

MATTHEW ELLIOTT SACHS
Columbia University
Center for Science and Society
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CURRENT POSITION

2019-present Postdoctoral Research Scholar, Presidential Scholar in Society and Neuroscience
Columbia University, New York, NY
Advisors: Kevin Ochsner, PhD, Chris Baldassano, PhD, & Mariusz Kozak, PhD

EDUCATION & TRAINING

2014-2019 PhD, Brain and Cognitive Science, Department of Psychology
University of Southern California, Los Angeles, CA
Advisors: Antonio Damasio, MD, Hanna Damasio, MD, & Jonas Kaplan, PhD
Dissertation Title: "Spatial and temporal patterns of brain activity associated with emotions in music"

Summer 2018 Quantitative Research Intern, Youth Research Team
Facebook, Menlo Park, CA
Projects: Analyzed available social media data to investigate how teenagers use music to express their identity and their emotions with the goal of developing new music-based products and technologies.

2014-2016 MA, Brain and Cognitive Science, Department of Psychology
University of Southern California, Los Angeles, CA
Advisors: Antonio Damasio, MD, Hanna Damasio, MD, & Jonas Kaplan, PhD
Thesis Title: "The neural basis of social development in music training"

2010-2012 Research Assistant, Department of Otolaryngology
Johns Hopkins University, Baltimore, MD
Supervisor: Charles Limb, MD
Project: Designed and implemented a neuroimaging study of musical and lyrical improvisation

2008-2012 BA, Social and Cognitive Neuroscience and Music
Harvard University, Cambridge, MA
Advisors: Gottfried Schlaug, MD-PhD, Psyche Loui, PhD, & Joshua Greene, PhD
Honors Thesis Title: "Functional and structural neural connectivity associated with individual differences in chill response to music"

AWARDS & HONORS

2019 **Columbia University Center for Science and Society**, Robert A. Burt Presidential Scholar
2018 **Society for Personality and Social Psychology**, Outstanding Research Award
2017 **Neuroscience and Music Conference**, Outstanding Poster Award
2017 **Big Data and Human Behavior Symposium**, Top Rated Poster Award
2016 **UCLA-Semel Institute Neuroimaging Training Program**, Advanced Neuroimaging Program
2015 **National Science Foundation Graduate Research Fellowship**, Honorable Mention
2015 **USC Psychology Department Travel Award**
2015 **USC Psychology Department Summer Funding**
2014 **Provost's Ph.D. Fellowship**, awarded to incoming PhD students with outstanding potential
2012 **Psychology Faculty Prize**, departmental award for thesis of special distinction

PUBLICATIONS

- Sachs, M.E.**, Damasio A., Habibi, A. (under review). Unique personality profiles predict when and why sad music is enjoyed. *Psychology of Music*.
- Sachs, M.E.**, Habibi, A., Damasio, A., Kaplan, J.T. (2019). Dynamic intersubject neural synchronization reflects affective responses to sad music. *Neuroimage*.
- Sachs, M.E.**, Kaplan, J.T., Habibi, A. (2019). Echoing the emotions of others: Empathy is related to how adults and children map emotion onto the body. *Cognition and Emotion*, 1-16.
- Newman, D.B., **Sachs, M.E.**, Stone, A. A., & Schwarz, N. (2019). Nostalgia and well-being in daily life: An ecological validity perspective. *Journal of Personality and Social Psychology*.
- Sachs, M.E.**, Habibi, A., Damasio, H. (2018). Reflections on music, affect, and sociality. In Christensen, J.F. & Gomila, A. (Eds.). *Progress in Brain Research, Elsevier*
- Sachs, M.E.**, Habibi, A., Damasio, A., Kaplan, J.T. (2018). Decoding the neural signatures of emotions expressed through sounds. *Neuroimage*, 174, 1-10.
- Habibi, A. Damasio, A., Ilari, B., **Sachs, M.E.**, Damasio, H., Damasio, A. (2018). Music training and childhood development: A Review of Recent Findings from a Longitudinal Study. *Annals of the New York Academy of Sciences*
- Saxbe, D.E., Lyden, H., Gimbel, S.I., **Sachs, M.E.**, Del Piero, L.B., Margolin, G., & Kaplan, J.T. (2018). Longitudinal associations between family aggression, externalizing behavior, and the structure and function of the amygdala. *Journal of Research on Adolescence*, 8(1), 134-149.
- Sachs, M.E.**, Kaplan, J.T., Der Sarkissian, A., Habibi, A. (2017). Increased engagement of the cognitive control network associated with music training in children during an fMRI Stroop task. *PLoS One*, 12(10), e0187254.
- Loui, P., Patterson, S., **Sachs, M.E.**, Leung, Y., Zeng, T., & Przysinda, E. (2017). White matter correlates of musical anhedonia: Implications for evolution of music. *Frontiers in Psychology*, 8, 1664.
- Sachs, M.E.**, Ellis, R.J., Schlaug G., Loui, P. (2016). Brain connectivity reflects differences in human aesthetic responses to music. *Social Cognitive and Affective Neuroscience*, 1(6), 884-891.
- Lyden, H., Gimbel, S. I., Larissa Del Piero, A., **Sachs, M.E.**, Kaplan, J. T., Margolin, G., & Saxbe, D. (2016). Associations between family adversity and brain volume in adolescence: manual vs. automated brain segmentation yields different results. *Frontiers in neuroscience*, 10.
- Sachs, M.E.**, Damasio, A., & Habibi, A. (2015). The pleasures of sad music: a systematic review. *Frontiers in human neuroscience*, 9.

