# **JESSICA ROBERTS**

# CURRICULUM VITAE October 2023

School of Interactive Computing Georgia Institute of Technology 85 Fifth St NW, Atlanta, GA 30308

**ACADEMIC POSITIONS** 

tiles.cc.gatech.edu jessica.roberts@cc.gatech.edu

Assistant Professor	2019-present
School of Interactive Computing, Georgia Institute of Technology	
Postdoctoral Research Associate	2017-2019
Human-Computer Interaction Institute, Carnegie Mellon University	
Learning Sciences Research Associate	2015-2017
Northwestern University & Field Museum of Natural History	
EDUCATION	
University of Illinois at Chicago, PhD in Learning Sciences	2016
Geospatial Analysis and Visualization Certificate (College of Urban Planning)	
Dissertation: Connecting Visitors to Data: Exploring Tools for Mediating Learning Talk at an	
Interactive Museum Exhibit	
Committee: Leilah Lyons, Susan Goldman, Tom Moher, Michael Horn, Robb Lindgren	
National-Louis University, Alternative Certification Program for Elementary Education	2004
Self-contained K-9 Certification	
Northwestern University, Bachelor of Science in Interdepartmental Studies in Communication	n 2003
Specialization: Theatre lighting design	

## EXTERNAL FUNDING

NSF AISL # 2314109. Air Pollution Visualizations for Promoting Data Literacy with Middle Schoolers and the Public.\$1,798,366.08/01/2023 - 07/31/2027.PI.

NSF AISL #2214463. Fostering AI Literacy through Embodiment and Creativity across Informal Learning Spaces. \$1,726,706. 08/15/2022 - 07/31/2025. Co-PI.

NSF AISL #2115751. Accessible Oceans: Exploring Ocean Data through Sound. \$296,414. 09/2021-08/2023. Co-PI

# INTERNAL FUNDING

IPAT SEED grant. *The Datasium: A Roadmap for an Interactive Data Museum at Georgia Tech.* \$26,828. 05/2022-04/2023.

GT Faculty Covid Relief fund. Mitigating Covid-19 Impacts on Research in Educational Technologies in Museums and Classrooms. \$2,900. 4/2022 – 6/2022.

# **HONORS & AWARDS**

Energy Equity, Environmental Justice, & Community Engagement Faculty Fellow [2023]

Jim Pope CREATE-X Faculty Fellow [2023]

Brook Byers Instituted for Sustainable Systems Faculty Fellow [2022]

EPA EmPOWER Air Data Challenge [2020]

CHI 2018 Honorable Mention Award [2018]

CSCL 2017 Best Paper Award [2017]

John Woodbridge Williams Memorial Scholarship for Outstanding Theatre Design, Northwestern University [2002, 2003]

# **BOOKS**

[B1] Cafaro, F., and **Roberts, J.** (2021). *Data Through Movement: Designing Embodied Human-Data Interaction for Informal Learning.* 

# PEER-REVIEWED JOURNAL ARTICLES

- [J7] Smith, L., Bower, A., Roberts, J. Bellona, J., Li, Huaigu (to appear). Expanding Access to Ocean Science through Inclusively Designed Data Sonifications. Accepted for publication in *Oceanography*.
- [J6] Bewersdorff, A., Zhai, X., **Roberts, J.**, & Nerdel, C. (2023). Myths, mis-and preconceptions of artificial intelligence: A review of the literature. *Computers and Education: Artificial Intelligence*, 100143.
- [J5] Baione, S., Lyu, Y., Reinert, A., & **Roberts, J.** (2022). Crossroads: a transgender education platform for Greek life students. *Journal of LGBT Youth*, 1-25.
- [J4] Jorian, N., **Roberts, J.**, Bowers, A., Tissenbaum, M., Lyons, L., Kumar, V., Berland, M (2020) Uncovering Patterns in Constructionist Collaborative Learning Activities via Cluster Analysis of Museum Exhibit Log Files. *Frontline Learning Research*
- [J3] **Roberts, J.** & Lyons, L. (2020). Examining Spontaneous Perspective-Taking and Fluid Self-to-Data Relationships in Informal, Open-Ended Data Exploration. *Journal of the Learning Sciences*. DOI 10.1080/10508406.2019.1651317
- [J2] **Roberts, J.** & Lyons, L. (2017). The Value of Learning Talk: Applying a novel dialogue scoring method to inform interaction design in an open-ended, embodied museum exhibit. *International Journal of Computer Supported Collaborative Learning*. 12(4), 343-376. DOI 10.1007/s11412-017-9262-x
- [J1] Lyons, L., Becker, D., & **Roberts, J. A.** (2010). Analyzing the affordances of mobile technologies for informal science learning. Museums & Social Issues, 5(1), 87-102.

