

Shelby L. Bachman

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EDUCATION

- 2018 - present Doctor of Philosophy, Gerontology (expected 2022)
University of Southern California, Los Angeles, CA
- 2017 - 2018 Doctoral coursework in psychology and statistics
New York University, New York, NY
- 2015 - 2017 Master of Science, Mind and Brain, *sehr gut (very good)*
Humboldt Universität zu Berlin, Berlin, Germany
Thesis: Locus coeruleus MRI contrast and cortical thickness across the lifespan
- 2009 - 2013 Bachelor of Science, Neuroscience with Honors, *summa cum laude*
University of Southern California, Los Angeles, CA
Thesis: Aging as a model of structural decline in the amygdala-vPFC pathway

RESEARCH EXPERIENCE

Basic Research

- 2018 - present Doctoral Student, Emotion and Cognition Laboratory
University of Southern California, Los Angeles, CA
PI: Mara Mather, Ph.D.
Locus coeruleus-norepinephrine system structure and function across the lifespan
- 2017 - 2018 Doctoral Student, Phelps Laboratory
New York University, New York, NY
PI: Elizabeth Phelps, Ph.D.
Selective and retroactive effects of emotion on episodic memory
- 2016 - 2017 Master Student, Center for Lifespan Psychology
Max Planck Institute for Human Development, Berlin, Germany
PI: Ulman Lindenberger, Ph.D.
Relationship between locus coeruleus integrity and brain structure
- 2015 - 2017 Student Research Assistant, Center for Adaptive Rationality
Max Planck Institute for Human Development, Berlin, Germany
PI: Ralph Hertwig, Ph.D.
Harnessing crowd wisdom through collective intelligence
- 2011 - 2013 Undergraduate Research Assistant, Emotion and Cognition Laboratory
University of Southern California, Los Angeles, CA
PI: Mara Mather, Ph.D.
Age changes in brain structural connectivity and associations with anxiety

Applied Research

- 2013 - 2015 Research Assistant, Trauma Program and Department of Pediatric Surgery
Children's Hospital Los Angeles, Los Angeles, CA
PIs: Jeffrey Upperman, MD & Rita Burke, Ph.D.
Pediatric injury prevention and trauma care

AWARDS & FUNDING

2020 - present Predoctoral Trainee, T32 Multidisciplinary Training in Gerontology Program
2017 - 2022 National Science Foundation Graduate Research Fellowship
2017 - 2018 Henry M. MacCracken Graduate Fellowship (accepted for 1 year)
2016 - 2017 German Academic Exchange Service (DAAD) Graduate Study Scholarship
2013 USC Emily Josephine Bradley Bovard Award
2012 Phi Beta Kappa National Honor Society
2009 - 2013 USC Trustee Scholarship

PEER-REVIEWED PUBLICATIONS

Kurvers RHJM, de Zoete A, **Bachman SL**, Ostelo R, Algra PR. Combining independent decisions increases diagnostic accuracy of reading lumbosacral radiographs and magnetic resonance imaging. *PLoS One*. 2018;13(4); e0194128.

Arbogast H, Patao M, Demeter N, **Bachman S**, Devietti E, Upperman JS, Burke RV. The effectiveness of installing a speed hump in reducing motor vehicle accidents involving pedestrians under the age of 21. *Journal of Transport & Health*. 2018;8;30-34.

Bachman SL, Salzman GA, Burke RV, Arbogast H, Ruiz P, Upperman JS. Observed child restraint misuse in a large, urban community: results from three years of inspection events. *Journal of Safety Research*. 2016;56:17-22.

Bachman SL, Arbogast H, Ruiz P, Farag M, Demeter NE, Upperman JS, Burke RV. A school-hospital partnership increases knowledge of pedestrian and motor vehicle safety. *Journal of Community Health*. 2015;40(6):1057-64.

Lin AC, Salzman GA, **Bachman SL**, Burke RV, Zaslow T, Piasek CZ, Edison BR, Hamilton A, Upperman JS. Assessment of parental knowledge and attitudes toward pediatric sports-related concussions. *Sports Health*. 2015;7(2):124-9.

