

Yan Xu, Ph.D.

Curriculum Vitae

Research Scientist
Computational Imaging Group
Intel Labs
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I am a Human Computer Interaction Researcher. I have worked on Augmented Reality user experience and 3D interaction for 10 years. I design, program, iterate and evaluate prototypes. My research areas include Augmented Reality, Social Games, and Computational Photography.

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia (August 2006 – December 2012)

Ph.D., Human-Centered Computing program in the Interactive Computing School

- Advisor: Dr. Blair MacIntyre
- Degree thesis: "Exploring Social Play with Mobile Augmented Reality Interfaces"
- Dissertation Committee: Dr. Blair MacIntyre (chair), Dr. Elizabeth D Mynatt, Dr. Katherine Isbister, Dr. Ellen Yi-Leun Do, Dr. John Sharp

Renmin University, Beijing, China (August 2003 – June 2006)

Master of Science, Computer Technology and Application

- Advisor: Dr. Yu Chen
- Degree thesis: "A Tag-based Model for Social Networks of Online Communities: Simulation and Analysis"

Renmin University, Beijing, China (September 1999 – June 2003)

Bachelor of Science, Information Management and System

- Senior project: "The Design and Implementation of a Digital Health Record System"

Employment

Intel Labs, Santa Clara, California (February 2013 – Present)

Research scientist (*Manger: Dr. Ronald Azuma, User Experience Research Group*)

- Prototyping and evaluating evocative media experience with novel user interfaces

Georgia Institute of Technology, Atlanta, Georgia (January 2007 – December 2012)

Graduate Research Assistant (Advisor: Dr. Blair MacIntyre, Augmented Environments Lab)

- Designed user interactions and game systems with technology affordance and constraints
- Performed in-depth formative user study on social behaviors emerge from gameplay
- Lead the development of three projects with engineering and art students

Georgia Institute of Technology, Atlanta, Georgia (April 2009 – April 2010)

Graduate Research Assistant (Advisor: Dr. Elizabeth Mynatt and Dr. Richard Catrambone)

- Researched how pervasive games change the social dynamics and health behaviors among preteens
- Conducted a long-term study with 37 public schools across US, involving more than 1000 participants

Microsoft Research Cambridge, Cambridge, UK (June 2009 – September 2009)

Research Internship (Advisor: Dr. Xiang Cao, Computer Mediated Living Group)

- Created and Lead the research about evolvement of online relationships among online game players
- Combined qualitative and quantitative data analysis to gain insights on the gameplay history data

Nokia Research Center, Palo Alto, California (May 2007 – August 2007)

Research Internship (Advisor: Dr. Mirjana Spasojevic, Visual Computing and User Interfaces Group)

- Designed and evaluated a vision-based Augmented Reality mobile interface to support shopping

- Conducted a one-month diary study to understand how people shop online and in stores
- Performed a field study in real-world environment, to explore the patterns and issues of embedding mobile applications into everyday life activities

Microsoft Research Asia, Beijing, China (July 2005 – October 2005)

Research Internship (Advisor: Mr. Shuo Wang, Interaction and Design Group)

- Designed prototypes on how computer vision based technology (face tracking and motion tracking) enhances the interactive experience
- Performed a comparative user study by adopting existing frameworks into specific problem domain.

Renmin University, Beijing, China (January 2005 – April 2006)

Graduate Research Assistant (Advisor: Dr. Yu Chen, Economic Science Lab)

- Simulated a social network growth model based on the common interest among network nodes
- Collected empirical data from two large-scale online communities
- Generate insights on social network design based on the comparison between the Social Network Analysis (SNA) results of the real world network and the simulated model

Microsoft Research Asia, Beijing, China (November 2004 – January 2005, part time)

User Research Internship (Advisor: Dr. Eric Chang, Advanced Technology Center)

- Researched the mobile phone market trend and user requirements in the Chinese market, 2004.