# PEER-REVIEWED CONFERENCES, FULL<sup>1</sup>

- [C7] Mansi, G., Kim, S., & **Roberts, J**. (2022). Ready, Set, Art: Technology Needs and Tools for Remote K-2 Art Education. In Proceedings of the 2022 International Conference on Interaction Design and Children (IDC). Braga, Portugal. ACM.
- [C6] Roberts, J., Banerjee, A., Hong, A., McGee, S., Horn, M., Matcuk, M. (2018). Digital Exhibit Labels in Museums: Promoting Visitor Engagement with Cultural Artifacts. In Proceedings of the 2018 ACM SIGCHI Conference on Human Factors in Computing Systems (p. 623). ACM. Honorable Mention Award
- [C5] **PRoberts, J.,** & Lyons, L. (2017). Scoring Qualitative Informal Learning Dialogue: The SQuILD Method for Measuring Museum Learning Talk. In Proceedings of the 12<sup>th</sup> International Conference on Computer-Supported Collaborative Learning. Philadelphia, Pennsylvania, USA. *Best Paper Award*.
- [C4] McGee, S., Roberts, J., Banerjee, A., Foong, E., Matcuk, M., & Horn, M. (2017). Designing Digital Rails to Foster Scientific Curiosity around Museum Collections. Annual meeting of the American Educational Researchers Association. Austin, Texas, USA.
- [C3] Cafaro, F., Lyons, L., Kang, R., Radinsky, J., **Roberts, J.**, & Vogt, K. (2014, February). Framed guessability: using embodied allegories to increase user agreement on gesture sets. In *Proceedings of the 8th International Conference on Tangible, Embedded and Embodied Interaction* (pp. 197-204). ACM.
- [C2] **Roberts, J.**, Lyons, L., Cafaro, F., & Eydt, R. (2014, June). Interpreting data from within: Supporting human-data interaction in museum exhibits through perspective taking. In Proceedings of the 2014

<sup>&</sup>lt;sup>1</sup> In the field of human-computer interaction, archival papers in premiere conferences such as the Association for Computing Machinery's (ACM) CHI, TEI, and IDC undergo highly selective, multi-stage peer review processes. These conferences often exceed journals in their selectivity, citations, and impact. Thus in human-computer interaction, proceedings publications in these venues are considered on par with publications in a journal. For rankings see: https://scholar.google.com/citations?view op=top venues&vq=eng humancomputerinteraction

- Conference on Interaction Design and Children (pp. 7-16). ACM.
- [C1] Cafaro, F., Panella, A., Lyons, L., **Roberts, J.**, & Radinsky, J. (2013, April). I see you there!: Developing identity-preserving embodied interaction for museum exhibits. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 1911-1920). ACM.

