EUN JI OH

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RESEARCH SUMMARY

Second-year PhD student in Music Technology at Georgia Tech investigating how people share and communicate emotion through music, using behavioral and physiological methods (EEG, ECG, GSR). Design biofeedback and interbrain-synchrony systems linking music cognition to interactive entertainment technologies.

RESEARCH INTERESTS

Topics: how people share musical experiences with one another; audience-centered biofeedback systems for music; interbrain & interpersonal synchrony as markers of shared emotion

Methods: behavioral & physiological measures (ECG, EEG, GSR); statistical & computational analysis

EDUCATION

Georgia Institute of Technology Aug 2025 – Present
Ph.D. in Music Technology *Atlanta, GA, USA*

- PI: Dr. Claire Arthur (Computational and Cognitive Musicology Lab)

Korea Advanced Institute of Science and Technology (KAIST) Feb 2022 – Feb 2024
M.S. in Culture Technology *Daejeon, Republic of Korea*

- Thesis | *Shared empathic process in music and social contexts: Exploring empathic accuracy and physiological responses across modalities and valence*
- PI: Dr. Kyung Myun Lee (Music and Brain Lab)

Seoul National University Mar 2017 – Feb 2022
B.M. in Musicology (Minor in Psychology) *Seoul, Republic of Korea*

- Summa Cum Laude; GPA: 4.07/4.3

Seoul Arts High School Mar 2013 – Feb 2016
Major in Composition *Seoul, Republic of Korea*

PUBLICATIONS

Conference Proceedings (peer-reviewed)

Oh, E.J.*, Beck, J.W., and Smith, A. (2026). *The Singing Skin: An Audience-Centered Biofeedback System for Musical Interaction Based on Galvanic Skin Response.* Proceedings of the International Computer Music Conference (ICMC), Hamburg, Germany. (in press)

Oh, E.J., Kim, H., and Lee, K.M.* (2024). *Which audio features can predict the dynamic musical emotions of both composers and listeners?* Proceedings of the 25th International Society for Music Information Retrieval Conference (ISMIR), San Francisco, CA, USA and Online, November 10–14, 2024, pp. 352–359.

Journal Articles (peer-reviewed)

Oh, E.J., Park, J., Choi, Y., and Lee, K.M.* (2023). *Understanding musical flow during music listening based on empirical observations.* Music Theory Forum, 30(2), 101–140.

Oh, E.J., and Lee, K.M.* (2020). *Possibility of music training to promote Korean language development.* Journal of Music and Theory, 35(1), 79–107.

** Corresponding author*

CONFERENCE PRESENTATIONS

Oral Presentations

Oh, E.J., and Lee, K.M.* (2024, July). *Intermodal Analysis of Emotion Inference: Examining Shared Processes in Music and Social Contexts.* Conference of the Society for Music Perception and Cognition (SMPC), Banff, AB.

Poster Presentations

Oh, E.J.*, & Arthur, C. (2026, September). *Understanding how people share musical experiences.* MUSICONNEX Conference, Jyväskylä. (forthcoming)

Oh, E.J.*, & Arthur, C. (2026, July). *Exploring the Behavior of Sharing Musical Experiences with Others.* Conference of the Society for Music Perception and Cognition (SMPC), Evanston, IL. (forthcoming)

Oh, E.J., and Lee, K.M.* (2024, March). *Emotion inference during music and social situations through empathic accuracy.* 67th Conference of the Korean Society for Music Perception and Cognition (KSMPC), Seoul.

Oh, E.J., and Lee, K.M.* (2023, August). *Musical pleasure revealed by electroencephalography theta oscillations: A systematic review.* 17th International Conference on Music Perception and Cognition (ICMPC), Tokyo.

Oh, E.J., Kim, Y., and Lee, K.M.* (2023, August). *Effect of online music class on linguistic, cognitive, and musical abilities in Korean preschool children: A pilot study.* 17th International Conference on Music Perception and Cognition (ICMPC), Tokyo.

Refereed Presentations

Kim, H., **Oh, E.J.**, Park, J., Chung, Y., Nam, J., and Lee, K.M.* (2023, August). *A Comparison of Melody Interpolation Performed by Human and Artificial Intelligence Based on Human Similarity Judgments.* 17th International Conference on Music Perception and Cognition (ICMPC), Tokyo.

TEACHING EXPERIENCE

Teaching Assistant, KAIST Graduate School of Culture Technology, Daejeon, Republic of Korea

- [KAIST HSS322] **Understanding Music and the Brain**, Prof. Kyung Myun Lee *Fall 2023*
- [KAIST GCT536] **Cognitive Science of Music**, Prof. Kyung Myun Lee *Spring 2023*
- [KAIST GCT565] **Augmented Humans**, Prof. Sang Ho Yoon *Fall 2022*
- [KAIST HSS186] **Understanding Music and Music History**, Prof. Kyung Myun Lee *Spring 2022*

RESEARCH EXPERIENCE

Georgia Tech, School of Music Aug 2025 – Present
Graduate Research Assistant, Computational and Cognitive Musicology Lab *Atlanta, GA, USA*

KAIST, Center for Digital Humanities and Computational Social Sciences May 2024 – May 2025
Research Associate, Music and Brain Lab *Daejeon, Republic of Korea*

KAIST, Graduate School of Culture Technology Feb 2022 – Feb 2024
Graduate Research Assistant, Music and Brain Lab *Daejeon, Republic of Korea*

KAIST Jan 2021 – Feb 2022
Student Intern, Music and Brain Lab *Daejeon, Republic of Korea*

Seoul National University Jan 2019 – Feb 2019
Student Intern, Music and Audio Research Group (MARG) *Seoul, Republic of Korea*

PROJECTS

[Doctoral Project] Sharing Inner Experiences Evoked by Music Aug 2025 – Present

- Investigating how and why people share inner experiences evoked by music (emotions, thoughts, memories) — distinct from sharing music itself — and the musical, emotional, and social factors that drive it.

