Matthew Miller

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Education

Ph.D. Computer Science	University of Saskatchewan Advisor: Dr. Regan L. Mandryk *Transferred from M.Sc. to Ph.D. in 2017*	2015-2022
B.Sc. Soft. Eng. Honours	University of Saskatchewan B.Sc. Software Engineering Honours	2011-2015

Expertise

Research Expertise: User study design and implementation, crowdsourced user research, software development for research studies, data collection and analysis, digital communication tools.

Technical Expertise: HTML/JavaScript/TypeScript/CSS, C#, Java, Android/iOS, Unity.

Publications

Journal Paper

1. **Miller, M. K.**, & Mandryk, R. L. (2021) Meeting with Media: Comparing Synchronous Media Sharing and Icebreaker Questions in Initial Interactions via Video Chat. Proceedings of the ACM on Human-Computer Interaction, 5(CSCW2), 1-26.
2. Gerling, K. M., Mandryk, R. L., **Miller, M.**, Kalyn, M. R., Birk, M., & Smeddinck, J. D. (2015) Designing wheelchair-based movement games. ACM Transactions on Accessible Computing (TACCESS), 6(2), 6.

Conference Full Paper

3. **Miller, M. K.**, Dechant, M., and Mandryk, R. (2021) Meeting You, Seeing Me: The Role of Social Anxiety, Visual Feedback, and Interface Layout in a Get-to-Know-You Task via Video Chat. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (pp. 1-14).
4. Passmore, C. J., **Miller, M. K.**, Liu, J., Phillips, C. J., Mandryk, R. L. (2020) A Cheating Mood: The Emotional and Psychological Benefits of Cheating in Single-Player Games. In Proceedings of the Annual Symposium on Computer-Human Interaction in Play. Association for Computing Machinery, New York, NY, USA, 58–70.
5. Frommel, J., Sagl, V., Depping, A., Johanson, C., **Miller, M. K.**, Mandryk, R. (2020) Recognizing Affiliation: Using Behavioural Traces to Predict the Quality of Social Interactions in Online Games. In Proceedings of the 2020 SIGCHI Conference on Human Factors in Computing Systems. Association for Computing Machinery, New York, NY, USA, 1–16.
6. Unver, B., D'Angelo, S., **Miller, M. K.**, Tang, J.C., Venolia, G., Inkpen, K. (2018) Hands-Free Remote Collaboration Over Video: Exploring Viewer and Streamer Reactions. In Proceedings of the 2018 ACM International Conference on Interactive Surfaces and Spaces (pp. 85-95). ACM.

7. **Miller, M. K.**, Tang, J. C., Venolia, G., Wilkinson, G., Inkpen, K. (2017) Conversational Chat Circles: Being All Here Without Having to Hear It All. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. (pp. 2394-2404). ACM.
8. **Miller, M. K.**, Depping, A., Birk, M., Mandryk, R. L. (2017) Through the Looking Glass: The Effects of Feedback on Self-Awareness and Conversational Behaviour during Videochat. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. (pp. 5271-5283). ACM.
9. Birk, M. V., Mandryk, R. L., **Miller, M. K.**, & Gerling, K. M. (2015) How self-esteem shapes our interactions with play technologies. In the Proceedings of the 2015 Annual Symposium on Computer-Human Interaction in Play (pp. 35-45). ACM.
10. Gerling, K. M., Mandryk, R. L., Birk, M. V., **Miller, M.**, & Orji, R. (2014, April) The effects of embodied persuasive games on player attitudes toward people using wheelchairs. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 3413-3422). ACM.
11. Gerling, K. M., **Miller, M.**, Mandryk, R. L., Birk, M. V., & Smeddinck, J. D. (2014, April) Effects of balancing for physical abilities on player performance, experience and self-esteem in exergames. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 2201-2210). ACM.

Conference Short Paper

12. Muender, T., **Miller, M. K.**, Birk, M., Mandryk, R. (2016). Extracting Heart Rate from Videos of Online Participants. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 4562-4567). ACM.

Patents

13. Tang, J.C., Venolia, G., Inkpen, K., **Miller, M.K.**, Wilkinson, G. (2017) Presenting messages to participants based on neighborhoods. US Patent US20180152397A1.

Teaching Experience

Instructor University of Saskatchewan	*CMPT 215 – Intro to Computer Organization and Architecture* Hardware components, assembly and machine language.	2019, 2022
Instructor University of Saskatchewan	*CMPT 481 – Human-Computer Interaction* Design, implementation, and evaluation of interfaces.	2017, 2018
Instructor University of Saskatchewan	*CMPT 381 - Implementation of Graphical User Interfaces* Theory of interfaces, Android & JavaFX interfaces	2016
Teaching Assistant University of Saskatchewan	Multiple computer science courses (including data structures, web development, and assembly language programming)	2014-2021

Employment Experience

Research Intern Microsoft Research	(In progress).	2022
Research Intern Autodesk Research, Toronto	Led a multi-stage design process for a video-chat collaboration system. Implemented a user study showing the novel system supports awareness of colleagues' actions.	2021

Research Intern Microsoft Research, Seattle	Created software for collecting audio comments on public videos, developed a processing pipeline for audio comments, and conducted a user study of the system.	2017
Research Intern Microsoft Research, Seattle	Designed and implemented software for scalable text chats in live streams, resulting in a US patent. Conducted a user study and published results at the SIGCHI 2017 conference.	2016
Research Assistant University of Saskatchewan	Developed web-based video chat system and conducted multiple online crowdsourced experiments using the custom chat system. Contributed to development of a synchronous game played over a video chat system.	2015
Research Assistant University of Saskatchewan	Developed physical exertion games for research studies. Contributed to conference papers.	2014
Research Assistant University of Saskatchewan	Developed Kinect games for wheelchair-based interaction. Contributed to conference papers.	2013

Professional Involvement

Live Streaming Co-Chair ACM SIGCHI	As a member of the organizing committee, implemented live streaming for 16 parallel tracks at the CHI conference.	2018, 2019
President CSGC	As president of our graduate student committee, organized events including a research poster festival for CS students.	2018-2020

Academic Funding and Awards

Name	Value	Type	Time Held
TA of Excellence Award	N/A	Local	2021
Alexander Graham Bell Canada Graduate Scholarship-Doctoral	$105,000 over 3 years	National	2018-2021
University of Saskatchewan Dean's Scholarship	$66,000 over 3 years, declined after 1 year	National	2017-2018
Geddes Graduate Scholarship in Computer Science	$2,500	Local	2017
NSERC Canada Graduate Scholarships-Master's	$17,500	National	2015-2016
NSERC Undergraduate Student Researcher Award	$12,000	National	2015
NSERC Undergraduate Student Researcher Award	$12,000	National	2014
NSERC Undergraduate Student Researcher Award	$12,000	National	2013
Greystone Scholarship	$3,000	Local	2011