# REVIEWED CONFERENCES, SHORT

- [S11] Li, H., J. Bellona, L. Smith, A. Bower, and J. Roberts. (2023). "Let the Volcano Erupt!": Designing Sonification to Make Oceanography Accessible for Blind and Low Vision Students in Museum Environment. In The 25th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'23), October 22–25, 2023, New York, NY, USA. 6 pages. https://doi.org/10.1145/3597638.3614482
- [S10] **Roberts, J.**, Lowy, R., Li, H., Smith, L., Bellona, J., and Bower, A. (2023). *Breaking Down the Visual Barrier: Designing Data Interactions for the Visually Impaired in Informal Learning Settings.* In Proceedings 2023 International Conference on Computer Supported Collaborative Learning (CSCL). Montreal, QC, Canada.
- [S9] Belghith, Y., Kim, J., Alemdar, M., Moore, R., Rosen, J., Riedl, M., and Roberts, J. (2023). Problem-solving or solved problems: Constricting design challenges in high-school engineering education to avoid (disruptive) failures. In Proceedings of the International Conference of the Learning Sciences-ICLS 2023, International Society of the Learning Sciences [ISLS]. Montreal, QC, Canada.
- [S8] Long, D., Roberts, J., Magerko, B., Holstein, K., DiPaulo, D., Martin, F. (2023). *AI Literacy: Finding Common Threads between Education, Design, Policy, and Explainability*. Workshop presented at CHI 2023, Hanover, Germany.
- [S7] Mansi, G., Boone, A., Kim, S. & Roberts, J. (2022). Chameleon Clippers: A Tool for Developing Fine Motor Skills in Remote Education Settings. In Proceedings 2022 International Conference on Computer Supported Collaborative Learning (CSCL). Hiroshima, Japan and online.
- [S6] Mansi, G., MacIntyre, B., & **Roberts, J**. (2021). Embodiment and Social Interactions in a Class Virtual Reality Poster Session. Accepted in Proceedings of the 2021 International Conference on Computer-Supported Collaborative Learning. Bochem, Germany.
- [S5] Roberts, J., Crowley, K., & Louw, M. (2018). Creating a Visual Representation of Expert Strategies to Inform the Design of Digital Tools for Citizen Science. In Proceedings of the 2018 International Conference of the Learning Sciences. London, UK.
- [S4] Horn, M., **Roberts, J.**, Banerjee, A., & McGee, S. (2017). Touch | Don't Touch: Exploring the role of interactive displays in natural history museums to help visitors appreciate objects behind glass. In Proceedings of the 12<sup>th</sup> International Conference on Computer-Supported Collaborative Learning. Philadelphia, Pennsylvania, USA.
- [S3] Cafaro, F., Lyons, L., **Roberts, J.**, & Radinsky, J. (2014, June). The uncanny valley of embodied interaction design. In *Proceedings of the 2014 conference on Designing Interactive Systems* (pp. 1075-1078). ACM.
- [S2] **Roberts, J.**, Cafaro, C., Kang, R., Vogt, K., Lyons, L., & Radinsky, J. (2013). That's me and that's you: Museum visitors' perspective-taking around an embodied interaction data map display. In Proceedings of the 10th International Conference on Computer-Supported Collaborative Learning (pp. 343-344).
- [S1] **Roberts, J.**, Lyons, L., Radinsky, J., & Cafaro, F. (2012). Connecting Visitors to Exhibits through Design: Exploring United States census data with CoCensus. In Proceedings of the 2012 International Conference of the Learning Sciences.

