

HANNAH M. MERSEAL

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ORCID: 0000-0002-5704-6304

EDUCATION

Ph.D. in Cognitive Psychology, 2024 (in progress)

PENNSYLVANIA STATE UNIVERSITY, University Park, PA

Advisor: Dr. Roger Beaty

Specialization in Cognitive and Affective Neuroscience

Dissertation (in progress): Examining the expertise-dependent role of left IFG in incremental planning during musical improvisation using fNIRS/tDCS.

M.S. in Cognitive Psychology, 2021

PENNSYLVANIA STATE UNIVERSITY, University Park, PA

Advisor: Dr. Roger Beaty

Thesis: Assessing temporal constraints on sequence ordering in music improvisation.

B.A. in Music & Psychology, 2019

WHEATON COLLEGE, Norton, MA

Departmental Honors in Music

Thesis: *Be Still in Haste* for the Great Woods Symphony Orchestra**PUBLICATIONS**

Patterson, J. D., **Merseal, H. M.**, Agnoli, S., Benedek, M., Chen, Q., Corazza, G. E., Forthmann, B., Karwowski, M., Kenett, Y. N., Miroshnik, K., Ovando-Tellez, M., Puente, R., Said-Metwaly, S., Volle, E., van Hell, J. G., & Beaty, R. E. (Under review). Automated creativity assessment around the world: Validating semantic distance across multiple languages.

Beaty, R. E., Cortes, R. A., **Merseal, H. M.**, Hardiman, M. M., & Green, A. E. (Under review). Brain networks for scientific creative thinking: Functional connectivity associated with the generation of original hypotheses.

Merseal, H. M., Frieler, K., Weiss, D. J., & Beaty, R. E. (Under review). Temporal constraints on melodic sequencing in jazz improvisation.

Beaty, R. E., **Merseal, H. M.**, & Zeitlen, D. C. (2023, in press). Network neuroscience of domain-general and domain-specific creativity. In L. J. Ball & F. Vallée-Tourangeau (Eds.), *Routledge International Handbook of Creative Cognition*. Taylor & Francis.

- Merseal, H. M.**, Luchini, S., Kenett, Y. N., Knudsen, K., Bilder, R. M., & Beaty, R. E. (2023, in press). Free association ability distinguishes highly creative artists from scientists: Findings from the Big C Project. *Psychology of Aesthetics, Creativity, and the Arts*.
- Merseal, H. M.**, Beaty, R. E., Kenett, Y. N., Lloyd-Cox, J., de Manzano, Ö, & Norgaard, M. (2023). Representing melodic relationships using network science. *Cognition*, 233, 105362. <https://doi.org/10.1016/j.cognition.2022.105362>
- Merseal, H. M.**, Cortes, R. A., Cotter, K. N., & Beaty, R. E. (2022). Trends in translational creativity research: Introduction to the special issue. *Translational Issues in Psychological Science*, 8(1), 1-5. <https://doi.org/10.1037/tps0000331>
- Beaty, R. E., Frieler, K., Norgaard, M., **Merseal, H. M.**, MacDonald, M. C., & Weiss, D. J. (2021). Spontaneous melodic productions of expert musicians contain sequencing biases seen in language production. *Journal of Experimental Psychology: General*. <http://dx.doi.org/10.1037/xge0001107>
- Hickey, P., **Merseal, H. M.**, Patel, A. D., & Race, E. (2020). Memory in time: Neural tracking of low-frequency rhythm dynamically modulates memory formation. *NeuroImage*, 213(1), 1-13. <https://doi.org/10.1016/j.neuroimage.2020.116693>

MANUSCRIPTS IN PREPARATION

- Merseal, H. M.**, Beaty, R. E., & Frieler, K. (Invited commentary, in prep). Using corpora to build a more robust music psychology. *Empirical Musicology Review*.
- Luchini, S., **Merseal, H. M.**, Li, Y., & Beaty, R. E. (In prep). Using combined fNIRS/tDCS to investigate left DLPFC contributions to the serial order effect in divergent thinking.
- Merseal, H. M.** & Gilmore, R. O. (In prep). Global open science practices in the context of GDPR: Barriers and opportunities.
- Merseal, H. M.**, Link, A., Beaty, R. E., & van Hell, J. G. (In prep). Validating semantic distance scoring for automated creativity assessment in Spanish.
- Merseal, H. M.**, Link, A., Korenar, M., van Hell, J. G., & Beaty, R. E. (In prep). Triangulating semantic memory structure, divergent thinking ability, and codeswitching behavior in Spanish/English bilinguals.

