# Jinghui Cheng

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College of Computing and Digital Media
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## RESEARCH INTERESTS

Human-Computer Interaction, Game Studies, Software Engineering.

My research focuses on applying Human-Computer Interaction methods and techniques to **understand and support professional practitioners**, including designers, medical experts, and software engineers. My PhD dissertation focused on creating and evaluating tools that support the use and creation of games for brain injury rehabilitation.

## EDUCATION

**DePaul University**, Chicago, IL

09/2011 – present (expected 03/2017) PhD candicate in *Computer Science* – Human-Computer Interaction track
- *Dissertation*: Supporting therapy-centered game design for brain injury rehabilitation
- *Advisor*: Cynthia Putnam
- *Committee*: Katie Salen, Peter Hastings, Jinjuan Heidi Feng (Towson University)

**Xi'an Jiaotong University**, Xi'an, China

09/2006 – 06/2009 MSE in *Computer Systems Engineering*

09/2002 – 07/2006 BSE in *Information Engineering*

## RESEARCH EXPERIENCE

09/2016 – present **Research Associate**
Department of Computer Science and Engineering, University of Notre Dame

Researched on how to support developers of safety-critical systems understand and act on changes of Safety Assurance Cases.

09/2011 – present **Research Assistant**
College of Computing and Digital Media, DePaul University

Researched on techniques to *support design* of games for brain injury therapy.
- Created therapy-centered Game Design Patterns to structuralize design knowledge.
- Designed, developed, and evaluated a prototype tool, GaPBIT, that leverages patterns to support design of games for BI rehabilitation and facilitate communication among game designers and therapist during the design process. (http://tinyurl.com/GaPBIT)

Researched on techniques to *support therapists use games* in brain injury therapy.
- Conducted user studies with therapists to understand game use in brain injury therapy.
- Designed, developed, and evaluated a 'Choose a Game' prototype tool aimed to help therapists select appropriate games that match their therapeutic goals and patient attributes. (http://tinyurl.com/ChooseGames4BIT)

02/2005 – 06/2009 **Research Assistant**
Systems Engineering Institute, Xi'an Jiaotong University

Developed optimizing algorithms to solve electrical grid scheduling problems.

## TEACHING EXPERIENCE

Instructor — GAM312: Game Usability and Playtesting, DePaul University. (Fall 2014)

Guest Lecturer — Exploring the relationship between culture and games.
GAM312: Game Usability and Playtesting, DePaul University. (03/2014, 03/2013)

Game design considerations for diverse users.
HCI440: Introduction to User-Centered Design, DePaul University. (03/2013)

Motion-based gaming for brain injury rehabilitation: research methodology.
HCI445: Inquiry Methods and User Analysis, DePaul University. (10/2012)

Teaching Assistant — HCI440: Introduction to User-Centered Design, DePaul University. (Spring 2013)

HCI460: Usability Evaluation Methods, DePaul University. (Spring 2013)

IT223: Data Analysis, DePaul University. (Fall 2014, Winter 2014, Spring 2015)

IT130: Computing for the Web, DePaul University. (Fall 2014, Winter 2014, Spring 2015)

## INDUSTRY EXPERIENCE

06/2015 – 09/2015 — **User Experience Research Intern**
Platfora, San Mateo, CA
- Conducted benchmarking usability studies for two major product components
- Explored the use of Kano model as a means to prioritize usability issues
- Conducted an accessibility assessment of the product

02/2010 – 03/2011 — **Game Engine Engineer**
3DiJoy Corporation, Shanghai, China
- Developed the network engine for motion-based games
- Developed the player communication dashboard for the gaming system.

09/2009 – 02/2010 — **Game Engine Engineer**
Giant Interactive Group, Shanghai, China
- Developed the server-side game logic for a Massively Multiplayer Online Role-Playing Game (MMORPG)

## PUBLICATIONS

Conference Papers — Guo, J., **Cheng, J.**, & Cleland-Huang, J. Semantically Enhanced Software Trace-ability Using Deep Learning Techniques. Submitted to *The 38th International Conference on Software Engineering - ICSE 2017*.

**Cheng, J.**, Putnam, C., & Guo, J. (2016). "Always a Tall Order": Values and Practices of Professional Game Designers of Serious Games for Health. In *Proceedings of the 2016 Annual Symposium on Computer-Human Interaction in Play - CHI PLAY '16* (pp. 217–228). ACM Press. doi:10.1145/2967934.2968081 (Acceptance Rate: 29%)

Putnam, C., **Cheng, J.**, Lin, F., Yalla, S., & Wu, S. (2016). 'Choose a Game: Creation and Evaluation of a Prototype Tool to Support Therapists in Brain Injury Rehabilitation. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems - CHI '16* (pp. 2038–2049). ACM Press. doi:10.1145/2858036.2858258 (Acceptance Rate: 23%)

**Cheng, J.**, Putnam, C., & Rusch, D. C. (2015). Towards Efficacy-Centered Game Design Patterns For Brain Injury Rehabilitation: A Data-Driven Approach. In *Proceedings of the*

*17th International ACM SIGACCESS Conference on Computers & Accessibility* (pp. 291–299). ACM Press. doi:10.1145/2700648.2809856 (Acceptance Rate: 23%)

