Jinghui Cheng

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College of Computing and Digital Media
DePaul University
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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 11/2016) 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 — **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
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Professor, *Computer and Information Sciences, Towson University*
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Co-Founder and Chief Designer, *Connected Camps*
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