# **REVIEWED CONFERENCE ABSTRACTS**

- [A15] Belghith, Y., Moore, R., Alemdar, M., Rosen, J., Riedl, M., and Roberts, J. (2023). Examining hard and soft skill prioritization in high-school engineering education. In Proceedings of the Annual Meeting of the American Educational Researchers Association. AERA 2023. Chicago, IL.
- [A14] Bower, A., J. Bellona, J. Roberts, L. Smith, 2022. Accessible Oceans: Exploring Ocean Data Through Sound (ED12A-03), presented at 2022 AGU Fall Meeting, 12-16 December, Chicago, IL.
- [A13] Henneman, L., Choirat, C., Dedoussi, I., Dominici, F., Roberts, J., Zigler, C. (2022) 22 Years of Coal Pollution and Premature Deaths in the Medicare Population. Presented at the 2022 AGU Fall Meeting, 12-16 December. Chicago, IL.
- [A12] **Roberts**, J., & Leinart, K. (2022) How Big was a Triceratops, Really? Using Augmented Reality to Support Collaborative Reasoning about Scale. In Tissenbaum et al. *Learning at the intersection of physical spaces and technology*. Symposium conducted at the 2022 International Conference on Computer Supported Collaborative Learning (CSCL). Hiroshima, Japan and online.
- [A11] Roberts, J. and Cafaro, F. (2021). Embodiment for Supporting Organic Human-Data Learning Interactions. In *Human-Data Interactions*. Workshop conducted at IEEE VIS'21 (online)
- [A10] Cui, C., Hill, J., Louw, M., and **Roberts, J**. (April 2021) Using Log Visualizations to Interpret Online Interactions during Self-Quizzing Practice for Taxonomic Identification. Poster presented at the 2021 American Educational Researchers Association annual meeting. Orlando, FL.
- [A9] Matuk, C., Yoon, S., Polman, J., Amato, A., Barton, J., Bulalacao, N. M., Cafaro, F., Haldar, L. C., Cottone, A., Cortes, K., DesPortes, K., Erickson, T., Finzer, W., Taylor, K. H., Herbel-Eisenmann, B., Graville, C., Gutiérrez, K., Higgins, T., Himes, B., Lanouette, K., Lee, H., Lim, V., Lopez, M. L., Lyons, L., Milz, D., Olivares, M. C., Osche, E., Parikh, T. S., Philip, T., Rubel, L., Shelley, J., Rivero, E., Roberts, J., Roberto, C., Petrosino, T., Rubin, A., Shim, J., Silander, M., Sommer, S., Stokes, D., Tes, M., Trajkova, M., Urbanowicz, R., Vacca, R., Van Wart, S., Vasudevan, V., Wilkerson, M., & Woods, P. J. (2020). Data Literacy for Social Justice. In Gresalfi, M. and Horn, I. S. (Eds.), The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020, Volume 1 (pp. 343-349). Nashville, Tennessee: International Society of the Learning Sciences.
- [A8] Sanford-Dolly, C., Louw, M., & **Roberts, J.** (2019). Impacts of an online macroinvertebrates observation and identification tool on volunteers' accuracy and confidence in water quality biomonitoring training. Presentation at the Citizen Science Association Conference, Raleigh, NC. March 2019.
- [A7] Jorion, N., **Roberts, J.**, Bowers, A., Tissenbaum, M., Lyons, L., Kumar, V., & Berland, M. (2018). Uncovering Patterns in Constructionist Collaborative Learning Activities via Cluster Analysis of Museum Exhibit Log Files. Paper presented at the annual meeting of the American Educational Researchers Association.
- [A6] **Roberts, J.,** Banerjee, A., Matcuk, M., McGee, S., & Horn, M. (2016). Uniting Big and Little Data to Understand Visitor Behavior. Poster presented at the annual meeting of the Visitor Studies Association, July 2016, Boston, MA.
- [A5] **Roberts, J.**, Lyons, L., Cafaro, F., & Eydt, R. (2015). Harnessing motion-sensing technologies to engage visitors with digital data. In Proceedings of the 19th annual Museums and the Web conference. Available online: <a href="http://mw2015.museumsandtheweb.com/proposal/harnessing-motion-sensing-technologies-to-engage-visitors-with-digital-data/">http://mw2015.museumsandtheweb.com/proposal/harnessing-motion-sensing-technologies-to-engage-visitors-with-digital-data/</a>
- [A4] Lyons, L., & Roberts, J. (2014). Scaffolding the collaborative interpretation of data in a museum exhibit. In Leilah Lyons (chair), Synergistic Scaffolding of Technologically-enhanced STEM Learning in Informal Institutions. Symposium conducted at the International Conference of the Learning Sciences.
- [A3] **Roberts, J.**, Lyons, L., & Radinsky, J. (2013) Become one with the data: Technological support of shared exploration of data in informal settings. In Anne Knowles (Chair), From Visualizing to Understanding Historical Change: Using GIS Tools on the Web, in Class, and in Museums. Paper session conducted at the meeting of the Social Science History Association.
- [A2] Roberts, J., Radinsky, J., Lyons, L., & Cafaro, F. (2012, April) Co-Census: Designing an interactive museum space to prompt negotiated narratives of ethnicity, community, and identity. In Josh Radinsky (Chair), Tools for Constructing Historical Narratives: Teaching African American and Latino Histories With GIS Census Maps. Symposium conducted at the meeting of the American Educational Research

- Association.
- [A1] Melendez, J., **Roberts, J.**, & Radinsky, J. (2010, November). GIS census data browsers: Tools for constructing social and historical narratives. In A. Beveridge (Chair), New Directions in Historical GIS(1): Substantive Findings and Web-Based Resources. Paper session conducted at the meeting of the Social Science History Association.