RESEARCH EXPERIENCE

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| PhD Student , Pennsylvania State University
Dr. Roger Beaty
Research on <i>musical improvisation, creativity, semantic memory</i> | 2019 – present |
| Research Assistant , Wheaton College
Dr. Katherine Eskine
Research on <i>creativity, music, older adult populations</i> | 2017 – 2019 |
| Research Assistant , Tufts University
Drs. Aniruddh Patel & Elizabeth Race | 2018 |

Research on *music, neural entrainment, working memory*

Research Assistant, University of Connecticut 2017
 Dr. Edward Large
 Research on *music, neural entrainment*

PRESENTATIONS

Merseal, H. M. (2022, November 2). *Using Network Science Methods to Study Principles of Music Cognition* [Invited presentation]. Pitch Exploration Lab, Pennsylvania State University, University Park, PA, United States.

Merseal, H. M. (2022, August 21). *Biases in Language Production are Reflected in Music Improvisation* [Spoken presentation]. Expression, Language, and Music, Storrs, CT, United States.

Merseal, H. M., Link, A., Korenar, M., Beaty, R. E., & van Hell, J. (2022, August 4-6). *Linking semantic memory structure to creativity in codeswitching bilinguals*. [Division 10 poster session]. American Psychological Association Meeting, Minneapolis, MN, United States.

Merseal, H. M., Patterson, J. D., Agnoli, S., Benedek, M., Chen, Q., Corazza, G. E., Forthmann, B., Karwowski, M., Kenett, Y. N., Miroshnik, K., Ovando-Tellez, M., Puente, R., Said-Metwaly, S., Volle, E., van Hell, J. G., & Beaty, R. E. *Automated creativity assessment around the world: Validating semantic distance across multiple languages*. (2022, May 12-13). [Spoken presentation]. Society for the Neuroscience of Creativity, virtual.

Merseal, H. M., Luchini, S., Kenett, Y. N., Knudsen, K., Bilder, R. M., & Beaty, R. E. (2022, May 12-13). *Free association ability differs in Big-C artists and scientists*. [Poster presentation]. Society for the Neuroscience of Creativity meeting, virtual.

Beaty, R. E., Cortes, R. A., **Merseal, H. M.**, Hardiman, M. M., & Green, A. E. (2022, April 23-26). *Brain networks for scientific creative thinking: Functional connectivity associated with the generation of original hypotheses*. [Poster presentation]. Cognitive Neuroscience Society, San Francisco, United States.

Merseal, H. M. (2022, April 4). *Creativity: What we know (And what we don't)* [Invited presentation]. Cross Atlantic Creativity Congress, Salzburg, Austria.

Merseal, H. M. (2022, March 29). *Novel and flexible sequential planning in musical improvisation* [Invited presentation]. Research Seminar in Systematic Musicology Speaker Series, University of Graz, Austria.

Merseal, H. M. (2021, October 13). *Creativity for Good*. Cognitive Psychology Proseminar, Pennsylvania State University, University Park, PA, United States.

Merseal, H. M., Frieler, K., & Beaty, R. (2021, August 12-14). *Assessing cognitive load factors on production biases in expert musical improvisations* [Division 10 poster session]. American Psychological Association Meeting, online.

Merseal, H. M. (2021, August 12-14). *Cognitive load factors contributing to use of sequencing biases in music improvisation* [Showcase session]. APA Division 10 Meeting, online.

Merseal, H. M., Beaty, R., Kenett, Y., Lloyd-Cox, J., de Manzano, Ö., & Norgaard, M. (2021, July 28-31). *The Melodicon: Representing Melodic Relationships Using Network Science*. [Spoken presentation]. International Conference on Music Perception and Cognition - European Society for the Cognitive Sciences of Music Joint Meeting, online.

Frieler, K., Beaty, R., Norgaard, M., **Merseal, H. M.**, MacDonald, M., & Weiss, D. (2021, July 28-31). *Spontaneous melodic productions of expert musicians contain sequencing biases seen in language production*. [Spoken presentation]. International Conference on Music Perception and Cognition - European Society for the Cognitive Sciences of Music Joint Meeting, online.

