

Edward F. Melcer

Assistant Professor, Computational Media, UC Santa Cruz

Director, [ALT Games Lab](#) | Core Faculty, [Serious Games M.S.](#) | [edwardmelcer.net](#) | [eddie.melcer@ucsc.edu](#)

RESEARCH INTERESTS

STEM education; educational games and technologies; embodiment; tangibles; AR/MR/VR; alt controllers; physical and social co-located play; human-computer interaction; game studies.

EDUCATION

NYU Tandon School of Engineering, Brooklyn, New York

Ph.D. in Computer Science May, 2018

Masters in Computer Science, GPA: 3.9 Jan, 2016

Specializations: HCI, Educational Game Design, Embodiment

Polytechnic Institute of New York University, Brooklyn, New York

Bachelor of Science in Computer Science, Summa Cum Laude May, 2013

Specialization: Digital Game Design and Development

GPA: 3.8, Dean's List 2009 - 2013

PROFESSORIAL POSITIONS

University of California, Santa Cruz (UCSC) Santa Cruz, CA
Assistant Professor July, 2018 – Current

University of California, Santa Cruz (UCSC) Santa Cruz, CA
Lecturer April, 2017 – June, 2017

HONORS AND AWARDS

Best Reviewer Honorable Mention Award FDG 2019

Best Paper Award
Games Research Today: Analyzing the Academic Landscape 2000-2014 FDG 2015

Exceptional Paper Award
Getting Academical: A Choice-Based Interactive Storytelling Game for Teaching Responsible Conduct of Research FDG 2020

Best Paper Honorable Mention Awards
Bots & (Main)Frames: Exploring the Impact of Tangible Blocks and Collaborative Play in an Educational Programming Game CHI 2018

Bridging the Physical Divide: A Design Framework for Embodied Learning Games and Simulations CHI 2016

Creative Awards

<i>Official Finalist Selection, Mad Mixologist</i>	IndieCade 2019
<i>Spotlight Award Nominee: Cooperative Design, Mad Mixologist</i>	IndieCade 2019
<i>Official Night Games Selection, SceneSampler</i>	IndieCade 2017
<i>Best Student Game Award: Serious Games Showcase & Challenge, Bots & (Main)Frames</i>	I/ITSEC 2016

PEER REVIEWED PUBLICATIONS

Book Chapters

1. **In Press:** Grasse, K. M., **Melcer, E. F.**, Junius, N., Kremenski, M., & Wardrip-Fruin, N. (2021). "Academical: A Choice-Based Interactive Storytelling Game for Enhancing Moral Reasoning, Knowledge, and Attitudes in Responsible Conduct of Research". In *Games and Narrative: Theory and Practice*. Springer.
2. **In Press:** **Melcer, E. F.** (2021). "Games & Playable Media (GAME) 202: Foundations of Alternative Controller Games". In *Teaching the Game: An interdisciplinary collection of game course syllabi*. ETC Press.
3. **In Press:** **Melcer, E. F.**, & Isbister, K. (2021). "Learning with the Body: A Design Framework for Embodied Learning Games and Simulations". In *Software Engineering Perspectives in Computer Game Development*. CRC Press, Taylor & Francis Group.
4. **Melcer, E. F.**, & Cuerdo, M. A. M. (2020). "Death & Rebirth in Platformer Games". In *Game User Experience and Player-Centered Design*. Springer.

Journal Articles and Conference Papers

5. Grasse, K. M., & **Melcer, E. F.** (2020). "Generation: A Novel Fabrication Game for Simulating Evolution and Natural Selection". In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*. CHI-Play '20, Ottawa, Canada. ACM.
6. Diez, J. & **Melcer, E. F.** (2020). "Cookie Mania: A Serious Game for Teaching Internet Cookies to High School and College Students". In *Proceedings of Joint International Conference on Entertainment Computing and Serious Games*. Springer, Cham, 2020.

