

# Jinghui Cheng

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College of Computing and Digital Media  
DePaul University  
Chicago, IL

## 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

- 09/2011 – present (expected 03/2017) **DePaul University, Chicago, IL**  
PhD candidate 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)
- 09/2006 – 06/2009 **Xi'an Jiaotong University, Xi'an, China**  
MSE in *Computer Systems Engineering*
- 09/2002 – 07/2006 **Xi'an Jiaotong University, Xi'an, China**  
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    **Cheng, J.**, Anderson, D. C., Putnam, C., & Guo, J. GaPBIT: Leveraging Design Patterns to Support Design of Brain Injury Therapy Games. Submitted to *The 2017 CHI Conference on Human Factors in Computing Systems - CHI '17*.
- 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 therapists 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.

## REFERENCES

### Cynthia Putnam

Associate Professor, Computing and Digital Media, DePaul University  
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### Jinjuan Heidi Feng

Professor, Computer and Information Sciences, Towson University  
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### Katie Salen

Co-Founder and Chief Designer, Connected Camps  
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