



Exponent®
Engineering & Scientific Consulting

Nate Gillespie, M.A.

Scientist | Human Factors

Natick

+1-508-652-8535 | ngillespie@exponent.com

Professional Profile

Mr. Nate Gillespie is a cognitive scientist in Exponent's Human Factors practice who applies his expertise in memory, visual and auditory perception, attention, decision-making, and computational modeling to evaluate human behavior in accidents, transportation safety, consumer product use, warnings and instructions, and complex information processing.

Mr. Gillespie has specific expertise in how people perceive, encode, represent, and retrieve complex information, particularly in the auditory domain. He has 10 years of experience designing human-subjects research, developing natural language processing and computational modeling methods, and investigating the measurement of human memory and performance. He has presented his research at more than 30 scientific conferences and has published peer-reviewed articles in leading memory and auditory cognition journals. Mr. Gillespie processes and statistically analyzes large qualitative and quantitative data sets using methods including regression modeling, principal components analysis, structural equation modeling, probabilistic topic modeling, and cognitive modeling.

Mr. Gillespie recently defended his Ph.D. in Cognitive Psychology at the University at Albany, State University of New York (SUNY), with an anticipated conferral date in December 2026. His doctoral research focused on improving the measurement of memory for complex auditory information. Important problems addressed by his work include clarifying the role of sound texture in auditory recognition; characterizing individual differences in auditory perception; and understanding connections between the visual and auditory memory systems. During his Ph.D., Mr. Gillespie served as a National Defense Science and Engineering Graduate Fellow (NDSEG) with the United States Department of Defense (DoD) and taught and mentored graduate and undergraduate students in statistical methods, research design, and cognition.

Academic Credentials & Professional Honors

M.A., Psychology, State University of New York, Albany, 2024

B.S., Psychology & Music, Union College, 2020

National Defense Science and Engineering Graduate Fellowship (NDSEG), The United States Department of Defense (DoD), 2023-2026

Graduate Travel Award, The Psychonomic Society, 2025

SUNY Graduate Research Empowering and Accelerating Talent (GREAT) Award, SUNY Office of Research and Economic Development, 2024

Diversity Travel Award, The Auditory Perception & Cognition Society, 2022

Academic Appointments

Adjunct Instructor, Department of Psychology, Union College, 2025

Instructor, Department of Psychology, University at Albany, State University of New York (SUNY), 2023-2025

Prior Experience

Lab Manager, The Laboratory for Integrative Neuro-Cognitive Dynamics, University at Albany, State University of New York, Albany, NY, 2021-2025

Repperger Research Intern, The Air Force Research Laboratory (AFRL), Dayton, OH, 2022

Music Teaching Fellow, Culver Academies, Culver, IN, 2020-2021

Professional Affiliations

Human Factors and Ergonomics Society

The Auditory Perception and Cognition Society (APCS) — Social Media Officer

The American Psychological Association (APA)

The New England Psychological Association

The Psychonomic Society

The Society for Mathematical Psychology

The Society for Personality and Social Psychology

Publications

Gillespie NF, Cox GE. [Relating perception and memory for a novel set of reconfigurable auditory stimuli: a noisy exemplar approach](#). Journal of Experimental Psychology: Learning, Memory, and Cognition 2026; 52(8):1277–1302.

Kowalewski DA, Friedman RS, Gillespie NF. [Expectancy-value effects of self-perceived musical ability and musical contingent self-worth on tonal working memory](#). Music Perception 2026; 1–14.

Gillespie NF, Cox GE. [Natural language processing of auditory perceptual experiences: A content-analytic approach](#). Auditory Perception & Cognition 2024; 7(4):245–264.

Mobley FS, Bowers G, Fox E, Ugolini M, Gillespie NF. [Modeling aircraft similarity with musical auditory feature extraction](#). Applied Acoustics 2023; 214:109689.

Presentations

Gillespie NF. Methodological idiosyncrasies in content analysis: a measurement perspective. Oral Presentation, Annual Meeting of the Society for Mathematical Psychology, Montreal, Canada, 2026.

Gillespie NF, Hart J, Cox GE. Individual differences in mortality salience: an agent-based modeling approach. Poster Presentation, 24th International Conference on Cognitive Modeling, Montreal, Canada, 2026.

Gillespie NF, Cox GE. Perception and memory for novel auditory stimuli: similarity, serial position, and list homogeneity. Poster Presentation, 22nd Annual Context and Episodic Memory Symposium, Philadelphia, PA, 2026.

Gillespie NF. How do we deny death? Computational modeling of individual differences in death beliefs and their role in mortality salience. Invited Talk, Concepts & Cognition Lab, Princeton University, Princeton, NJ, 2026.

Gillespie NF, Hart J, Cox GE. Individual differences in mortality salience: an agent-based modeling approach. Poster Presentation, Society for Personality and Social Psychology Annual Meeting and Existential Psychology Preconference, Chicago, IL, 2026.

Gillespie NF, Cox GE. Computational cognitive modeling of individual differences in auditory recognition. Oral Presentation, 24th Annual Auditory Perception, Cognition, and Action Meeting, Denver, CO, 2025.

Gillespie NF, Cox GE. Perception and memory for novel auditory stimuli: similarity, serial position, and list homogeneity. Poster Presentation, 66th Annual Meeting of the Psychonomic Society, Denver, CO, 2025.

Gillespie NF, Kowalewski DA. De-mystifying the black box: connecting classic psychology research to common instructor and student uses of AI in the college classroom. Participant Idea Exchange, 30th Annual Meeting of the Northeast Conference for Teachers of Psychology, Newton, MA, 2025.