[Exceptional Paper Award]

7. **Melcer, E. F.**, Grasse, K., Ryan, J., Junius, N., Kreminski, M., Squinkifer, D., Hill, B., & Wardrip-Fruin, N. (2020). "Getting Academical: A Choice-Based Interactive Storytelling Game for Teaching Responsible Conduct of Research". In *Proceedings of the 15th international conference on the Foundations of Digital Games*. FDG '20, Malta. ACM.
8. Camingue, J., **Melcer, E. F.**, & Carstensdottir, E. (2020). "A (Visual) Novel Route to Learning: A Taxonomy of Educational Visual Novels". In *Proceedings of the 15th international conference on the Foundations of Digital Games*. FDG '20, Malta. ACM.
9. Kao, D., Mousas, C., Magana, A. J., Harrell, D. F., Ratan, R., **Melcer, E. F.**, Sherrick, B., Parsons, P., & Gusev, D. A. (2020). "Hack.VR: A Programming Game in Virtual Reality". In *Proceedings of the 15th international conference on the Foundations of Digital Games*. FDG '20, Malta. ACM.

10. **Melcer, E. F.**, Ryan, J., Junius, N., Kreminski, M., Squinkifer, D., Hill, B., & Wardrip-Fruin, N. (2020). “Teaching Responsible Conduct of Research Through an Interactive Storytelling Game”. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*. CHI '20, Hawaii, USA. ACM.
 11. Cuerdo, M. A. M., & **Melcer, E. F.** (2020). “‘I’ll Be Back’: A Taxonomy of Death and Rebirth in Platformer Video Games”. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*. CHI '20, Hawaii, USA. ACM.
 12. Keehl, O., & **Melcer, E. F.** (2019). “Radical tunes: exploring the impact of music on memorization of stroke order in logographic writing systems”. In *Proceedings of the 14th International Conference on the Foundations of Digital Games*. FDG '19, San Luis Obispo, CA, USA. ACM.
 13. Kreminski, M., Samuel, B., **Melcer, E. F.**, & Wardrip-Fruin, N. (2019). “Evaluating AI-Based Games Through Retellings”. In *Proceedings of the Fifteenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-19)*. AAAI.
 14. Kliewer, K., **Melcer, E.**, & Glisic, B. (2019). “Co-Word Analysis of the Structural Health Monitoring Field”. In *Proceedings of the 12th International Workshop on Structural Health Monitoring*.
 15. Ottmar, E. R., **Melcer, E.**, Abrahamson, D., Nathan, M. J., Fyfe, E., & Smith, C. (2018). “EMBODIED MATHEMATICAL IMAGINATION AND COGNITION (EMIC) WORKING GROUP”. In *Proceedings of the North American Chapter of the International Group for the Psychology of Mathematics Education (2018)*.
- [Best Paper Honorable Mention Award]**
16. **Melcer, E. F.**, & Isbister, K. (2018). “Bots & (Main)Frames: Exploring the Impact of Tangible Blocks and Collaborative Play in an Educational Programming Game”. In *Proceedings of the 36th Annual ACM Conference on Human Factors in Computing Systems*. CHI '18, Montréal, Canada. ACM.
 17. **Melcer, E. F.**, Astolfi, M. T., Remaley, M., Berenzweig, A., & Giurgica-Tiron, T. (2018). “CTRL-Labs: Hand Activity Estimation and Real-time Control from Neuromuscular Signals”. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems* (p. D303). ACM.
 18. Katherine Isbister, Elena Marquez Segura, and **Edward F. Melcer**. (2018). “Social Affordances at Play: Game Design Toward Socio-Technical Innovation”. In *Proceedings of the 36th Annual ACM Conference on Human Factors in Computing Systems*. CHI '18, Montréal, Canada. ACM.
 19. Truong-Huy Nguyen, **Edward F. Melcer**, Alessandro Canossa, Magy Seif El-Nasr, and Katherine Isbister. (2017). “Seagull: A Bird’s-Eye View of the Evolution of Technical Games Research”. In *Entertainment Computing*, 26, 88-104.
 20. Höök, K., Caramiaux, B., Erkut, C., Forlizzi, J., Hajinejad, N., Haller, M., Hummels, C. C. M., Isbister, K., Jonsson, M. Khut, G., Loke, L., Lottridge, D., Marti, P., **Melcer, E.**, Müller, F., Petersen, M. G., Schiphorst, T., Segura, E. M., Ståhl, A., Svanæs, D., Tholander, J., & Tobiasson, H. (2018). “Embracing first-person perspectives in soma-based design”. In *Informatics* (Vol. 5, No. 1, p. 8). Multidisciplinary Digital Publishing Institute.