AWARDS

- **Intel Labs Gordy Award, for Hybrid Camera Array, 2013**
- **Intel Labs Gordy Nomination, for Leviathan Augmented Reality Storytelling in CES 2014 Keynote**
- **Best Paper Award Winner, International Symposium on Mixed and Augmented Reality 2011 (IEEE)**
Nominated from top 10% of accepted papers
- **Third Best Paper Award Winner, International Conference on Advances in Computer Entertainment Technology 2008 (ACM)**
Nominated from top 10% of accepted papers
- **Student Game Competition, Finalist on Innovative Interface Category at Human Factors in Computing Systems 2012 (ACM)**

PATENTS

U.S. Patent Application, P89117, Filed 2016, "Camera Effects for Photo Story Generation", Xu, Y., El Choubassi, M., Azuma, R., Nestares, O.

U.S. Patent Application, P71909, Filed 2015, "Environmentally Mapped Visualization Mechanism", Ratcliff, J., Xu, Y.

U.S. Patent Application, P83436, Filed 2015, "View Interpolation for Visual Storytelling", El Choubassi, M., Xu, Y., Soupikov, A., Nestares, O.

U.S. Patent Application, P65600, Filed 2014, "Dynamic Control for Data Capture", Xu, Y., El Choubassi, M., Ratcliff, J.

U.S. Patent Application, P60838, Filed 2013, Granted 2015 "Image Capture Feedback", Ratcliff, J., Azuma, R., Xu, Y., Speiginer, G.

PUBLICATIONS

Book Chapter

Xu, Y., MacIntyre, B. (to appear) "NerdHerder: Designing Co-located Physical-Digital Games with Sociological Theories", in "Game User Research: A Case Study Approach", Edited by Garcia-Ruiz, Miguel, CRC Press/Taylor & Francis.

Journal Papers (Peer Reviewed)

Blumenthal, H., Xu, Y. (2012). The Ghost Club Storyscape: Designing for Transmedia Storytelling. Consumer

Electronics, IEEE Transactions on, 58(2), 190–196.

Conference Papers (Peer Reviewed)

Xu, Y., Ratcliff, J., Scovell, J., Speiginer, G., and Azuma, R. (2015). Real-time Guidance Camera Interface to Enhance Photo Aesthetic Quality. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI '15)*. ACM, New York, NY, USA, 1183-1186. (23% acceptance rate).

Poole, E. S., Eiríksdóttir, E., Miller, A. D., Xu, Y., Catrambone, R., & Mynatt, E. D. (2013). Designing for Spectators and Coaches: Social Support in Pervasive Health Games for Youth. In *Proceedings of the 7th International Conference on Pervasive Computing Technologies for Healthcare*, IEEE, 161–168. (32% acceptance rate)

Radu, I., Xu, Y., MacIntyre, B., (2013) Embodied metaphor elicitation through augmented-reality game design. In *Proceedings of the 12th International Conference on Interaction Design and Children (IDC '13)*. ACM, 412-414. (32% acceptance rate)

Xu, Y., Poole, E.S., Miller, A., Eiriksdottir, E., Catrambone, R., Mynatt, E., (2012) Designing Pervasive Health Games for Sustainability, Adaptability and Sociability. In *Proceedings of the 2012 ACM conference on Foundations for Digital Games (FDG'12)*, ACM, 49-56. (29% acceptance rate)

Xu, Y., Poole, E.S., Miller, A., Eiriksdottir, E., Kestranak, D., Catrambone, R., Mynatt, E., (2012) This is Not a One-horse Race: Understanding Player Types in Multiplayer Pervasive Health Games for Youth. In *Proceedings of the 2012 ACM conference on Computer supported cooperative work (CSCW '12)*. ACM, 843-852. (39% acceptance rate — <http://cscw.acm.org/CSCW-review-process-statement.pdf>)

Miller, A.D., Poole, E.S., Xu, Y., Eiriksdottir, E., Kestranek, D., Catrambone, R., & Mynatt, E.D., (2012) The Work of Play: Supporting a Pervasive Health Behavior Change Intervention for US Middle School Students. In *Proceedings of the 2012 ACM conference on Computer Supported Cooperative Work (CSCW '12)*. ACM, 897-900. (39% acceptance rate — <http://cscw.acm.org/CSCW-review-process-statement.pdf>)

Xu, Y., Barba, E., Radu, I., Shemaka, R., Gandy, M., MacIntyre, B., (2011) Pre-Patterns for Designing Embodied Interactions with Handheld Augmented Reality Games. In *proceedings of the 10th International Symposium of Mixed and Augmented Reality (ISMAR '11)*, IEEE, Basel, Switzerland, 19-28. (31% acceptance rate) (**Awarded Best Paper**)

Xu, Y., Barba, E., Radu, I., Gandy, M., MacIntyre, B., (2011) Chores Are Fun: Understanding Social Play in Board Games for Digital Tabletop Game Design. In *proceedings of the 5th Digital Games Research Association conference: Think, Design, Play (DiGRA '11)*, DiGRA.

