JOSH AARON MILLER

PhD Candidate, Northeastern University
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EDUCATION

Northeastern University, PhD Computer Science, expected 2023
Northeastern University, MS Computer Science, 2019
GPA: 3.933 / 4.00
Colgate University, BA Computer Science and Neuroscience, 2017
Majors: Computer Science and Neuroscience
GPA: 3.46 / 4.00
Steinert High School, Hamilton NJ, 2013
Rank: 4 / 383
Mercer County Community College, Non-degree, 2012
GPA: 3.80 / 4.00

RESEARCH EXPERIENCE

Crowdsourced Games Lab, Northeastern University, 2017 - 2023
Visual Perception Laboratory, Colgate University, 2014 - 2017
Center for Brain, Biology, and Behavior, University of Nebraska - Lincoln, 2016
Psychology Department, Colgate University, 2014

EMPLOYMENT

Systems Reward Design Intern for World of Warcraft, Activision Blizzard, Inc., 2022
Game Design Consultant, Miaplaza Inc., 2021 - Present
Lead Game Designer, Foldit, 2020 - Present
Game Designer, Foldit, 2017 - 2019
Student Activities Sound Technician, Colgate University, 2014 - 2017
Brehmer Theater Stagehand, Colgate University, 2013 - 2017
Information Technology Services Helpline Agent, Colgate University, 2015
Maintenance Supervisor, Petal Pushers, 2012 - 2013
Maintenance and Groundskeeper, Strich Law, 2012
Camp Counselor, Congregation Beth Chaim, 2010

EXTRACURRICULAR ACTIVITY

Northeastern University

Undistinguished Lecture Series, *Co-Host*, 2018

Colgate University

Colgate Roleplaying Game Society, *Co-Founder & President*, 2014 - 2017
Juggling Club, *President*, 2014 - 2017
Improv Comedy Club, *Co-Founder & Vice President*, 2015 - 2017
Club for Atheism, Agnosticism, and Secular Humanism, *President*, 2015 - 2016
Gaming Club, *Co-President*, 2015
Philosophy Club, *Interim Co-President*, 2015
Poetry Club, *Co-President*, 2014

Steinert High School

Computer Club, *Founder and President*, 2012 - 2013
Robotics Team, *Programming Captain*, 2012 - 2013
Philosophy Club, *Founder and President*, 2011 - 2013
Science Club, *President*, 2012 - 2013
Math Team, *Member*, 2011
Chemistry Tutor, 2011 - 2013
Unity/Diversity Club, *Member*, 2011 - 2013
School Newspaper, *Staff*, 2009
Latin Club, *Member*, 2009

AWARDS AND HONORS

Rosetta Service Award ($1,000), for Foldit newsletters and outreach, 2021
Nominated for Northeastern's Huntington 100 award for demonstrated leadership and innovative spirit, 2021

Colgate University

Upsilon Pi Epsilon, *Member*, 2017
Class of 1997 Award, 2017
Sarah Kulkofsky Prize for Cognitive Psychology, 2017

Dean's Award for Academic Excellence, 2013 - 2014

Steinert High School

AP Scholar Award, 2012

Science National Honor Society, *Member*, 2011 - 2013

National Honor Society, *Member*, 2011 - 2013

National Latin Examination, *Summa Cum Laude*, 2010

Latin Honor Society, 2009 - 2013

SERVICES

Student Volunteer Co-Chair, CHI PLAY 2022

Reviewer for International Journal of Computer Games Technology (IJCGT) 2021

Reviewer for IEEE Transactions on Computational Intelligence and AI in Games (TCIAIG) 2021

Reviewer for Foundations of Digital Games (FDG) 2021

Reviewer for Cognitive Science Society (CogSci) 2019-2022

Reviewer for the Games and NLP Workshop of the Language Resources and Evaluation Conference (LREC) 2020

Reviewer for CHI PLAY 2019, 2021

Reviewer for IEEE Transactions on Games, 2018-2019

Reviewer for ACM Conference on Human Factors in Computing Systems (CHI), 2017, 2021

WORKS

Academic Publications

Miller, J.A., & Cooper, S. (2022). Barriers to Expertise in Citizen Science Games. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (in press).

Miller, J. A., & Cooper, S. (2021). Case Studies in Game-Based Complex Learning. Multimodal Technologies and Interaction, 5(12), 72.

Gandhi, K., **Miller, J. A.**, Spatharioti, S. E., Apte, A., Fatehi, B., Wylie, S., & Cooper, S. (2021, August). A Comparison of Augmented Reality and Browser Versions of a Citizen Science Game. In The 16th International Conference on the Foundations of Digital Games (FDG) 2021 (pp. 1-8).

