
Brief Statement of Research on Computing and Mental Health

Regan Mandryk is a Professor of Computer Science in the area of Human-Computer Interaction.

Her work on digital mental health technologies addresses:

- How digital games can assist with assessment of mental health issues (including depression, anxiety, and bipolar affective disorders), both through custom-designed games with embedded assessments, and through the innovation of novel game-based digital biomarkers gathered from natural play of commercial off-the-shelf games.
- How playing games can facilitate social connectedness, combat loneliness, and how relationships enacted through online social game play can contribute to well-being.
- How we can leverage game mechanics to improve adherence in digital mental health treatments, both by increasing intrinsic motivation and identified regulation.
- How we can leverage augmented reality technologies to help people manage their social anxiety in-the-wild.
- How neurofeedback games can help children with fetal alcohol spectrum disorder learn to self-regulate attention.
- How we can use virtual reality games to develop and test translational models of stress and bipolar affective disorders in both rats and humans.

Her 2018 E.W.R. Steacie Fellowship—given to 6 scientists in Canada each year—has provided her with two years of full teaching and administrative relief, and accompanying research funds, to create game-based digital biomarkers for depression.

Selected Publications

See full CV (<https://bit.ly/2RXra9G>) for list of over 200 publications in social play, evaluation of games and media, personalizing play experience, games for health, collaborative technologies, and affective computing. H-index: 37; citations: 7707.

1. **R.L. Mandryk** & M.V. Birk (in submission). Game-based Digital Biomarkers for Modeling Mental Health: A Scoping Review JMIR Preprints. 24/01/2019:13485 DOI: 10.2196/preprints.13485.
2. M.V. Birk & **R.L. Mandryk**. (2019). Improving the Efficacy of Cognitive Training for Digital Mental Health Interventions Through Avatar Customization: Crowdsourced Quasi-Experimental Study. In *J Med Internet Res*, vol. 21 no. 1, e10133.
3. A.E. Depping, C. Johanson, & **R.L. Mandryk**. (2018). Designing for Friendship: Modeling Properties of Play, In-Game Social Capital, and Psychological Well-being. In *ACM CHI PLAY '18*, Melbourne, VIC, Australia. 87-100.
4. C.J. Passmore, M.V. Birk, & **R.L. Mandryk**, (2018). The Privilege of Immersion: Racial and Ethnic Experiences, Perceptions, and Beliefs in Digital Gaming. In *ACM CHI '18*, Montreal, QC, Canada, p. 383 (19 pages), Honourable Mention (top 5%).
5. M.V. Birk & **R.L. Mandryk**. (2018). Combating Attrition in Digital Self-Improvement Programs using Avatar Customization. In *ACM CHI '18*, Montreal, QC, Canada, p. 660 (15 pages).
6. A.J. Roebuck, A.J.B. Dubnyk, D. Cochran, **R.L. Mandryk**, J.G. Howland, & V. Harms. (2017). Competitive action video game players display rightward error bias during on-line video game play. *Laterality: Asymmetries of Body, Brain and Cognition*. 1-12.
7. R. Orji, **R.L. Mandryk**, & J. Vassileva. (2017). Improving the Efficacy of Games for Change Using Personalization Models. *ACM Transactions on Computer-Human Interaction*. Vol. 24, No. 5, Article 32 (22 pages).
8. A.E. Depping & **R.L. Mandryk**. (2017). Cooperation and Interdependence: How Multiplayer Games Increase Social Closeness. In *ACM CHI PLAY'17*, Amsterdam, Netherlands, 449-461.
9. M.V. Birk, C. Atkins, J.T. Bowey, & **R.L. Mandryk**. (2016). Fostering Intrinsic Motivation through Avatar Identification in Digital Games. In *ACM CHI 2016*, 2982-2995.
10. A.V. Reinschluessel & **R.L. Mandryk**. (2016). Using Positive or Negative Reinforcement in Neurofeedback Games for Training Self-Regulation. In *ACM CHI PLAY '16*, 186-198.
11. M.V. Birk, **R.L. Mandryk**, & C. Atkins. (2016). The Motivational Push of Games: The Interplay of Intrinsic Motivation and External Rewards in Games for Training. In *ACM CHI PLAY '16*, 291-303.
12. A.E. Depping, **R.L. Mandryk**, C. Johanson, J.T. Bowey, & S.C. Thomson. (2016). Trust Me: Social Games are Better than Social Icebreakers at Building Trust. In *ACM CHI PLAY '16*, 116-129.
13. R. Orji, J. Vassileva, & **R.L. Mandryk** (2014). Modeling the Efficacy of Persuasive Strategies for Different Gamer Types in Serious Games for Health. *User Modeling and User-Adapted Interaction*, 24(5), 453-498, Springer Verlag.
14. **R.L. Mandryk**, S. Dielschneider, M. Kalyn, C. Bertram, M. Gaetz, A. Doucette, B.A. Taylor, A. Pritchard Orr, & K. Keiver. (2013). Games as Neurofeedback Training for Children with FASD. *Interaction Design for Children (IDC 2013)*, New York, USA, 165-172.
15. Y. Gao & **R.L. Mandryk**. (2012). The Acute Cognitive Benefits of Casual Exergame Play. In *ACM CHI 2012*, 1863-1872.
16. L.E. Nacke, M. Kalyn, C. Lough, & **R.L. Mandryk**. (2011). Biofeedback Game Design: Using Direct and Indirect Physiological Control to Enhance Game Interaction. In *ACM CHI 2011*, 103-112. *Honourable Mention Award* given to top 5%.