Bachman SL, Demeter NE, Lee GG, Burke RV, Valente TW, Upperman JS. The impact of trauma systems on disaster preparedness: A systematic review. *Clinical Pediatric Emergency Medicine*. 2014;15(4):296-308.

Burke RV, Kim TY, **Bachman SL**, Iverson EI, Berg BM. Using mixed methods to assess pediatric disaster preparedness in the hospital setting. *Prehospital Disaster Medicine*. 2014;29(6):1-7.

Clewett D, **Bachman S**, Mather M. Age-related reduced prefrontal-amygdala structural connectivity is associated with lower trait anxiety. *Neuropsychology*. 2014;28(4):631-42.

PREPRINTS (NOT PEER-REVIEWED)

Clewett DV, Dunsmoor JE, **Bachman SL**, Phelps E, Davachi L. (2020). Survival of the salient: Emotion rescues otherwise forgettable memories via neural reactivation and post-encoding hippocampal connectivity. *bioRxiv*. doi: 10.1101/2020.07.07.192252

Bachman SL, Dahl MJ, Werkle-Bergner M, Düzel S, Forlim CG, Lindenberger U, Kühn S, Mather M. (2020). Locus coeruleus MRI contrast is associated with cortical thickness in older adults. *bioRxiv*. doi: 10.1101/2020.03.14.991596

CONFERENCE PRESENTATIONS

Bachman SL, Dahl MJ, Werkle-Bergner M, Düzel S, Lindenberger U, Kühn S, Mather M. Locus coeruleus integrity is associated with cortical thickness in older adults. To be presented by Shelby Bachman at the 2020 Cognitive Aging Conference (*cancelled due to COVID-19*).

Bachman SL, Dahl MJ, Werkle-Bergner M, Düzel S, Lindenberger U, Kühn S, Mather M. Locus coeruleus MRI contrast is associated with cortical thickness in older adults (2019, December). Presented by Shelby Bachman at the 2nd Locus Coeruleus Imaging Meeting. Magdeburg, Germany.

POSTER PRESENTATIONS

Gallant SN, Min J, **Bachman SL**, Mather M. Retroactive selective memory enhancement via emotional arousal. (2019, November). Presented by Sara Gallant at the 60th Annual Meeting of the Psychonomics Society. Montreal, Canada.

Nasseri P, Nashiro K, Yoo HJ, Min J, Cho C, **Bachman S**, Lehrer P, Thayer J, Chang C, Feng T, Narayanan S, Mather M. (2019, October). Daily practice of heart rate variability biofeedback training affects brain activity during social decision making. Presented by Padideh Nasseri at the Society for Neuroscience 2019 Annual Meeting. Chicago, IL.

Clewett D, Yi D, **Bachman S**, Dunsmoor J, Phelps E, Davachi L. (2018, March). Brain mechanisms by which emotion selectively and retroactively enhances memory for related information. Presented by David Clewett at the Cognitive Neuroscience Society 2018 Annual Meeting. Boston, MA.

Arbogast H, **Bachman SL**, Gu Y, Arriaga A, Burke RV, Upperman JS. (2015, November). Increasing safety in transportation of children with special healthcare needs: A closer look at a pediatric hospital's approach to addressing gaps. Presented by Helen Arbogast at the 143rd APHA Annual Meeting. Chicago, IL.

Gu Y, Demeter NE, **Bachman SL**, Burke RV, Komlofske K, Bliss D. (2015, November). The association between repeat head computed tomography scan and neurosurgical intervention in pediatric traumatic brain injury. Presented by Yi Gu at the 143rd APHA Annual Meeting. Chicago, IL.

Bachman SL, Arbogast H, Arriaga A. (2015, August). Evaluating a Pediatric Hospital's Car Seat Loaner Program: Improving Patient Child Passenger Safety. Presented by Helen Arbogast at the 11th Annual Kidz in Motion Child Passenger Safety Conference. Orlando, FL.

Lin AC, Salzman GA, **Bachman SL**, Burke RV, Zaslow T, Piasek C, Edison B, Hamilton A, Upperman JS. (2015, May). Quantitative Assessment of Parental Knowledge and Attitudes Toward Pediatric Sports-related Concussions. Presented by Ann Lin at the 62nd Meeting of the American College of Sports Medicine. San Diego, CA.