Miller, J. A., Horn, B., Guthrie, M., Romano, J., Geva, G., David, C., ... & Cooper, S. (2021). How do Players and Developers of Citizen Science Games Conceptualize Skill Chains?. Proceedings of the ACM on Human-Computer Interaction, 5(CHI PLAY), 1-29.

Miller, J.A. (2021). Roleplaying as a Solution to the Quarterbacking Problem of Cooperative and Educational Games. Analog Game Studies, 8(2).

Rafner, J., Gajdacz, M., Kragh, G., Hjorth, A., Gander, A., Palfi, B., …, **Miller, J.A.**, ... & Sherson, J. (2021). Revisiting Citizen Science Through the Lens of Hybrid Intelligence. arXiv preprint arXiv:2104.14961.

Ponnada, A., Cooper, S., Tang, Q., Thapa-Chhetry, B., **Miller, J. A.**, John, D., & Intille, S. (2021, March). Signaligner Pro: A Tool to Explore and Annotate Multi-day Raw Accelerometer Data. In 2021 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops) (pp. 475-480). IEEE.

Spatharioti, S. E., Fatehi, B., Smith, M., Rosenbloom, A., **Miller, J. A.**, Seif El-Nasr, M., ... & Cooper, S. (2020, September). Tile-o-scope ar: An augmented reality tabletop image labeling game toolkit. In International Conference on the Foundations of Digital Games (pp. 1-4).

Miller, J. A., Khatib, F., Hammond, H., Cooper, S., & Horowitz, S. (2020). Introducing Foldit education mode. Nature Structural & Molecular Biology, 27(9), 769-770.

Miller, J. A., Lee, V., Cooper, S., & Seif El-Nasr, M. (2019, October). Large-Scale Analysis of Visualization Options in a Citizen Science Game. In Extended Abstracts of the Annual Symposium on Computer-Human Interaction in Play Companion Extended Abstracts (pp. 535-542).

Ponnada, A., Cooper, S., Thapa-Chhetry, B., **Miller, J. A.**, John, D., & Intille, S. (2019, October). Designing Videogames to Crowdsource Accelerometer Data Annotation for Activity Recognition Research. In Proceedings of the Annual Symposium on Computer-Human Interaction in Play (pp. 135-147).

Miller, J. A., Narayan, U., Hantsbarger, M., Cooper, S., & El-Nasr, M. S. (2019, August). Expertise and engagement: re-designing citizen science games with players' minds in mind. In Proceedings of the 14th International Conference on the Foundations of Digital Games (pp. 1-11).

Partlan, N., Madkour, A., Jemmali, C., **Miller, J. A.**, Holmgård, C., & El-Nasr, M. S. (2019). Player Imitation for Build Actions in a Real-Time Strategy Game.

Horn, B., **Miller, J. A.**, Smith, G., & Cooper, S. (2018, September). A Monte Carlo approach to skill-based automated playtesting. In Fourteenth Artificial Intelligence and Interactive Digital Entertainment Conference.

Published Media

Balance This Game! (2021), a whimsical, strategic sim about balancing an MMORPG. Released on itch.io (https://joshaaronmiller.itch.io/balance-this-game)

Another Coffee (2021), an interactive fiction about an awkward meetup with an estranged friend. Released on itch.io (https://joshaaronmiller.itch.io/another-coffee).

Descent Into Madness (2020), a one-shot RPG system for Lovecraftian Horror. Published

in the Indiepocalypse anthology, volume 1 (http://indiepocalypse.com/).

My Realm Will Be Yours (2020), a cooperative roleplaying game for two people about a king preparing his daughter for rulership. (https://github.com/joshmiller17/games)

Cirque du Socrates (2020), a cooperative studying game for 3-5 players about a group of psychic philosophers demonstrating their abilities of knowledge transfer. (https://github.com/joshmiller17/games)

Presentations and Talks

Learning and Motivation: Designing the On-Ramp of Your Game, BostonFIG Learns, Feb 2019

State of Player: Data and Recommendations on the Game and Gamification of Eterna, EternaCon 2021

Citizen Science Game Development Symposium at Connected Learning Summit 2021

Skills and Expertise in Citizen Science Games, Invited talk at the Disagreements And Language Interpretation (DALI) End-of-Project Workshop, 2021

SKILLS

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*Proficiencies refer to the NIH Proficiency Scale

Programming Languages: (Intermediate) C++, C#, Python, Java; (Novice) MATLAB, R, HTML, C

Game Development: (Intermediate) Unity; (Novice) Godot, GameMaker

Other: (Advanced) Juggling, (Novice) Mandolin, Ukulele