CONFERENCE PRESENTATIONS

Oral Presentations

- Sachs, M. E.**, Habibi, A., Damasio, A., & Kaplan J.T. (2018). Using music to understand the dynamics of the emotional brain. *Invited talk at 6th Society for Brain Mapping and Therapeutics, Los Angeles, CA*
- Sachs, M. E.**, Habibi, A., Damasio, A., & Kaplan J.T. (2017). Decoding the neural representation of emotions expressed through music and voice. Paper presented at 6th Triennial Neuroscience and Music Conference, Boston, MA
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Sachs, M. E., Damasio, H., & Habibi, A., (2017). Music training and childhood development. Symposium talk presented at Take a Stand Symposium, Los Angeles, CA

Sachs, M. E., Damasio, A., & Habibi, A. (2015). The pleasures of sad music: a systematic review. Paper presented at 9th Triennial Conference of the European Society for the Cognitive Sciences of Music, Manchester, UK

Sachs, M.E. (2015). The chill response to music. Neuroscience Undergraduate Society Symposium, UCLA, Los Angeles, CA.

Sachs, M. E., Ellis, R. J., Schlaug, G., & Loui, P. (2013). Brain connectivity reflects individual differences in the chill response to music. Oral presentation at the Northeast Music Cognition Group Meeting, New Haven, CT

Poster Presentations

Sachs M.E., Habibi, A., Damasio, A., Kaplan, J.T. (2019). Dynamic functional connectivity reflects changes in emotional experience in response to music. Poster presented at the Organization for Human Brain Mapping Annual Meeting, Rome, Italy.

Sachs M.E., Kaplan J.T., Habibi, A. (2018). Real-time behavioral and neuro-psychophysiological indicators of emotions in response to sad music. Poster presented at the International Conference for Music Perception and Cognition, Montreal, Quebec.

Sachs M.E., Kaplan J.T., Damasio, A., Habibi, A. (2018). Decoding the emotions of sound from patterns of neural activation. Poster presented at Social for Affective Neuroscience Society Annual Meeting, Brooklyn, NY

Sachs M.E., Kaplan J.T., Damasio, A., Habibi, A. (2017). Bodily maps of emotions for self and others in response to sad music. Poster presented at Society for Music Perception and Cognition Meeting, San Diego, CA

Pryzsinda, E., Patterson, S., **Sachs M.E.,** Leung, Y., Zeng, T. Loui, P. (2017). White matter correlates of musical anhedonia. Poster presented at Annual Meeting of Cognitive Neuroscience Society, San Francisco, CA

Kilroy, E., **Sachs, M.E.,** Harrison, L., Concha, A., Goo, E., Butera, C., Cermak, S., and Aziz-Zadeh, A. (2017). Social skills related to motor skills in Children and Adolescents with Autism Spectrum Disorder. Poster presented at Social and Affective Neuroscience, Los Angeles,