21. **Edward F. Melcer** and Katherine Isbister. (2017). "Embodiment, Collaboration, and Challenge in Educational Programming Games: Exploring Use of Tangibles and Mouse". In *Proceedings of the 12th international conference on the Foundations of Digital Games*. FDG '17, Hyannis, MA. ACM.
22. **Edward F. Melcer** and Katherine Isbister. (2017). "Toward Understanding Disciplinary Divides within Games Research". In *Proceedings of the 12th international conference on the Foundations of Digital Games*. FDG '17, Hyannis, MA. ACM.
23. **Edward F. Melcer**, Victoria Hollis, and Katherine Isbister. (2017). "Tangibles vs. Mouse in Educational Programming Games: Influences on Enjoyment and Self-Beliefs". In *Extended Abstracts of the 35th Annual ACM Conference on Human Factors in Computing Systems*. CHI '17, Denver, CO. ACM.
24. Kate Compton, **Edward F. Melcer**, and Michael Mateas. (2017). "Generominos: Ideation Cards for Interactive Generativity". In *Proceedings of the 13th Artificial Intelligence and Interactive Digital Entertainment Conference*. AIIDE '17, Utah. ACM.
25. **Edward F. Melcer** and Katherine Isbister. (2016). "Bridging the Physical Learning Divides: A Design Framework for Embodied Learning Games and Simulations". In *Proceedings of the 1st International Joint Conference of DiGRA and FDG*. DiGRA and FDG '16, Dundee, Scotland.
[Best Paper Honorable Mention Award in Late-Breaking Work Track]
26. **Edward F. Melcer** and Katherine Isbister. (2016). "Bridging the Physical Divide: A Design Framework for Embodied Learning Games and Simulations". In *Extended Abstracts of the 34th Annual ACM Conference on Human Factors in Computing Systems*. CHI '16, San Jose, CA. ACM.
27. **Edward F. Melcer** and Katherine Isbister. (2016). "Motion, Emotion, and Form: Exploring Affective Dimensions of Shape". In *Extended Abstracts of the 34th Annual ACM Conference on Human Factors in Computing Systems*. CHI '16, San Jose, CA. ACM.
[Best Paper Award in Game Studies Track]
28. **Edward F. Melcer**, Truong-Huy Nguyen, Zhengxing Chen, Alessandro Canossa, Magy Seif El-Nasr, and Katherine Isbister. (2015). "Games Research Today: Analyzing the Academic Landscape 2000-2014". In *Proceedings of the 10th international conference on the Foundations of Digital Games*. FDG '15, Pacific Grove, CA.
29. Oliver L. Haimson, Anne E. Bowser, **Edward F. Melcer**, and Elizabeth F. Churchill. (2015). "Online Inspiration and Exploration for Identity Reinvention". In *Proceedings of 33rd Annual ACM Conference on Human Factors in Computing Systems*. CHI '15, Republic of Korea, Seoul. ACM.
30. Anne E. Bowser, Oliver L. Haimson, **Edward F. Melcer**, and Elizabeth F. Churchill. (2015). "On Vintage Values: The Experience of Secondhand Fashion Reacquisition". In *Proceedings of 33rd Annual ACM Conference on Human Factors in Computing Systems*. CHI '15, Republic of Korea, Seoul. ACM.
31. **Edward F. Melcer** and Katherine Isbister. (2014). "Emotional space: understanding affective spatial dimensions of constructed embodied shapes". In *Proceedings of the 2nd ACM symposium on Spatial user interaction*. SUI '14, Honolulu, HI. ACM.

32. Karlesky, M., **Edward F. Melcer**, and Katherine Isbister. (2013). "Open sesame: re-envisioning the design of a gesture-based access control system". In *Extended Abstracts of 31st Annual ACM Conference on Human Factors in Computing Systems*. CHI'13, Paris, France. ACM.

