

Cameron Roberts

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I am a technologist and musician researching how the collision of music and computing can reimagine a learner's relationship with both domains and open new opportunities for creative self-expression.

Education

2023 – 2028 (anticipated) | Northwestern University

PhD in Computer Science and Learning Science, Cognitive Science Specialization

Advanced Cognitive Science Fellowship (2024)

Presidential Fellowship finalist (2026)

2021 – 2023 | Chicago College of Performing Arts, Roosevelt University

Masters of Music Performance

Dean's Award Scholarship (2021)

2016 – 2020 | Northwestern University

Bachelors of Music Performance and Computer Science

A. Brooke Overby Scholarship (2019)

Northwestern Alumni Association Club Scholarship (2018)

QuestBridge Scholar Network (2016)

Publications

Roberts, C. L., Fasiang, K., Boddie, K., & Horn, M. (2026). "Intervals All the Way Down: Computational Music Making for Learners with MusicLOGO 2.0." *Proceedings of the 25th Interaction Design and Children Conference (IDC '26)*, June 22–25, 2026, Brighton, United Kingdom. doi.org/10.1145/3773077.3813764

Roberts, C. L., Miller, C., & Horn, M. (2026). "MusicLOGO 2.0: A New Computational Representation for Music Learning." *Proceedings of the International Society of the Learning Sciences (ICLS'26)*.

Miller, C., **Roberts, C. L.**, & Horn, M. (2026) "Coding Music Together: How Elementary Computer Science Students Collaboratively Translate Musical Ideas into Code." *Proceedings of the American Educational Research Association (AERA) 2026 Annual Meeting*, Los Angeles, CA.

Roberts, C. L. & Horn, M. (2025). "Computational Thinking and Epistemic Heterogeneity: A Critical Review of Music+Coding." *ACM Transactions on Computing Education*, 25(4), 1-27. doi.org/10.1145/3749995

Roberts, C. L., Sherin, B., & Horn, M. (2025). "From Sound to Code: Creative Workflows and Problem-Solving in Music + Coding Tasks." *Proceedings of the International Society of the Learning Sciences (ICLS'25)*. doi.org/10.22318/icls2025.218112

West, M., Horn, M., **Roberts, C. L.**, & Ecford, O. (2025). "Observing Joy: An Observation Protocol to Assess Joyful Learning in STEAM Classrooms." *Proceedings of the American Educational Research Association (AERA) 2025 Annual Meeting*, Denver, CO.

Roberts, C. L. & Horn, M. (2024). "Computational Musicking: Music + Coding as a Hybrid Practice." *Behaviour & Information Technology*, 44(5), 993-1013. doi.org/10.1080/0144929X.2024.2402533

Roberts, C. L. & Horn, M. (2023). “When Literacies Collide: The Role of Translation in Music + Coding Activities.” *Proceedings of the 2023 Symposium on Learning, Design and Technology* (pp. 21-28). doi.org/10.1145/3594781.3594795

Horn, M., West, M., & **Roberts, C. L. (2022).** *Introduction to Digital Music with Python Programming: Learning Music with Code*. United States: Taylor & Francis.

Teaching Experience and Curriculum Development

2025 | Current Trends in Technology: Innovations Across Research, Policy, and Industry (graduate), Northwestern University

Curriculum Development, Instructor of Record

Co-developed and co-instructed a two-quarter capstone course for the Master’s in Technology, People, and Policy (MTePP) program, consisting of a seminar surveying emerging technology policy domains and the development of a capstone project in collaboration with nationally recognized placement organizations.

2024, 2026 | Intro to Design for the Learning Sciences (graduate and undergraduate), Northwestern University

Teaching Assistant

2024 | Intro to Computer Programming (undergraduate), Northwestern University

Curriculum Development

2023 – present | Evanston District 65

Curriculum Development, Teacher Support

Developed and supported implementation of a 12-week curriculum for over 500 fifth-grade students in Evanston School District 65.

2021 – 2022 | Coded Beats Afterschool Program

Curriculum Development, Teacher Support

Led team that developed a 10-week curriculum for afterschool music+coding clubs utilized by hundreds of Chicagoland middle and high school students.

2021 | Music and The Movement

Curriculum Development, Professional Development

Co-developed curriculum for teaching music and coding through drum circles and TunePad, in partnership with Evanston YMCA makerspace.