Putnam, C., & **Cheng, J.** (2014). Therapist-centered requirements: A multi-method approach of requirement gathering to support rehabilitation gaming. In *Proceedings of the IEEE 22nd International Requirements Engineering Conference (RE 2014)* (pp. 13–22). IEEE. doi:10.1109/RE.2014.6912243 (Acceptance Rate: 27%)

Putnam, C., Wozniak, K., Zefeldt, M. J., **Cheng, J.**, Caputo, M., & Duffield, C. (2012). How do professionals who create computing technologies consider accessibility? In *Proceedings of the 14th international ACM SIGACCESS conference on Computers and accessibility (ASSETS '12)* (pp. 87–94). ACM Press. doi:10.1145/2384916.2384932 (Acceptance Rate: 28%)

Journal Articles

Putnam, C., Dahman, M., Rose, E., **Cheng, J.**, & Bradford, G. (2016). Best practices for Teaching Accessibility in Universities of Classrooms: Cultivating Awareness, Understanding and Appreciation for Diverse Users. *ACM Transactions on Accessible Computing, 8*(4), Article No. 13. doi:10.1145/2831424

Putnam, C., Reiner, A., Ryou, E., Caputo, M., **Cheng, J.**, Allen, M., & Singamaneni, R. (2016). Human-Centered Design in Practice: Roles, Definitions, and Communication. *Journal of Technical Writing and Communication*, *46*(4), 446–470. doi:10.1177/0047281616653491

Putnam, C., **Cheng, J.**, & Seymour, G. (2014). Therapist Perspectives: Wii Active Videogames Use in Inpatient Settings with People Who Have Had a Brain Injury. *Games for Health Journal*, *3*(6), 366–370. doi:10.1089/g4h.2013.0099

Zhai, Q., Guan, X., **Cheng, J.**, & Wu, H. (2010). Fast Identification of Inactive Security Constraints in SCUC Problems. *IEEE Transactions on Power Systems*, *25*(4), 1946–1954. doi:10.1109/TPWRS.2010.2045161

Book Chapters

Putnam, C., Zagal, J., & **Cheng, J.** (2016). You Are Not the Player: Teaching Games User Research to Undergraduate Students. In M. A. Garcia-Ruiz (Ed.), *Games User Research: A Case Study Approach* (pp. 33–53). A K Peters/CRC Press. doi:10.1201/b21564-3

Posters & Demonstrations

**Cheng, J.**, & Putnam, C. (2016). 'Choose a Game': A Prototype Tool to Support Therapists Use Games in Brain Injury Rehabilitation. In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '16* (pp. 3659–3662). ACM Press. doi:10.1145/2851581.2890240 (Demo)

**Cheng, J.**, Mulholland, J., & Shankar, A. (2016). Using the Kano Model to Balance Delight and Frustration for an Enterprise Application. In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '16* (pp. 3021–3027). ACM Press. doi:10.1145/2851581.2892284 (Poster - Acceptance Rate: 43%)

**Cheng, J.**, Putnam, C., & Rusch, D. C. (2015). 'Choose a Game': A Prototype Tool to Support Therapists in Brain Injury Rehabilitation. Demonstration presented at *The 17th International ACM SIGACCESS Conference on Computers & Accessibility*. Lisbon, Portugal. (Demo)

Putnam, C., Dahman, M., Rose, E., **Cheng, J.**, & Bradford, G. (2015). Teaching Accessibility, Learning Empathy. In *Proceedings of the 17th International ACM SIGACCESS Conference on Computers & Accessibility* (pp. 333–334). ACM Press. doi:10.1145/2700648.2811365 (Poster - Acceptance Rate: 51%)

**Cheng, J.**, & Putnam, C. (2015). Therapeutic Gaming in Context: Observing Game Use for Brain Injury Rehabilitation. In *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '15* (pp. 1169–1174). ACM Press. doi:10.1145/2702613.2732697 (Poster - Acceptance Rate: 41%)

Putnam, C., **Cheng, J.**, Rusch, D., Berthiaume, A., & Burke, R. (2013). Supporting ther-

apists in motion-based gaming for brain injury rehabilitation. In *CHI 2013 Extended Abstracts on Human Factors in Computing Systems (CHI EA '13)* (pp. 391–396). ACM Press. doi:10.1145/2468356.2468426 (Poster - Acceptance Rate: 46%)

Putnam, C., & **Cheng, J.** (2013). Motion-games in brain injury rehabilitation: an in-situ multi-method study of inpatient care. In *Proceedings of the 15th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '13)* (pp. 1–2). ACM Press. doi:10.1145/2513383.2513390 (Poster - Acceptance Rate: 48%)

Other Non-Referred Publications

Putnam, C., & **Cheng, J.** (2013). Helping therapists make evidence-based decisions about commercial motion gaming. *ACM SIGACCESS Accessibility and Computing*, (107), 3–10. doi:10.1145/2535803.2535804

**Cheng, J.** (2009). Methods for Obtaining Feasible Solutions in Power Generation Optimal Scheduling and Development of Hydrothermal Scheduling System. *Master's thesis, Xian Jiaotong University, Xian, China*.

## RESEARCH COMMUNITY SERVICE

Reviewer — CHI 2017, 2016; CHI PLAY 2016 (Special Recognitions Received); IDC 2016

Student Volunteer — CHI PLAY 2016; CHI 2013

## AWARDS AND HONERS

2012 – 2016 — *Summer Research Fund*, DePaul University.

2007 – 2009 — *Innovation Fund*, Xi'an Jiaotong University.