DOCTORAL CONSORTIUMS

1. **Edward F. Melcer**. (2017). "Exploring the Effects of Physical Embodiment in a Puzzle-Based Educational Programming Game". In *Proceedings of the 11th ACM SIGCHI Conference on Creativity and Cognition*. C&C '17, Singapore. ACM.
2. **Edward F. Melcer**. (2017). "Moving to Learn: Exploring the Impact of Physical Embodiment in Educational Programming Games". In *Extended Abstracts of the 35th Annual ACM Conference on Human Factors in Computing Systems*. CHI '17, Denver, CO. ACM.

CONFERENCE ABSTRACTS

1. Kliewer, K., **Melcer, E.**, & Glisic, B. (2019). "Analyzing the Academic Landscape of Structural Health Monitoring: 2003-2017". In *Proceedings of the SHMII 2019-9th International Conference on Structural Health Monitoring of Intelligent Infrastructure*.
2. Kliewer, K., **Melcer, E.**, & Glisic, B. (2019). "A Bibliometric Analysis of the Structural Health Monitoring Research Field". In *Proceedings of the Engineering Mechanics Institute Conference 2019*.
3. **Melcer, E.F.** (2018). "Toward Embodied Learning Mechanics: A Tool to Guide the Design of Physical Interactions in Educational Games". In *Proceedings of the 2018 International Academic Conference of Meaningful Play*.

WORKSHOPS

1. **Edward F. Melcer**, and Katherine Isbister. (2016). "Bridging the Physical Divide: A Design Framework for Embodied Learning Systems". *Moved to Be Moved Workshop*. CHI '16, San Jose, CA, USA. N.p.
2. **Edward F. Melcer**, and Katherine Isbister. (2014). "CSEI: The Constructive Sensual Evaluation Instrument". *Workshop on Tactile User Experience Evaluation Methods*. CHI 2014, Toronto, ON, Canada. N.p.

GAME DEMONSTRATIONS AND PRESENTATIONS

IndieCade Festival – Mad Mixologist	October, 2019
US Census Bureau, Opportunity Project Demo Day – Disaster Awareness Game	March, 2019
IndieCade Festival – SceneSampler	October, 2017
Come Out & Play Festival – SceneSampler	July, 2017
Serious Games Showcase & Challenge – Bots & (Main)Frames	December, 2016
IndieCade East Festival – Veterinarian's Hospital: Ruff Day	May, 2016
Come Out & Play Festival – Veterinarian's Hospital: Ruff Day	July, 2015
NYU Engineering Research Expo – Carb Crush and Bots & (Main)Frames	April, 2015
World Science Festival (Innovation Arcade) – Boulderdash	June, 2013

INVITED TALKS, PANELS AND PRESENTATIONS

- [Speaker] **Edward Melcer**. (2020). “Building Better (Educational) Games: Exploring Embodied Design Decisions that Impact Learning Outcomes”. SESAME Colloquium, UC Berkley.
- [Co-Speaker] John Dominic Diez & **Edward Melcer**. (2020). “*Communication Gaps between Video Game Researchers*”. International Conference on Human-Computer Interaction, Copenhagen, Denmark.
- [Panelist] Katherine Isbister, Theresa Tanenbaum, **Edward F. Melcer**, & Ryan Origin. (2019). “*Different by Design Alternative Controller Games and Wearables*”. Playful Wearables Panel, IndieCade 2019, Santa Monica, CA.
- [Speaker] **Edward F. Melcer**. (2019). “*ALT-CTRL: Bringing the Body Back into Serious Games*”. Serious Play Conference, Orlando, FL.
- [Speaker] **Edward F. Melcer**. (2019). “*DIY and Alternative Controller Games*”. TechTALK: Gaming at the Hardware Boundaries, SEMICON West, San Francisco, CA.
- [Co-Speaker] **Edward F. Melcer** and Kristen Safdie. (2019). “*Disaster Awareness Games*”. Opportunity Project Demo Day, US Census Bureau, MD.
- [Panelist] Jen Helms, **Edward F. Melcer**, Vincent Minoue. (2019). “*Gaming for Learning - Fireside Chat with Ubisoft*”. Ubisoft San Francisco, CA.
- [Speaker] **Edward F. Melcer**. (2018). “*ALT-CTRL: Bringing Embodied Physical Interactions into the Design of Games and Learning*”. Collaborative Learning of Usability Experiences (CLUE) Seminar Series, Carleton University, Ottawa, Ontario, Canada.

