# Jamal Anton Williams

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## Employment

**Northeastern University**
August 2027
Assistant Professor in Music, AI and Brain Health
Departments of Music and Psychology
Institute for Cognitive and Brain Health

## Education & Training

**Massachusetts Institute of Technology**
2023 - Current
Postdoctoral Fellow
Mentor: Josh McDermott, PhD

**Princeton University**
2015 - 2023
PhD in Neuroscience
Primary Advisor: Kenneth Norman, PhD
Secondary Advisor: Uri Hasson, PhD
Tertiary Advisor: Elizabeth Margulis, PhD
Thesis: *Investigating the Role of Music in Event Cognition*

**Princeton University**
2013 - 2015
Research Assistant
Mentor: Kenneth Norman, PhD

**University of Memphis**
2012 - 2013
Graduate Research Assistant
Department of Psychology
Advisor: Xiangen Hu, PhD

**University of Memphis**
B.A. in Psychology, 2011
Advisor: Xiangen Hu, PhD
Thesis: *Exploring the effectiveness of a feedback mechanism within an intelligent tutoring system*

## Publications

Jalon, I., **Williams, J. A.**, Christianson, K. E., Turnbull, C., Simmons, G. B., Hasson, U., & Margulis, E. H. (2026). Music evokes shared neural representations of imagined narratives across sensory modalities. *Nature Communications*, 17, 8008. https://doi.org/10.1038/s41467-026-76452-0

**Williams, J. A**., Margulis, E. H., Baldassano, C., Hasson, U., Chen, J., & Norman, K. A. (2025; under revision at *Nature Communications*). Music-evoked reactivation during continuous perception is associated with enhanced subsequent recall of naturalistic events. *bioRxiv*. https://doi.org/10.1101/2025.07.05.663273

**Williams, J. A.**, Iordan, C. R., Cassano-Coleman, R. Y., & Piazza, E. A. (2026). Hierarchical neural integration of musical structure during expert performance. *bioRxiv*. https://doi.org/10.64898/2026.07.20.738980

**Williams, J.A**., Margulis, E.H., Nastase, S.A., Chen, J., Hasson, U., Norman, K.A., and Baldassano, C. (2022). High-Order Areas and Auditory Cortex Both Represent the High-Level Event Structure of Music. *Journal of Cognitive Neuroscience*, 34(4), 699-714. DOI: 10.1162/jocn_a_01815. PMC9169871

Margulis, E.H., **Williams, J.**, Simchy-Gross, R., and McAuley, J.D. (2022). "When Did That Happen? The Dynamic Unfolding of Perceived Musical Narrative." *Cognition* 226: 105180.

Margulis E.H., Miller, N., Mitchell, N., Windholz, M., **Williams, J.**, and McAuley, J.D. (2022). Intersubjectivity and shared dynamic structure in narrative imaginings to music. *Music Theory Online*. 2022; 28: 4

Kumar, M., Anderson, M. J., Antony, J. W., Baldassano, C., Brooks, P. P., Cai, M. B., … **Williams J**., … et al. (2022). BrainIAK: The brain imaging analysis kit. *Aperture Neuro*, 1. https://doi.org/10.52294/31bb5b68-2184-411b-8c00-a1dacb61e1da

Piazza, E., Cassano, R., Iordan, M.C., **Williams, J.**, Izen, S., and Hasson, H. (2021). "A Naturalistic Approach to Studying Temporal Processing during Music Performance." *The Journal of the Acoustical Society of America* 150 (4): A65–A65.

Manning, J.R., Hulbert, J.C., **Williams, J.**, Piloto, L., Sahakyan, L., and Norman, K.A. (2016). "A Neural Signature of Contextually Mediated Intentional Forgetting." *Psychonomic Bulletin & Review* 23 (5): 1534–42. PMC5050245

Pavlik, P., Hua, H., **Williams, J.**, & Bidelman, G. M. (2013). Modeling the effect of spacing on musical interval training. Proceedings of 6th International *Conference on Educational Data Mining*, Memphis, TN, July 6–9, 2013.

## Book Chapters

**Williams, J.A.** & Sachs, M. (2023) The Science-Music Borderlands: Reckoning with the Past and Imagining the Future: Combating reductionism in music neuroscience with ecologically-valid paradigms: What can (and cannot) be gained? (Margulis, E.H., Loui, P., and Loughridge, D). Cambridge, MA: The MIT Press.