Gillespie NF, Cox GE, Patino J. Motivation and perception in auditory and verbal recognition memory. Poster Presentation, 65th Annual Meeting of the New England Psychological Association, Newton, MA, 2025.

Gillespie NF, Cox GE. Perception and memory for novel auditory stimuli: similarity, serial position, and list homogeneity. Oral Presentation, Annual Meeting of the Society for Mathematical Psychology, Columbus, OH, 2025.

Gillespie NF, Cox GE. Strategies for fitting response time data in psychoacoustic experiments: Insights from a noisy exemplar approach. Poster Presentation, 23rd Annual Auditory Perception, Cognition, and Action Meeting, New York, NY, 2024.

Gillespie NF, Cox GE. Investigating the role of individual differences in recognition memory. Poster Presentation, 65th Annual Meeting of the Psychonomic Society, New York, NY, 2024.

Cox GE, Samaroo S, Gillespie NF. Integration of information across separate events. Poster Presentation, 65th Annual Meeting of the Psychonomic Society, New York, NY, 2024.

Gillespie NF, Lindsay S, Cox GE. Investigating the role of attentional biases in body image disorder etiology: a multidimensional scaling approach. Poster Presentation, 64th Annual Meeting of the New England Psychological Association, Springfield, MA, 2024.

Samaroo S, Gillespie NF, Johnson PC, Cox GE. Integrating memory across experiences. Poster Presentation, 64th Annual Meeting of the New England Psychological Association, Springfield, MA, 2024.

Gillespie NF, Cox GE. Using natural language processing to understand individual differences: integrating quantitative and qualitative approaches to memory and perception. Data Blitz Presentation, 21st Annual Context and Episodic Memory Symposium, Philadelphia, PA, 2024.

Gillespie NF. Natural language processing of auditory perceptual experiences: a content-analytic approach. Invited Talk, PULSE Lab, University at Albany, State University of New York, Albany, NY, 2024.

Gillespie NF, Hart J, Cox GE. What do people talk about when they talk about death? Topics in mortality salience. Poster Presentation, Society for Personality and Social Psychology Annual Meeting and Existential Psychology Preconference, San Diego, CA, 2024.

Gillespie NF, Hart J, Cox GE. What do people talk about when they talk about death? Topics in mortality salience. Poster Presentation, 63rd Annual Meeting of the New England Psychological Association, Worcester, MA, 2023.

Gillespie NF, Cox GE. Natural language processing of auditory perceptual experiences: a content-analytic approach. Oral Presentation, 22nd Annual Auditory Perception, Cognition, and Action Meeting, San Francisco, CA, 2023.

Gillespie NF, Cox GE. Relating perception and memory for a novel set of reconfigurable auditory stimuli: a noisy exemplar approach. Poster Presentation, 20th Annual Context and Episodic Memory Symposium, Orlando, FL, 2023.

Gillespie NF, Cox GE. Relating perception and memory for a novel set of reconfigurable auditory stimuli: a noisy exemplar approach. Poster Presentation, 64th Annual Meeting of the Psychonomic Society, San Francisco, CA, 2023.

Cox GE, Samaroo S, Gillespie NF. Integration of information across separate traces in memory. Poster Presentation, 64th Annual Meeting of the Psychonomic Society, San Francisco, CA, 2023.

Drake J, Gillespie NF, Cox GE. An exploratory study on the link between reasoning and depression. Poster Presentation, 63rd Annual Meeting of the New England Psychological Association, Worcester, MA, 2023.

Gillespie NF, Cox GE. Relating perception and memory for a novel set of reconfigurable auditory stimuli: a noisy exemplar approach. Oral Presentation, Annual Meeting of the Society for Mathematical Psychology, Amsterdam, The Netherlands (virtual presentation), 2023.

Gillespie NF, Cox GE. Perceived similarity and recognition memory for a set of novel auditory stimuli. Oral Presentation, 21st Annual Auditory Perception, Cognition, and Action Meeting, Boston, MA, 2022.

Gillespie NF, Cox GE. A scaling study of novel auditory stimuli for creating artificial events. Oral Presentation, Annual Meeting of the Society for Mathematical Psychology, Virtual, 2022.

Larson KG, Vitiello C, Gillespie NF. Building cognitive security in the information environment. Poster Presentation, Air Force Research Laboratory Reppeger Intern Summer Research Summit, Virtual, 2022.

Gillespie NF, Cox GE. A scaling study of novel auditory stimuli for creating artificial events. Poster Presentation, Annual Meeting of the Society for Mathematical Psychology, Toronto, Canada, 2022.

Gillespie NF, Hart J. "Through my anatomy, dwells another being": an exploratory study on how personality traits and psychological defense needs generate preference for death metal music. Poster Presentation, Society for Personality and Social Psychology Annual Meeting, Virtual, 2021.

Gillespie NF, Hart J. "Through my anatomy, dwells another being": an exploratory study on how personality traits and psychological defense needs generate preference for death metal music. Poster Presentation, Society of Southeastern Social Psychologists Annual Meeting, Virtual, 2020.

Research Grants

Science, Mathematics, and Research for Transformation (SMART) Scholarship, The United States Department of Defense (DoD), 2026 (declined).

Graduate Student Association Research and Professional Development Grants, University at Albany, State University of New York, 2021-2025, \$2,091.

National Defense Science and Engineering Graduate Fellowship (NDSEG), The United States Department of Defense (DoD), 2023–2026, \$140,900.

Peer Reviews

Auditory Perception & Cognition, The International Journal of Audiology, Musicae Scientiae, and Personality and Individual Differences.