EXTERNAL FUNDING

IN REVIEW

NSF CAREER \$615,051
CAREER: Tangible Learning at Scale with Fabrication Games to Improve STEM Education and Engagement, PI 7/1/21 – 6/30/26

NSF IUSE \$435,292
Collaborative Research: Empowering Students to Design and Conduct Research Studies and Analyze Data from Participants, Co-PI 7/1/21 – 6/30/25

NIH R25 (RFA-GM-20-001) \$267,338
Interactive Narrative Video Game for Teaching Responsible Conduct of Research in Biomedical Data Science, PI 4/5/21 – 4/4/23

IN PROGRESS

Interstellar Initiative (NYAS & AMED) ¥3,000,000 (\$28,000)
Development of a collaborative game-based intervention tool to improve preventative care for cardiac conditions, Co-PI 9/20/20 – 2/8/20

Association of Program Directors in Surgery (APDS) Research & Education Fund	\$30,000
<i>Pilot and Validity Testing of a Serious Game-Based Platform to Assess Surgical Decision-Making of Entrustable Professional Activities (EPAs), PI</i>	5/1/20 – 4/30/22
Stanford School of Medicine Grant	\$35,000
<i>Developing a Surgeon Assessment Game, PI</i>	2/1/20 – 12/31/20
California Education Learning Lab (CELL) Grant	\$3,240
<i>E-Games for Active Training in Engineering Design, Collaborator</i>	7/1/19 – 6/30/24

INTERNAL FUNDING

IN REVIEW

CITRIS Seed Funding Grant	\$60,000
<i>AI Security Games: Teaching Students to Defend Against Deepfakes, PI</i>	1/1/20 – 6/11/20

COMPLETED

CITRIS Tech for Social Good Grant	\$1,041
<i>The Cookie Problem (Cybersecurity Awareness Game), PI</i>	1/1/20 – 9/11/20
UCSC New Faculty Research Grant	\$3,520
<i>Creating an Artifact Generation Game to Teach Computational Thinking, PI</i>	1/1/19 – 6/30/19

EXTERNAL SERVICE

Leadership Roles

<i>Co-Chair, CHI Late-Breaking Work Track</i>	2021
<i>Guest Editor, <u>Journal of Multimodal Technologies and Interactions</u></i>	2020 – 2021
<i>Organizer, UCSC Indie Playtest Nights</i>	2019 – Current
<i>Organizer, UCSC Indie Dev Mini Talks</i>	2020 – Current
<i>Co-Organizer, SEMICON West TechTALK Session</i>	2019

Committee Memberships

<i>Program Committee, ICC'20 Casual Creators Workshop</i>	ICCC 2020
<i>Program Committee, 13th Digital Games Research Association Conference</i>	DiGRA 2020
<i>Program Committee, ToDiGRA for Teaching Games: Pedagogical Approaches</i>	TPGA:DiGRA 2019
<i>Program Committee, ACM Conference on Creativity & Cognition</i>	C&C 2019
<i>Program Committee, ACM CHI Conference</i>	CHI 2019
<i>Program Committee, Foundations of Digital Games</i>	FDG 2019
<i>Program Committee, 9th Workshop on Procedural Content Generation</i>	PCG 2018
<i>Program Committee, 4th IEEE International Conference on Data Science and Advanced Analytics</i>	DSAA 2017

COURSES TAUGHT

Undergraduate

CMPM 171 – Game Design Studio II	Winter Quarter, 2020
CMPM/ARTG 179 – Game Design Practicum (Alternative Controllers)	Spring Quarter, 2017