Arzi, A., Banerjee, S., Cox, J.C., ... **Williams, J.A.**, ... Wood, S. (2014). The significance of cognitive neuroscience: Findings, applications, and challenges. In M.S. Gazzaniga (Ed.), The Cognitive Neurosciences (5th ed.). Cambridge, MA: The MIT Press.

## Invited Talks

**Williams, J.A.** (2026) New Neural and Computational Approaches to Understanding Event Processing in Music. Talk presented at University of Tilberg, Department of Computational Cognitive Science Group Meeting.

**Williams, J.A.** (2026) What's the Score: Music-evoked memory reactivation is linked to improved next-day recall. Talk presented at University of Groningen, Behavioural and Cognitive Neurosciences Colloquium.

**Williams, J.A.** (2025) AI-Inspired Models of Musical Expectations. Talk presented at the McGovern Institute Leadership Board Meeting, Cambridge, MA.

**Williams, J.A.**, Chen, J., Margulis, E.H., Baldassano, C., Hasson, U., & Norman, K.A. (2024) Evidence for music-evoked reactivation of naturalistic events. Talk presented at Society for Neuroscience, Chicago, IL.

**Williams, J.A.** (2024) Investigating the Role of Music in Event Cognition. Talk presented at Association for Psychological Science, San Francisco, CA.

**Williams, J.A.** (2023) Investigating the Role of Music in Event Cognition. Talk presented at UMass Amherst's Cognitive Science Fall Colloquium, Amherst, MA.

**Williams, J.A.** (2023) Investigating the Role of Music in Event Cognition. Talk presented at Yale University's Current Works in Neuroscience, Genetics, and Behavior 2023, New Haven, CT.

**Williams, J.A.** (2022) High-order areas and auditory cortex both represent the high-level event structure of music. Talk presented at Mathematics in Neuroscience, Crete, Greece.

**Williams, J.A.** (2022) High-order areas and auditory cortex both represent the high-level event structure of music. Talk presented at International Musicological Society, Athens, Greece.

Baldassano, C. & **Williams, J.A.** (2021) Using a Hidden Markov Model (HMM) to find temporal structure in continuous naturalistic data. Tutorial presented at NIMH Dynamic and Interactive Data Visualization Workshop on Zoom.

**Williams, J.A.** (2021) Neural mechanisms underlying event cognition and episodic memory for real-world music. Talk presented at Johns Hopkins Early Career Colloquium, Baltimore, MD.

**Williams, J.A.** (2021) Neural mechanisms underlying event cognition and episodic memory for real-world music. Talk presented at Dartmouth's Innovators in Cognitive Neuroscience Seminar. Talk presented on Zoom.

**Williams, J.A.** (2021) The Role of Music in High-Level Cognition. Talk presented at Society for Black Brain and Behavioral Scientists. Talk presented on Zoom.

**Williams, J.A.**, Margulis, E.H., Chen, J., Hasson, U., Norman, K.A., and Baldassano, C. (2020) Higher-order areas represent high-level event structure of music. Talk presented at Cognitive Neuroscience Society's Black in Neuro Mini-Conference. Talk presented on Zoom.

**Williams, J.A.** (2018) Exploring Event Structure in Music Perception. Talk presented at the Manhattan Area Memory Meeting, New York City, NY.

**Williams, J.A.** (2018) Exploring Event Structure in Music Perception. Talk presented at the Context and Episodic Memory Symposium, Philadelphia, PA.

## Poster Presentations

**Williams, J. A.**, Vaziri, P., Wu, S.-L., McWalter, R., Huang, A., & McDermott, J. (2026). Understanding human music perception using generative AI. Poster presented at the Society for Music Perception and Cognition (SMPC) Biennial Conference, Evanston, IL.

**Williams, J.A.,** Chen, J., Margulis, E.H., Baldassano, C., Hasson, U., & Norman, K.A. (2024) What's the Score: Music-evoked reactivation of naturalistic events. Poster presented at MIT Brain and Cognitive Sciences First-Year Postdoc Poster Session, Cambridge, MA.