#### OTHER SCHOLARLY CONTRIBUTIONS

- [O2] Louw, M., Muenz, T., **Roberts, J.,** Wilson, M., and Kerlin, S. (2018). Aquatic Macroinvertebrate Identification Trainings for Volunteers: Results of a National Materials and Practices Inventory Survey. Technical report published through the Carnegie Mellon University School of Computer Science. Pittsburgh, PA USA. (CMU-HCII-18-104)
- [O1] **Roberts, J.,** Hall, A., & Goldman, S. (2017) Learning Sciences. In K. Peppler (Ed.), SAGE Encyclopedia of Out of School Learning.

## INVITED TALKS

- 2023 CNS Research Showcase, Indiana University
- 2022 IUPUI School of Informatics
- 2022 Georgia Tech Vertically Integrated Projects (VIP) team ECE
- 2021 Environmental Protection Agency OAP Brownbag series
- 2021 Georgia Tech (Architecture & Design)
- 2020 Indian Institute of Technology, Bombay
- 2019 University of Florida
- 2019 Georgia Tech
- 2019 Natural History Museum of Utah
- 2019 University of Utah
- 2018 University of Illinois at Urbana-Champaign.
- 2018 Alliance Best Paper Session, London Festival of Learning. London, UK.
- 2017 Carnegie Mellon University
- 2017 Miami University

# SELECTIVE COMPETITIONS AND INVITED WORKSHOPS

- 2021 Human-Data Interaction Workshop, IEEE VIS'21 (online)
- 2019 Future Digileaders, Stockholm, Sweden
- 2019 VisualISE Conference, Exploratorium, San Francisco, USA
- 2017 Early Career Workshop, International Conference of Computer Supported Collaborative Learning
- 2015 IGNITE Challenge, Hatfield Marine Science Center, Oregon State University
- 2015 Graduate Student Colloquium, Annual Conference of Museums and the Web
- 2015 Doctoral Consortium, International Conference of Tangible, Embedded, and Embodied Interaction
- 2013 Doctoral Consortium, International Conference of Computer Supported Collaborative Learning

#### **TEACHING**

2022-2023	Learning Research Design (graduate)	Georgia Tech
2020-2021	Educational Technology (undergraduate/graduate)	Georgia Tech
2018	Learning Media Methods (undergraduate, co-instructor)	Carnegie Mellon University
2017	Evaluating Institutions: Research and Evaluation Methods in	University of Illinois at Chicago
	Museums (graduate)	
2017	Human-Computer Interaction (undergraduate/graduate)	North Central College,
		Naperville, Illinois
2007-2009	Paralegal and attorney training for domestic violence pro	Latham & Watkins LLP
	bono clinic (professional)	

2005-2009	LSAT, GMAT, ACT Test preparation (high school and post-baccalaureate)	Kaplan Test Prep
2003-2006	Self-contained elementary school, 4 <sup>th</sup> , 7 <sup>th</sup> , and 8 <sup>th</sup> grades	Chicago Public Schools

#### ADDITIONAL ACADEMIC POSITIONS

Research Assistant 2009-2015

Learning Sciences Research Institute, University of Illinois at Chicago

Editorial Assistant 2012-2014

Journal of the Learning Sciences

# **PROFESSIONAL AFFILIATIONS**

Association of Computing Machinery (ACM)

ACM Special Interest Group on Computer-Human Interaction (SIGCHI)

International Society of the Learning Sciences (ISLS)

American Educational Researchers Association (AERA)

Visitor Studies Association (VSA)

#### SERVICE

Editorial Board: International Journal of Child-Computer Interaction [IJCCI] (2022-present)

Committees: CHI Subcommittee Associate Chair - Learning, Education and Families (2019, 2020, 2021);

Museums and the Web Local Committee (2015); Information+ Conference Program Committee (2020-21); CIRCLS Rapid Community Reports board (2021)