Xu, Y., Cao, X., Sellen, A., Herbrich, R., Graepel T. (2011). Sociable Killers: Understanding Social Relationships in an Online First-Person Shooter Game. In *Proceedings of the 2011 ACM conference on Computer supported cooperative work (CSCW '11)*. ACM, 197-206 (22% Acceptance Rate)

Poole, E.S., Miller, A., Xu, Y., Eiriksdottir, E., Catrambone, R., Mynatt, E., (2011) The Place for Ubiquitous Computing in Schools: Lessons Learned from a School-Based Intervention for Youth Physical Activity, In *Proceedings of the 13th International Conference on Ubiquitous Computing (UbiComp '11)*, ACM, 395-404. (16.6% Acceptance Rate)

Barba, E., Xu, Y., Tseng, T., MacIntyre, B., Lessons from a Class on Handheld Augmented Reality Game Design, In *Proceedings of the Fourth International Conference on the Foundation of Digital Games*, ACM, 2009, 2-9. (28.3% Acceptance Rate)

Nguyen, T. H., Raveendran, K., Xu, Y., Spreen, K., MacIntyre, B., Art of Defense: a Collaborative Handheld Augmented Reality Board Game. In *Proceedings of the 2009 ACM SIGGRAPH Symposium on Video Games*. ACM, 135-142. (25% Acceptance Rate)

Xu, Y., Gandy, M., Deen, S., Shrank, B., Spreen, K., Gorbsky, M., White, T., Barba, E., Radu, I., Bolter, J., MacIntyre, B., BragFish: Exploring Physical and Social Interaction in Co-located Handheld Augmented Reality Games. In *Proceedings of ACE 2008: International Conference on Advances in Computer Entertainment Technology*, 2008, 276-283. (24% Acceptance Rate) (**Awarded Third Best Paper**)

Xu, Y., Spasojevic, M., Gao, J., and Jacob, M., Designing a vision-based mobile interface for in-store shopping. In *Proceedings of the 5th Nordic Conference on Human-Computer interaction: Building Bridges. (NordCHI08)*, vol. 358. ACM, 393-402. (30% Acceptance Rate)

Sun C., Xu, Y., Yang, X., A Tag-Based Network Evolution Mechanism for Online Communities. *Third International Conference on Natural Computation, 2007. ICNC 2007.* (2007) vol. 5, IEEE, 487 – 491.

Kang, Y., Stasko, J., Luther, K., Ravi, A., & Xu, Y. (2008). RevisiTour: enriching the tourism experience with user-generated content. *Information and Communication Technologies in Tourism*, (2), 59–69.

Wang, S., Xiong, X., Xu, Y., Wang, C., Zhang, W., Dai, X., and Zhang, D. (2006). Face-tracking as an augmented input in video games: enhancing presence, role-playing and control. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, 1097-1106. (23% Acceptance Rate)

Conference Abstract and Workshop Papers (Light Peer reviewed):

Xu, Y., MacIntyre, B., (2013), Sociology for Co-located Multiplayer Games: A Case Study, In *proceedings of the 4th Digital Games Research Association conference: Defragging Game Studies*, DiGRA

Xu, Y., Mendenhall, S., Ha, V., Tillery, P., Cohen, J. (2012), Herding Nerds on Your Table: NerdHerder, a Mobile Augmented Reality Game, (**Top Three Finalist in Student Game Competition**), In *CHI'12 Extended Abstracts on Human Factors in Computing Systems*, ACM,1351-1356.