**Williams, J.A.**, Baldassano, C., Margulis, E.H., Kempner, R., Hasson, U., Norman, K.A., and Chen, J. (2022) What's the Score: Music-evoked reactivation of naturalistic events. Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.

**Williams, J.A.**, Baldassano, C., Chen, J., Hasson, U., and Norman, K.A. (2018) Neural Representations of Music in Higher-order Cortical Regions. Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.

**Williams, J.A.**, Baldassano, C., Chen, J., Hasson, U., and Norman, K.A. (2017) Neural Representations of Musical Contexts in High-Level Cortical Regions. Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.

**Williams, J.A.**, Baldassano, C., Chen, J., Hasson, U., and Norman, K.A. (2017) Temporal and Neural Dynamics of Musical Contexts. Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.

**Williams, J. A.**, Momennejad, I., Cohen, J. D., Norman, K. A. (2015) Taking the same pill twice: the role of context reinstatement in commission errors. Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.

Norman, K. A., Manning, J. R., Hulbert, J.C., **Williams, J. A.**, Piloto, L., Abushanab, B., Sahakyan, L. (2014) Neural evidence for a context-change account of list-method directed forgetting. Poster presented at the Society for Neuroscience Annual Meeting, Washington D.C.

**Williams, J.**, Hu, X. (2012) Exploring the effectiveness of a feedback mechanism within an intelligent tutoring system. Poster presented at Society for Computers in Psychology, Minneapolis, MN.

**Williams, J.**, Hu, X., and Craig, S. (2011). Learning with ALEKS: The impact of after-school mathematics tutoring with an intelligent tutoring system. Poster was presented at Works in Progress Symposium, Memphis, TN.

**Williams, J.**, Okwumubua, T., Craig, S., and Hu, X. (2010). Motivation and learning with ALEKS, an intelligent tutoring system. Poster was presented at the Mid-South Psychology Conference, Memphis, TN.

Han, L., Craig, S., **Williams, J.**, Hu, X. (2009). Implementing AutoTutor Lite in learning environments. Poster was presented at Society for Computers in Psychology, Boston, MA.

## Teaching

Spring 2026: Behavioural and Cognitive Neurosciences Master Class, Groningen University

Fall 2025: Guest lecture for PSY 306 on music and memory, Princeton University

Spring 2024: Guest lecture for PSY 306 on music and memory, Princeton University

Spring 2020: Teaching assistant for NEU 350 Laboratory in Principles of Neuroscience, Princeton University

Spring 2018: Teaching assistant for NEU 350 Laboratory in Principles of Neuroscience, Princeton University

Spring 2017: Teaching assistant for NEU202/PSY259 Introduction to Cognitive Neuroscience, Princeton University

Fall 2016: Teaching assistant for NEU201/ PSY258 Fundamentals of Neuroscience, Princeton University

## Awards & Honors

MIT Generative AI Impact Consortium Grant Award, 2025-2026

NIH DSPAN Fellow F99/K00, 2020-2027

Presidential Fellow at Princeton University, 2015

Summer Institute in Cognitive Neuroscience Fellow, Squaw Valley, 2013

Summer Institute in Cognitive Neuroscience Fellow, Santa Barbara, 2012

## Outreach

Using Generative Models to Understand Human Music Perception. Talk presented to MIT postdocs for a BCS department tour (2025), Cambridge, MA.

Making Music with AI. Talk presented at Cambridge Science Festival (2024), Cambridge, MA.

Research discussion for MIT McGovern Institute Tour for MGH High School Interns (2024), Cambridge, MA.

Talk presented at MIT Museum for Brain Awareness Week (2024), Cambridge, MA.

Talk and demo presented to high-school students at the Princeton Neuroscience Network Brain Awareness Fair (2018), Princeton, NJ.

## Reviewing

Ad hoc reviewer for:

*Neuropsychologia*
*Network Neuroscience*
*Psychological Science*
*Scientific Reports*
*Annals of the New York Academy of Sciences*
*PNAS*
*Assessment*
*Memory and Cognition*
*Journal of Experimental Psychology*

## Skills

Programming languages: Python, MATLAB, Bash

Platforms: Macintosh, Windows, Unix (Linux, Ubuntu)

Neuroscience: fMRI, EEG, Computational Modeling

Languages: English