Merseal, H. M. (2021, April 17). *Expert music improvisations contain sequencing biases seen in language production* [Poster session]. New England Sequencing and Timing Meeting, online.

Merseal, H. M. (2021, March 6–7). *Sequencing Biases in Musical Improvisation* [Poster session]. Future Directions of Music Cognition Meeting, online.

Merseal, H. M. (2020, October 22–23). *Sequencing Biases in Musical Improvisation* [Data blitz session]. Society for the Neuroscience of Creativity Meeting, online.

Merseal, H. M. (2020, October 7). *Sequencing Biases in Musical Improvisation: Evidence from Large-Scale Corpus Analysis*. Cognitive Psychology Proseminar, Pennsylvania State University, University Park, PA, United States.

Merseal, H. M. (2019, November 4). *Production Biases in Musical Improvisation* [Invited presentation]. Pitch Exploration Lab, Pennsylvania State University, University Park, PA, United States.

GRANTS & AWARDS

PSU Center for Language Science, Dissertation Seed Grant	2022
PSU Center for Language Science, Adele Miccio Award	2021-22
PSU Center for Language Science, Seed Funding	2021
<i>Linking Semantic Networks to Creative Language Use in Codeswitching Bilinguals</i>	

PROGRAMMING LANGUAGES & SKILLS

R	MATLAB
Python	EEGLAB for MATLAB
PsychoPy	fMRIPrep
SQL	CONN Toolbox

TEACHING EXPERIENCE

Graduate Student Online Teaching Certificate,	2021
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Penn State Faculty Development

Lab Instructor, PSYCH301W: Basic Research Methods in Psychology	Sp2022
Teaching Assistant, PSYCH256: Introduction to Cognitive Psychology	F2020
Teaching Assistant, PSYCH260: Neural Basis of Human Behavior	F2019
Teaching Assistant, PSYCH452: Learning and Memory	Sp2020
Teaching Assistant, PSYCH455: Advanced Cognitive Neuroscience	Sp2020, F2022, Sp2023
Teaching Assistant, PSYCH490: Senior Seminar, The Creative Brain	F2019, Sp2021, F2021, Sp2023

PROFESSIONAL ACTIVITIES

Research Associate , Imaginator Academy, CU Denver	2022-
Affiliate , Center for Socially Responsible Artificial Intelligence at Penn State	2022-
Digital Curation Committee , Society for the Neuroscience of Creativity	2021-
Research Coordinator , <i>ootiboo</i>	2021-
Affiliate , Penn State Center for Language Science	2019-
Scientist-in-Residence , Sonophilia Foundation	2021-22
Graduate Student Liaison , Penn State Cognitive Psychology	2020-21

EDITORIAL EXPERIENCE

Editorial Review Board Member
Psychology of Aesthetics, Creativity, and the Arts

Graduate Editorial Review Board Member
Creativity Research Journal

Guest Associate Editor, Special Issue on Creativity
Translational Issues in Psychological Science

Ad-hoc Reviewer
Psychological Science; Translational Issues in Psychological Science; Thinking Skills and Creativity; PLOS One

HONORS & AWARDS

Sarah A. Burgess Award, Society for the Neuroscience of Creativity	2023
Fischer Graduate Fellowship, Penn State College of	2022

Liberal Arts

Penn State Institute for Computational and Data Sciences, Featured Researcher	2021
Division 10 Community Presentation Award (1 st Place), American Psychological Association	2021
Sonophilia Scholarship for Outstanding Young Scientists in Creativity Research	2021
Rein Centennial Endowed Graduate Fellowship	2021
Robert W. Graham Endowed Graduate Fellowship	2020
Wheaton College Departmental Honors in Music	2019
Phi Beta Kappa Graduate Fellowship	2019
Edna D. Parks Prize in Music Theory, Wheaton College	2019
Garabedian Prize in Music, Wheaton College	2018, 2019

PROFESSIONAL MEMBERSHIPS

Society for the Neuroscience of Creativity – Digital Curation Committee Member

American Psychological Association (Division 10) – Member

Society for Music Perception and Cognition – Member

Society for the Neurobiology of Language – Member

Psi Chi Honors Society in Psychology

Phi Beta Kappa