

# Jinghui Cheng

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Department of Computer Engineering  
Polytechnique Montréal  
Montréal, QC, Canada

## Research Interests

Human-Computer Interaction, Software Engineering, Games User Research.

My research focuses on applying Human-Computer Interaction methods and techniques to **support professional practitioners who have domain-specific expertise but special information needs**, including designers, domain experts, and software engineers.

## ACADEMIC POSITIONS

- 12/2017 – present **Assistant Professor**  
Department of Computer Engineering, Polytechnique Montréal
- 09/2016 – 11/2017 **Research Associate**  
Department of Computer Science and Engineering, University of Notre Dame

## EDUCATION

- 03/2017 **DePaul University, Chicago, IL**  
PhD 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)
- 06/2009 **Xi'an Jiaotong University, Xi'an, China**  
MSE in *Computer Systems Engineering*  
07/2006 BSE in *Information Engineering*

## TEACHING EXPERIENCE

- Instructor at Polytechnique Montréal INF6900A/7900: Communication scientifique et technique (Fall 2018)  
LOG2990: Projet de logiciel d'application Web (Winter 2018)
- 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., Goodrum, M., Metoyer R., & Cleland-Huang J. (2018).** How Do Practitioners Perceive Assurance Cases in Safety-Critical Software Systems? In *Proceedings of the 11th International Workshop on Cooperative and Human Aspects of Software Engineering - CHASE '18*. (pp. 57–60). ACM Press. doi:10.1145/3195836.3195838
- Cheng, J., Anderson, D., Putnam, C., & Guo, J. (2017).** Leveraging Design Patterns to Support Designer-Therapist Collaboration When Ideating Brain Injury Therapy Games. In *Proceedings of the 2017 Annual Symposium on Computer-Human Interaction in Play - CHI PLAY '17*. (pp. 291–303). ACM Press. doi:10.1145/3116595.3116600 (Acceptance Rate: 26%; Best Paper Award: Top 5% of accepted papers)
- Goodrum, M., **Cheng, J.**, Metoyer, R., Cleland-Huang, J., & Lutz, R. What Requirements Knowledge do Developers Need to Manage Change in Safety-Critical Systems? Accepted to appear in *RE'17*. (Acceptance Rate: 28%)
- Guo, J., **Cheng, J.**, & Cleland-Huang, J. (2017). Semantically Enhanced Software Traceability Using Deep Learning Techniques. In *The 38th International Conference on Software Engineering - ICSE 2017*. IEEE. (Acceptance Rate: 17%)
- 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%)

Posters &  
Demonstrations

Vierhauser, M., Bayley, S., Wyngaard, J., **Cheng, J.**, Xiong, W., Lutz, R., Huseman, J., & Cleland-Huang, J. (2018). Interlocking safety cases for unmanned autonomous systems in urban environments. In *Proceedings of the 40th International Conference on Software Engineering: Companion Proceedings* (pp. 416–417). doi:10.1145/3183440.3195035 (Poster)

**Cheng, J.** & Guo, J. (2018). How Do the Open Source Communities Address Usability and UX Issues?: An Exploratory Study. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems - CHI EA '18*. doi:10.1145/3170427.3188467 (Poster)

Putnam, C., Lin, A., Subramanian, V., Anderson, D., Christian, E., Swaminathan, B., Yalla, S., Cotter, W., Ciccone, D., & **Cheng, J.** (2017). Effects of Commercial Exergames on Motivation in Brian Injury Therapy. In *Extended Abstracts Publication of the 2017 Annual Symposium on Computer-Human Interaction in Play* (pp. 47–59). doi:10.1145/3130859.3131431 (Poster)

Putnam, C., Anderson, D., Hosley, W., **Cheng, J.**, & Goldman, L. (2017). Cognitive Rehabilitation Potential of a Driving Simulation Game for Brain Injury. In *Extended Abstracts Publication of the 2017 Annual Symposium on Computer-Human Interaction in Play* (pp. 179–185). doi:10.1145/3130859.3131290 (Spotlights Paper)

**Cheng, J.**, & Putnam, C. (2017). Towards a Prototype Tool Leveraging Design Patterns to Support Design of Games for Brain Injury Therapy. In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '17* (pp. 1532–1538). ACM Press. doi:10.1145/3027063.3053091 (Poster)

**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)

**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)

**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)

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 Ab-*

*stracts on Human Factors in Computing Systems (CHI EA '13)* (pp. 391–396). ACM Press. doi:10.1145/2468356.2468426 (Poster)

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)

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

Other Non-Refereed 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 2016–2018; CHI PLAY 2016–2018 (Special Recognitions Received); DIS 2017–2018; CSCW 2018; IDC 2016–2017; IJHCS

Student Volunteer CHI PLAY 2016; CHI 2013