Graduate

GAME 202 – Foundations of Alternative Controller Games	Winter Quarter, 2021
GAME 280A – Games Professional Seminar	Winter Quarter, 2021
GAME 235 – Game Development I	Fall Quarter, 2020
GAME 231 – Game Technologies	Spring Quarter, 2020
GAME 280A – Games Professional Seminar	Spring Quarter, 2020
GAME 231 – Game Technologies	Spring Quarter, 2019
GAME 250 – Foundations of Serious Games	Winter Quarter, 2019
GAME 280A – Games Professional Seminar	Fall Quarter, 2019

MENTORING AND STUDENT ADVISING

Postdoctoral Fellows

<i>Katelyn Grasse</i> , Primary Postdoctoral Advisor	Sep 2019 – Current
--	--------------------

PhD Students

<i>Ethan Osborne</i> , Primary PhD Advisor	July 2020 – Current
<i>Oleksandra Keehl</i> , Primary PhD Advisor	Sep 2018 – Current
<i>Ferran Altarriba</i> , Dissertation Committee	Nov 2019 – Current

Masters Students

<i>Marjorie Ann Cuerdo</i> , Primary MS Advisor (external)	May 2019 – Current
<i>Janelynn Camingue</i> , Primary MS Advisor	Sep 2019 – Current
<i>John Diez</i> , Primary MS Advisor	Sep 2019 – Current
<i>Yulin Cai</i> , Independent Study and Sponsored Research Project	Sep 2019 – Current
<i>Fatyma Camacho</i> , Sponsored Research Project	Jan 2020 – Current
<i>Jason Tsai</i> , Sponsored Research Project	Jan 2020 – Current
<i>Ruonan Chen</i> , Sponsored Research Project	Jan 2020 – Current
<i>Terry Carroll-Beyak</i> , Independent Study	Jan 2019 – April 2019

Undergraduate Students

<i>Rhea Sharma</i> , Independent Study and Research Project	Sep 2020 – Current
<i>Anika Mahajan</i> , Research Project	Sep 2020 – Current
<i>Max Cronce</i> , Independent Study and Research Project	Sep 2018 – Current
<i>Vivian Pham</i> , Independent Study and Research Project	Sep 2018 – Current
<i>Kevin Chu</i> , Independent Study	Mar 2020 – Sep 2020
<i>Yani Mohamad Fauzi</i> , Independent Study and Research Project	Sep 2018 – June 2019

<i>Khatantitem Evsanaa</i> , Independent Study and Research Project	Sep 2018 – June 2019
<i>Kyle Soo Hoo</i> , Game Development Project	Sep 2018 – June 2019
<i>Rahil Bhatnager</i> , Game Development Project	Sep 2018 – June 2019
<i>Sean Song</i> , Independent Study and Game Development Project	Sep 2018 – June 2019

INDUSTRY POSITIONS

CTRL-Labs	New York, NY
<i>HCI Fellow</i>	Jul, 2017 – May 2018
Gigantic Mechanic	Brooklyn, NY
<i>Game Designer</i>	May, 2015 – Aug, 2015

OTHER RESEARCH POSITIONS

University of California, Santa Cruz (UCSC), Social Emotional Technology Lab	Santa Cruz, CA
<i>Visiting Researcher</i>	Jan, 2016 – Dec, 2017
eBay Inc. Research Labs	San Jose, CA
<i>Ph.D. Intern Research Scientist</i>	May, 2014 – Aug, 2014
NYU Tandon School of Engineering, Game Innovation Lab	New York, NY
<i>Research Assistant (Advisor: Dr. Katherine Isbister)</i>	Sep, 2011 – May 2018

PROFESSIONAL AFFILIATIONS

Member of Higher Education Video Games Alliance	2016 – Current
Member of Association for Computing Machinery	2011 – Current
Member of SIGCHI	2012 – Current
Member of SIGCSE	2011 – Current
Member of New York Academy of Sciences	2014 – 2018

TECHNICAL SKILLS

Languages

C/C++, C#/Java, Python, Javascript/Actionscript

Engines, Frameworks, & Libraries

Unity, Unreal, Processing, Arduino, Godot, Phaser, Ren'py, Cinder/OpenFrameworks, Kinect/XNA, Flash