of Danmu”
- Computing Seminars**, Hong Kong University, Hong Kong University of Science and Technology, Chinese University of Hong Kong, Hong Kong Polytechnic University, City University of Hong Kong 2013~2014  
 “Leveraging Crowds to Design Multimedia-Mediated Communication Support”
- Human-Computer Interaction Seminar**, Microsoft Research Asia, Beijing, China 03/2012  
 “When Words are not Enough: How Multimedia can Bridge Communication Breakdowns”
- Institute of HCI and Media Integration Seminar**, Tsinghua University, Beijing, China 03/2012  
 “When Words are not Enough: How Multimedia can Bridge Communication Breakdowns”
- Interaction Design at Disney Meeting**, Disney Research, Pittsburgh, PA 04/2011  
 “Communication across Barriers”
- Information Systems Research Seminar**, Information Systems, NUS, Singapore 10/2010  
 “What is Worth a Thousand Words?”
- GCI/HFE HCI Research Seminar**, Institute for Infocomm Research, A\*STAR, Singapore 08/2010  
 “SoundNet: An Environmental Sound Augmented Online Language Assistant Bridging Communication Barriers”
- Invited Speaker at AT&T Research Lab Talk Series**, AT&T Research, NJ 02/2010  
 Presented at AT&T Research Lab Talk Series, “A Multimodal Vocabulary for Augmentative and Alternative Communication.”
- ECE and CAIP Research Seminar**, Rutgers University, NJ 01/2010  
 “An Online Multimedia Augmented Language Assistant for People with Aphasia and Other Language Barriers”
- Guest speaker at Computer Graphics Seminar**, University College of London, London, UK 05/2009  
 “When Words are not Enough: Online Multimedia Language Assistant for People with Aphasia”

## Other Presentations

- Workshop at CHI 2015** (Leveraging and Integrating Eastern and Western Insights into Human Engagement Studies in HCI). “The Art of Engagement: from Calligraphy to Interaction Design.”
- Workshop at CHI 2015** (Beyond Personal Informatics) “Appreciation of Living: Bringing Chinese Aesthetics into Personal Informatics Design.”
- Poster at Ubicomp 2014**, “ContextSense: Unobtrusive Discovering Incremental Contexts using Dynamic Bluetooth Data.”
- ASSETS 2009 Doctoral Consortium** (talk and poster) “An Online Multimedia Language Assistant for People with Aphasia and Other Language Barriers.” The 11<sup>th</sup> ACM SIGACCESS Conference on

Computers and Accessibility.

**Poster at ACM Multimedia 2009**, “W2ANE: When Words Are Not Enough – Online Multimedia Language Assistant for People with Aphasia.”

**Poster at ASSETS 2008**, “Creating and Evaluating a Video Vocabulary for Communicating Verbs for Different Age Groups.” The 10<sup>th</sup> ACM SIGACCESS Conference on Computers and Accessibility.

**Poster at New Jersey World Usability Day** in 2007. “ESI-Planner II: A Desktop-PDA Hybrid System for People with Aphasia.”

**Poster at CRA-W Grad Cohort Conference 2006**. “Princeton Aphasia Project: A Desktop-PDA Hybrid System for People with Aphasia.”

## Teaching and Advising Experience

<b>Guest Lecturer</b> , Chinese University of Hong Kong, Hong Kong Data Visualization and Sonification in Data Science	<i>Spring 2015, 2016</i>
<b>External supervisor</b> , Chinese University of Hong Kong, Hong Kong Undergraduate Final Year Project	<i>09/2014 ~ 07/2015</i>
<b>Guest Lecturer</b> , Hong Kong Polytechnic University, Hong Kong Persuasive Technology in Intelligent Information Systems	<i>Spring 2013</i>
<b>Lecturer</b> , China Computer Federation, Beijing, China Advanced Disciplines Lectures on Visual and Auditory Communication	<i>Spring 2013</i>
<b>Instructor</b> , Carnegie Mellon University, Pittsburgh, PA Independent Study (A3 Mini) on Designing and Executing a Research Study	<i>Spring 2012</i>
<b>Assistant supervisor</b> , National University of Singapore, Singapore Graduate Studies	<i>08/2010 ~ 02/2011</i>
<b>Student supervisor</b> , Princeton University, Princeton, NJ Undergraduate Senior Independent Work	<i>09/2009 ~ 01/2010</i>
<b>Teaching Assistant</b> , Princeton University, Princeton, NJ Information Retrieval, Discovery, and Delivery (with Andrea LaPaugh)	<i>Spring 2010</i>
<b>Student supervisor</b> , Princeton University, Princeton, NJ Advised freshmen Summer Programming Experience Program	<i>06/2008 ~ 09/2008</i>
<b>Teaching Assistant</b> , Princeton University, Princeton, NJ Advanced Programming Techniques (with Brian Kernighan)	<i>Spring 2008</i>
<b>Student supervisor</b> , Princeton University, Princeton, NJ Advised Undergraduate Senior Independent Work	<i>01/2008 ~ 05/2008</i>
<b>Guest Lecturer and Teaching Assistant</b> , Princeton University, Princeton, NJ Human-Computer Interface Technology (with Perry Cook)	<i>Fall 2007</i>

## Selected Outreach

<b>Member of GEA</b> (Princeton Graduate Engineering Ambassadors)	<i>2006 ~ 2010</i>
<b>Member of CSGC</b> (Computer Science Graduate College) in Princeton	<i>2005 ~ 2010</i>

## Selected Awards

“ <b>Excellent Innovator Award</b> ”, Huawei Noah’s Ark Lab	<i>06/2014</i>
“ <b>Star of 2012 Labs</b> ”, Huawei Noah’s Ark Lab	<i>04/2014</i>
<b>Computing Innovation Fellows</b> , Computing Research Association Post-doc fellowship awarded by National Science Foundation with Carnegie Mellon University	<i>09/2010, 09/2011</i>
“ <b>Outstanding Graduates of the Year</b> ”, Tsinghua University	<i>07/2005</i>

<b>Beihai Guo Fa Company Scholarship</b> , Tsinghua University	11/2004
<b>Sony Scholarship</b> , Tsinghua University	11/2003
<b>Wei Lun Scholarship</b> , Tsinghua University	11/2002
<b>“Best student” Award</b> in Electronic Working Technology Practice, Tsinghua University	08/2002
<b>Second Place in National Physics Competition</b> , Tsinghua University	05/2002
<b>“Excellent Student” Scholarship</b> , Tsinghua University	09/2001