2020 – 2021 | Chicago Youth Centers, Teen Beat Making Club

Lead Instructor, Curriculum Development

Mentored youth and led weekly sessions teaching Python code and music theory, using EarSketch and TunePad, in partnership with Chicago Youth Centers.

Invited Talks and Presentations

- Dolby Future of Learning Summit (2025)
- TechTogether Hackathon, "Computational Creativity & Data Sonification" (2022)

Work Experience and Research

2023 – present | Software Developer, Hearing R&D, GN Group

Developed full-stack researcher-facing data collection platform for collecting real-time Ecological Momentary Assessment (EMA) data in order to support evaluation of hearing aids.

2020 – 2023 | Post-Bac Scholar, TIDAL Lab, Northwestern University

Software developer and researcher for TunePad, an NSF-funded project to teach Python coding and music production skills through a rich music+coding environment. Contributed key software features such as a community platform with social feed, sheet music generation tool, and chords module.

2019 | Power Systems R&D Intern, S&C Electric Company

Developed full-stack monitoring system for a hardware-in-the-loop testing bed of smart switches with a central server and React-based interface to visualize device state and overall power flow.

Professional Activities

Memberships

- Association for Computing Machinery (ACM)
- American Educational Research Association (AERA)
- International Society of the Learning Sciences (ISLS)

Ad Hoc Reviewer

- Computer Supported Collaborative Learning (CSCL)
- International Conference of the Learning Sciences (ICLS)
- ACM Conference on Human Factors in Computing Systems (CHI)
- ACM Conference on Designing Interactive Systems (DIS)
- Transactions on Computing Education (TOCE)
- International Journal of Child-Computer Interaction
- Nordic Research in Music Education
- Constructionism
- Routledge/Focal Press
- Sound Studies Review (SSR)

Departmental & University Service

2026 – present | Music & AI Undergraduate Certificate Steering Committee

Co-designed new interdisciplinary undergraduate certificate

2026 – present | Cog Sci Ambassador

Co-founder. Organized events bringing together interdisciplinary scholars in cognitive science

2025 – 2026 | AI & Future of Creativity Working Group, Center for Responsible Tech, Policy, and Public Dialogue

Organized cross-disciplinary event bringing together artists and scholars, with live musical performances

2025 – present | SESP Dean's Working Group

Organized monthly meetings with the Dean on student and departmental issues

2024 – present | LS Ph.D. Student Advisory Working Group

Co-founder. Collaborated with faculty on departmental initiatives, including milestone support, community-building and professional development events, and developing student governance structures

Projects

MusicLOGO 2.0 | [link](#) | designed and implemented music+coding programming environment built with ReactJS and Firebase

TunePad Community | [link](#) | designed and prototyped social platform for learners to share musical compositions; led team to expand functionality of platform

Music Blox | [demo](#) | designed and prototyped spatialized digital musical instrument installation built with Python and OpenCV

Accordia | [more](#) | designed, fabricated, and performed with digital musical instrument built with an Arduino and Max/MSP

algoRhythm | [more](#) | led team to develop automated rhythmic evaluation system with Python and Librosa

Selected Performances

()hole complex Album Release | International Museum of Surgical Science | Feb. 2024
Immersive experience at the edge of concert, installation, and meditation, with duo Garden Unit (saxophone/clarinet) and new electronic interventions performed live by the composer.

Frequency Series | Constellation Chicago | Mar. 2023
Premiered new works with Garden Unit by three of Chicago's leading emerging composers.

New Music Chicago Presents | Experimental Sound Studio | Sept. 2022
Featured artist with Garden Unit on monthly concert series curated by New Music Chicago.

Thirsty Ears Festival 2022 | Access Contemporary Music | Aug. 2022
Featured artist with Garden Unit, presenting program including world premiere of work by George Papajohn at Chicago's only classical music street festival.

North American Saxophone Alliance Biennial Conference | Corbett Auditorium, Cincinnati Conservatory | Mar. 2018
Featured performance at the North American Saxophone Alliance Biennial Conference with the Northwestern University Saxophone Ensemble, directed by Taimur Sullivan.

Technical Skills

Programming Languages: Python, JavaScript/TypeScript, Dart, C#, Swift, Lisp, HTML/CSS

Packages and Frameworks: Flask, Django, ReactJS, Firebase, Numpy/Scipy, OpenCV, SQLAlchemy

Other Tools: Git, Arduino, Max/MSP, Ableton