Reviewer: Tangible, Embedded, and Embodied Interaction (TEI); SIGCHI Conference on Human Factors in Computing Systems (CHI); International Conference of Computer Supported Collaborative Learning (CSCL); Interaction Design and Children (IDC), International Conference of the Learning Sciences (ICLS), National Science Foundation; Visitor Studies Association; International Journal of Child-Computer Interaction; Transactions on Human-Computer Interactions (TOCHI); Journal of Science Education and Technology (JOST); International Journal of Computer-Supported Collaborative Learning (ijCSCL)

Instructional Workshops: Introduction to RefWorks (Learning Sciences Student Association - LSSA), NVivo (LSSA), Scrivener Demonstration (Learning Sciences Research Institute (LSRI) Brown Bag), Training Course on Informal Research for Practitioners (New York Hall of Science Explainers)

Technology Demonstrations: Introduction to Museum Research (LSRI visiting high school students), CoCensus demo (NSF Assistant Director visit; UIC Board of Visitors)

# PHD ADVISING

Yixuan Li, HCC PhD graduate student, Georgia Tech (2023-2028\*)

Stella Quinto Lima, HCC PhD graduate student, Georgia Tech (2023-2028\*)

Huaigu Li, CS-HCI PhD graduate student, Georgia Tech (2022 – 2027\*)

Yasmine Belghith, HCC PhD graduate student, Georgia Tech (2021-2026\*)

Gennie Mansi, HCC PhD graduate student, Georgia Tech (2019-2022)

#### RESEARCH MENTORING

Anirudh Mukherjee, MS-CS, graduate research assistant, Georgia Tech (2022-23)

Haisley Kim, MS-HCI, independent research project, Georgia Tech (2023-)

Joy Ying, undergraduate research assistant, Georgia Tech (2023-)

Irene Ong, MS-HCI, independent research project, Georgia Tech (2023)

Calvin Mammen, MS-HCI, independent research project, Georgia Tech (2023)

Terri Hsieh, MS-HCI, independent research project, Georgia Tech (2023)

Rachel Lowy, HCC PhD, independent research project, Georgia Tech (2022-23)

Ashley Boone, HCC PhD, independent research project, Georgia Tech (2022-23)

Srijan Jhanwar, MS-HCI graduate research assistant, Georgia Tech (2021-2022)

Kyle Leinart, MS-HCI graduate research assistant, Georgia Tech (2021-2023)

Whitney Li, MS-HCI graduate student, Georgia Tech (2021)

Yujin Xui, MS-HCI graduate student, Georgia Tech (2021)

Ines Acosta, MS-HCI graduate student, Georgia Tech (2021-2022)

Sue Reon Kim, MS-HCI graduate research assistant, Georgia Tech (2020-2022)

Spencer Huang, undergraduate student researcher, Georgia Tech (2021)

Kehan Wang, undergraduate student researcher, Georgia Tech (2020)

Morgan Chin, MS-HCI graduate student researcher, Georgia Tech (2019-2021)

Alice Lee, MS-CS graduate research assistant, Georgia Tech (2019-2021)

Jordan Hill, MS-HCI graduate research assistant, Georgia Tech (2019-2020)

Stephanie Baione, MS-HCI graduate student researcher, Georgia Tech (2019-2021)

Yiming Lyu, MS-HCI graduate student researcher, Georgia Tech (2019-2021)

Aiqi Cui, undergraduate research assistant, Carnegie Mellon University (2018-2020)

Jamie Dorst, undergraduate research assistant, Carnegie Mellon University (2018-2019)

Jessy Ma, summer REU intern, Carnegie Mellon University (summer 2018)

Grace Guo, undergraduate research assistant, Carnegie Mellon University (2017-2018)

Annette Hong, undergraduate research assistant, Northwestern University (2017)

Eureka Foong, graduate research assistant, Northwestern University (2016-2017)

Tyler Lindow, graduate research assistant, Northwestern University (2016-2017)

Rebecca Eydt, research associate, New York Hall of Science (2013-2016)

Kristin Vogt, graduate research assistant, University of Illinois at Chicago (2012-2013)

# **COMMUNITY INVOLVEMENT**

Director of Student Relations and Outreach, Do the Write Thing Challenge Chicago, 2009-2017 Secretary, Gardens of Ravenswood Condominium Association, 2010-2013 Young Alumni President, Northwestern University Alumni Club of Chicago, 2007-2009

<sup>\*</sup> Expected graduation date