Xu, Y., Mendenhall, S., Ha, V., Radu, I., MacIntyre, B. (2012), Trade-Offs for Designing Handheld Augmented Reality Game Interfaces, *Workshop on Mixed Reality Games: CSCW 2012*.

Mendenhall, S., Ha, V., Xu, Y., Tillery, P., Cohen, J., Sharp, J., & MacIntyre, B. (2012). NerdHerder: Designing for Physical Actions in an Augmented Reality Puzzle Game. In *Proceedings of the International Conference on the Foundations of Digital Games*. ACM, 250-253.

Xu, Y., MacIntyre, B. (2011), Theory-driven Design for Social Play with Mobile Augmented Reality. *MobileHCI'11, Workshop Designing Mobile Augmented Reality: Issues and Opportunities*.

Radu, I., Xu, Y., MacIntyre, B. (2011) Eliciting Embodied Metaphors through Augmented-Reality Game Design, *CHI '11 Workshop Embodied Interaction: Theory and Practice in HCI*.

Eiriksdottir, E., Kestranek, D., Miller, A., Poole, E.S., Xu, Y., Catrambone, R., Mynatt, E. (2010) Stepping Outside the Classroom: Fitness Video Games For K-12 Settings, *CHI'10, The Workshop on Interactive Systems in Healthcare*.

Xu, Y., Barba, E., MacIntyre, B., (2009), Tabletop Augmented Reality Games: Play Outside the Display, In *proceedings of the 4th Digital Games Research Association conference: Breaking New Ground: Innovation in Games, Play, Practice and Theory*. DiGRA.

Xu, Y., Deepak, J., Kantroo, V., Dudiak, E., MacIntyre, B., Bolter, J. (2009) fASK! : Encouraging User-generated Content for Mobile Augmented Reality Applications. *The 8th IEEE and ACM International Symposium on Mixed and Augmented Reality - ISMAR 2009, Workshop on Social Augmented Reality*

Nguyen, T. H., Raveendran, K., Xu, Y., MacIntyre, B., (2008) Art Of Defense: a Mobile AR Game with Sketch-Based Interaction and Dynamic Multi-Marker Building Techniques, presented at *the 7th IEEE and ACM International Symposium on Mixed and Augmented Reality - ISMAR 2008*.

Huynh, D. F., Xu, Y., and Wang, S. 2006. Exploring User Experience in "Blended Reality": Moving Interactions Out of the Screen. In *CHI '06 Extended Abstracts on Human Factors in Computing*. ACM, NY, 893-898.

INVITED TALK

“Augmented Reality: NerdHerder Case Study”, at SIEGE (Southern Southern Interactive Entertainment & Game Expo) annual conference 2012, organized by Georgia Game Developer Association

TEACHING

Georgia Institute of Technology, Atlanta, Georgia (Spring 2011, Fall 2010)

Teaching Assistant (Dr. Blair MacIntyre, CS 4803&8803, Handheld Augmented Reality Game Design)

Georgia Institute of Technology, Atlanta, Georgia (Spring 2009)

Graduate Teaching Assistant (Dr. Elizabeth Mynatt, CS 7455 Issues in Human-Centered Computing)

Georgia Institute of Technology, Atlanta, Georgia (Fall 2006)

Undergraduate Teaching Assistant (Dr. Edward R. Omiecinski, CS 4400 Database Introduction)

SKILLS

Programming

Game programming (Unity using C#), Web programming (in PHP and JavaScript), Python, SQL, C++

Qualitative and Quantitative User Studies

Data collection: Experienced in experiment design, interviews, focus groups, participatory observation, web crawling, and field study. *Data analysis:* Familiar with SPSS, Social Network Analysis (SNA), ATLAS.ti (a qualitative data analysis tool)

SERVICE

Program Committee member

ISMAR: IEEE International Symposium on Mixed and Augmented Reality (2013)

Volunteer

Student Volunteer Chair: ISMAR: IEEE International Symposium on Mixed and Augmented Reality (2012)

Student Volunteer: ISMAR: IEEE International Symposium on Mixed and Augmented Reality (2011)

CSCW: ACM Conference on Computer Supported Collaborative Work (2011)

CHI: ACM Conference on Human Factors in Computing Systems (2007, 2010)