Bachman SL, Arbogast H, Burke RV, Ruiz P, Upperman JS. (2015, April). An Innovative School-Hospital Partnership Increases Knowledge of Pedestrian and Motor Vehicle Safety. Presented by Shelby Bachman at the Pediatric Academic Societies 2015 Annual Meeting. San Diego, CA.

Cleek EA, Salzman GA, **Bachman SL**, Burke RV, Upperman JS. (2015, March). Assessment of a Newly Implemented Pediatric Trauma Transfer Policy. Presented by Elizabeth Cleek at the 18th Annual Society of Trauma Nurses Conference. Jacksonville, FL.

Bachman SL, Salzman GA, Burke RV, Arbogast H, Ruiz P, Upperman JS. (2014, November). Identifying Common Errors in Child Restraint Use. Presented by Shelby Bachman at the 142nd Annual Meeting of the American Public Health Association. New Orleans, LA.

Foertsch A, Meinders C, **Bachman S**, Chug, E, and Mather, M. (2012, April). Winners and losers: Arousal-biased competition and memory. Presented by Shelby Bachman at the 92nd Annual Convention of the Western Psychological Association. San Francisco, CA.

TEACHING

- 2019 R & MATLAB Tutorial for research assistants in the Emotion & Cognition Laboratory
<https://shelbybachman.github.io/RA-tutorial-2019/>
- 2013 - 2014 *Safety Educator*, Injury Prevention Program
Children's Hospital Los Angeles, Los Angeles, CA
- 2012 - 2013 *Supplemental Instruction Leader*, Cellular & Organismal Biology
University of Southern California, Los Angeles, CA

MENTORING

Michael Kwan, USC undergraduate student, 2020-present
Sumedha Attanti³, USC undergraduate student, 2019-present
Juliana Lee, USC master student, 2019-present
Katherine Chan, USC master student, 2018-2019
Ivy Hsu², USC undergraduate student, 2018-2020
Azeezat Siyanbola¹, Barnard College undergraduate student, 2018

¹NYU Summer Undergraduate Research Program participant in Summer 2018

²Received USC Provost's Undergraduate Research Fellowship in Summer 2019

³Received USC Undergraduate Research Associates Program Fellowship in Spring 2020

UNIVERSITY SERVICE

- 2019 - 2020 *Senator*, Graduate Student Government
University of Southern California, Los Angeles, CA
- 2010 - 2013 *Student Representative*, Undergraduate Neuroscience Committee
University of Southern California, Los Angeles, CA
- 2010 - 2012 *Resident Advisor*, Department of Residential Education
University of Southern California, Los Angeles, CA
- 2009 - 2013 *Member*, USC Helenes
University of Southern California, Los Angeles, CA

ACADEMIC SERVICE

Reviewer: Social Cognitive & Affective Neuroscience
Journal of Experimental Psychology: General

STATISTICAL TRAINING

Structural Equation Modeling with lavaan, Ghent University, Belgium. January 2020.

Data Science Specialization, Johns Hopkins University on Coursera (received full financial aid)

- The Data Scientist's Toolbox. Certificate earned on January 21, 2018
- R Programming. Certificate earned on February 8, 2018
- Getting & Cleaning Data. Certificate earned on March 19, 2018
- Exploratory Data Analysis. Certificate earned on May 7, 2018
- Reproducible Research. Certificate earned on June 19, 2018
- Statistical Inference. Certificate earned on August 9, 2018
- Regression Models. Certificate earned on January 28, 2019
- Practical Machine Learning. Certificate earned on June 22, 2019
- Developing Data Products. Certificate earned on August 15, 2019
- Data Science Capstone. Certificate earned on May 6, 2020

SKILLS

Programming: R, Python, MATLAB, Bash

Software: Git, FSL, Freesurfer, Acqknowledge, Psychtoolbox

Research Methods: MRI data collection and analysis, physiological data collection and analysis (GSR, ECG, continuous blood pressure, respiration), human fear conditioning using shock

Languages: English (native), German (fluent), French (basic)