Work-in-progress; to be presented at SMPC and MUSICONNEX 2026.

[Biofeedback Music] Audience-centered biofeedback system for music performance Nov 2025 – Present

- Designed and built a GSR-based biofeedback system that translates audience physiological responses into real-time musical interaction; performed in a live concert (May 2026).

Work-in-progress; funded by the GTCMT Seed Grant; published at ICMC 2026; manuscript in preparation.

[Music Description] LLM-generated music descriptions in everyday life Jan 2026 – Present

- Leading the human-study component of a collaborative project, investigating how people use LLM-generated music descriptions for various purposes through an online survey.

[Music Pleasure] Neural indicator of shared musical pleasure Mar 2024 – Nov 2025

- Analyzed EEG interbrain-synchrony (theta coherence) to identify neural markers of shared musical emotion, focusing on valence processing among listeners.

Manuscript in preparation.

[X-Space] Live lab performance with Daejeon Arts Center Jun 2024 – Sep 2024

- Designed a real-time EEG interbrain-synchrony system (phase locking value) and deployed it as a working prototype for performer interaction in a live performance.

- Directed the performance and facilitated collaboration among lab members, visual production, performers, and Daejeon Arts Center, translating complex scientific concepts for a broad audience.

[Master's Thesis] Empathic accuracy between music and socio-emotional situations Mar 2023 – Jan 2024

- Investigated real-time emotion inference across contexts (music, social) and modalities using ECG, continuous ratings, and linear mixed-effects models; found a music–social link specific to anger–audiovisual stimuli, with RMS as a key acoustic predictor.

[Musical Flow] Electrophysiological index of musical flow during music listening Feb 2023 – May 2024

- Developed a behavioral scale via exploratory factor analysis and assisted EEG experiments to quantify musical flow during listening.

[Music and AI] Evaluation of AI-generated music based on human music cognition Mar 2022 – Dec 2023

- Prepared classical-music stimuli for an AI music-continuation task and assisted in designing and running an online listening experiment evaluating AI-generated music.

[Music Preference] Neural index of music preference Mar 2022 – Dec 2022

- Assisted EEG experiments (wet electrodes) and prepared music stimuli to investigate neural indicators of musical preference.

[Music and Language] Online music training for preschoolers to develop linguistic abilities Jan 2021 – Feb 2022

- Ran an online music-training program for 7-year-olds and assessed pre/post language and cognitive abilities, observing overall language improvement.

HONORS AND AWARDS

2026 INNS Arts Achievement Award ($500) Apr 2026
Georgia Tech Institute for Neuroscience, Neurotechnology, and Society (INNS)

GTCMT Seed Grant ($2,000) Jan 2026
Georgia Tech Center for Music Technology (GTCMT)

Grant for In-Person Registration ($650) Nov 2024
International Society for Music Information Retrieval (ISMIR), 25th ISMIR Conference

Best Poster Award (1st) Mar 2024
Korean Society for Music Perception and Cognition (KSMPC), 67th KSMPC Conference

Summa Cum Laude Feb 2022
Seoul National University — Honors Degree

Additional scholarships: KAIST National Support & Master's Scholarships (₩41.6M, 2022–2023); Seoul National University Work-Study & Merit Scholarships (2019); Seongnam City Foundation Scholarship (2017).

SERVICE

Peer Review

Reviewer, International Society for Music Information Retrieval Conference (ISMIR) *2025, 2026*
Reviewer, Korean Society for Music Informatics (KSMI) *2026*

Academic & Community Service

Student Secretary, Korean Society for Music Perception and Cognition (KSMPC) *Mar 2022 – Feb 2024*
Peer Counselor, Hug Program, KAIST *Mar 2023 – Feb 2024*
Program Assistant, Da Vinci Point Program (encouraging KAIST members to attend art events), KAIST *Fall 2022*

MUSICAL ACTIVITIES

Freelance Screen Operator (Seoul Arts Center, Gangnam Symphony Orchestra, and Sumi Jo Concert) *2020 – 2023*
Freelance Score Reader (Seoul Arts Center) *2020*
Project Team Jeje Musical *The Last Five Years* — Music Assistant Director and Piano Performer *2018*

SKILLS

Programming & Analysis: Python, R, MATLAB — biosignal processing, statistical analysis, experiment scripting
Physiological & EEG Methods: EEG (BrainVision, Neuroscan CURRY 8, Emotiv), GSR/ECG (Shimmer), PsychoPy
Music & Audio: Logic Pro, Finale, Audacity