Sachs, M. E., Ilari, B., Kaplan, J., Damasio, H., Damasio, A., & Habibi, A. (2016). All together now: The neural basis of social development with music training. Poster presented at Society for Neuroscience Annual Meeting, San Diego, CA

Sachs, M. E., Kaplan, J., & Habibi, A. (2016). Neural correlates of executive functioning in children engaged in music training. Poster presented at 4th Annual Flux Congress, St. Louis, MO

Sachs, M. E., Kaplan, J., Dehghani, M., Damasio, A., & Habibi, A. (2016). How and when sad music is enjoyed depends on empathy. Poster presented at the International Conference for Music Perception and Cognition, San Francisco, CA

Sachs, M. E., Ellis, R. J., Schlaug, G., & Loui, P. (2013). White Matter Connectivity reflects Individual Differences in the Chill Response to Music. Poster presentation at the Cognitive Neuroscience Society, San Francisco, April 2013.

TEACHING EXPERIENCE

Spring 2018

Teaching Assistant

Course: Psychology 201, Drugs, Mind, and Society
University of Southern California, Los Angeles, CA
Mean overall rating: 3.60/4.0

- Fall 2017 **Teaching Assistant**
Course: Psychology 201, Science of Happiness
University of Southern California, Los Angeles, CA
Mean overall rating: 4.40/5.0
- Spring 2016 **Teaching Assistant**
Course: Psychology 301, Cognitive Processes
University of Southern California, Los Angeles, CA
Mean overall rating: 4.61/5.0
- Fall 2015 **Teaching Assistant**
Course: Psychology 301, Cognitive Processes
University of Southern California, Los Angeles, CA
Mean overall rating: 4.56/5.0
- 2012-2013 **Language and Cultural Instructor**
Bilingual English Development and Assessment
Colegio Blanca de Castilla, Madrid, Spain

GUEST LECTURES

- Fall 2018 “Dynamic and static functional connectivity analyses”
Lecture given to Fundamental of fMRI
University of Southern California
- Spring 2018 “Increased engagement of cognitive control networks in children with music training”
Lecture given to Introduction to Educational Neuroscience
University of Southern California
- Fall 2017 “Resting state functional connectivity”
Lecture given to Fundamental of fMRI
University of Southern California
- Spring 2017 “Cognitive systems involved in language and music”
Lecture given to Cognitive Systems
University of Southern California
- Fall 2016 “Music cognition”
Lecture given to Cognitive Systems
University of Southern California

INVITED PEER REVIEW

Music and Science
Behavioral Research Methods
Frontiers Human Neuroscience
Journal of Neuroscience, Psychology, and Economics
Nature Scientific Reports
Nature Communications
PLOS ONE
Psychological Science

CONFERENCE ABSTRACT REVIEW

Cognitive Science Society
Society for Music Perception and Cognition

PROFESSIONAL MEMBERSHIP

Society for Neuroscience
Social and Affective Neuroscience Society
Society for Affective Science
Cognitive Neuroscience Society
Society for Music Perception and Cognition

SKILLS & INTERESTS

Machine Learning: classification, clustering, natural language processing

Statistical Methods: regression models, structural equation modeling, principal component analysis and dimensionality reduction, representational similarity analysis, multivoxel pattern analysis

Software and Programming Languages: Python (scikit-learn, numpy, scipy, pandas, pymvpa, scrapy), R, SQL, MATLAB, Unix shell scripting, Basics of Hadoop/Hive

Selected Coursework: Analysis of Variance and Experimental Design, Advanced Topics in Computational Social Sciences, Regression and the General Linear Model, Big Data and Human Behavior, Multivariate Analysis with Latent Variables

SELECTED MEDIA COVERAGE

[How does music affect your brain?](#) (March, 2019). *Wired*

[Why does certain music give us goose bumps?](#) (September, 2017). *BBC*

[Study finds that people who get goosebumps when listening to music are more in touch with their emotions](#) (September, 2017). *NME*

[Breakthrough in understanding the chills and thrills of musical rapture](#) (June, 2016). *The Guardian*

[The science of sad Christmas songs: Psychologist reveals why feeling bad sometimes feels good](#) (December, 2015). *Daily Mail*
