

## Academic Appointments

Rhodes College, Memphis, TN

Associate Professor, Department of Psychology, 2020 – Present

Assistant Professor, Department of Psychology, 2014 – 2020

Harvard University, Cambridge, MA

Postdoctoral Fellow, Department of Psychology, 2010 – 2014

Advisor: George A. Alvarez

## Education

Ph.D, University of California at Davis, Psychology, 2010

Advisor: David Whitney

MA, University of California at Davis, Psychology, 2007

BA, Colgate University, Double Major in Behavioral Neuroscience & Music, 2001

Magna Cum Laude

## Fellowships and Grants

- **Faculty Development Endowment Grant** (PI; \$5000) “Ensemble representations depend on attentional resources” Summer 2019
- **Faculty Development Endowment Grant** (PI; \$5000) “The conceptual representation of ensemble statistics” Summer 2017
- **Alliance to Advance Liberal Arts Colleges** (PI; \$20,000) “Vision Science as an Idealized Model for the Liberal Arts” Summer 2017
- **ERP Bootcamp** — sponsored to participate in a 10-day intensive workshop on event related potentials at UC Davis, run by Steve Luck. Summer 2016
- **Faculty Development Endowment Grant** (PI; \$5000) “The (mis)perception of artificial limb size” Summer 2016
- **Student Research Fellowship** (co-PI; \$4329) “Rhodes Neuroscience Summer Research Fellowship” Summer 2015; 2016; 2017; 2018

- **Hill Grant for Curricular Development** (co-PI; \$11,496) “Neuroscience Methods Laboratory Course Equipment” 2015
- **National Research Service Award** (NIH, PI; \$150,442), F32EY022292, “Defining the neural correlates of ensemble representation.” Priority Score: 13; Percentile Ranking: 2% 2012-2015

### Peer-Reviewed Publications

Note: \* indicates undergraduate student coauthor

- **Haberman, J.** & Suresh, S. (*In press*). Ensemble size judgments account for size constancy. *Attention, Perception, & Psychophysics*. DOI: 10.3758/s13414-020-02144-6
- Alwis, A. & **Haberman, J.** (*in press*). Emotional judgments of scenes are influenced by unintentional averaging. *Cognitive Research: Principles and Implications*.
- Won, B.Y., **Haberman, J.**, Bliss-Moreau, E., & Geng, J.J. (2020). Flexible attentional templates for emotional faces improve visual search accuracy. *Attention, Perception, & Psychophysics*. <https://doi.org/10.3758/s13414-019-01965-4>.
- McDowell, M.\* & **Haberman, J.** (2019). The Frozen Effect: Objects in motion are more aesthetically appealing than objects frozen in time. *PLoS one*, 14(5), e0215813.
- **Haberman, J.** & Ulrich, L.\* (2019). Precise ensemble face representation given incomplete visual input. *i-Perception*. 10(1), 204166918819014.
- ZeeAbrahamsen, E.\* & **Haberman, J.** (2018). Correcting ‘Confusability Regions’ in face morphs. *Behavior Research Methods*. <https://doi.org/10.3758/s13428-018-1039-2>.
- **Haberman, J.**, Lee, P., & Whitney, D. (2015). Mixed emotions: Sensitivity to facial variance in a crowd of faces. *Journal of Vision*, 15(16).doi:10.1167/15.4.16).
- **Haberman, J.**, Brady, T.F., & Alvarez, G.A. (2015). Individual differences in ensemble perception reveal multiple, independent levels of ensemble representation. *Journal of Experimental Psychology: General*, 144(2), 432-446.
- Whitney, D., **Haberman, J.**, & Sweeny, T.D. (2013). From textures to crowds: Multiple levels of summary statistical perception. In J.S. Werner and L.M. Chalupa (Eds.), *The New Visual*

*Neurosciences* (pp.695-710): MIT Press.

- **Haberman, J.** & Whitney, D. (2012). Ensemble Perception: Summarizing the scene and broadening the limits of visual processing. In J. Wolfe and L. Robertson (Eds.), *From Perception to Consciousness: Searching with Anne Treisman*. Oxford University Press.
- Post, R.B., **Haberman, J.**, Iwaki, L., & Whitney, D. (2012). The Frozen Face Effect: Why static photographs may not do you justice. *Frontiers in Cognition*, 3(22).
- Janata, P., Tomic, S., & **Haberman, J.** (2012). Sensorimotor coupling in music and the psychology of the groove. *Journal of Experimental Psychology: General*, 141(1), 54-75.
- **Haberman, J.** & Whitney, D. (2011). Efficient summary statistical representation when change localization fails. *Psychonomic Bulletin & Review*, 18(5), 955-859.
- **Haberman, J.** & Whitney, D. (2010). The visual system discounts emotional deviants when extracting average expression. *Attention, Perception, & Psychophysics*, 72, 1825-1838.
- **Haberman, J.**, Harp, T., & Whitney, D. (2009). Averaging facial expression over time. *Journal of Vision*, 9(11):1, 1-13.
- **Haberman, J.** & Whitney, D. (2009). Seeing the mean: Ensemble coding for sets of faces. *Journal of Experimental Psychology: Human Perception and Performance* 35(3).
- **Haberman, J.** & Whitney, D. (2007). Rapid extraction of mean emotion and gender from sets of faces. *Current Biology*, 17(17), R751-R753.
- Virtue, S., **Haberman, J.**, Clancy, Z., Parrish, T., & Beeman, M. J. (2006). Neural activity of inferences during story comprehension. *Brain Research*, 1084, 104-114.
- Jung-Beeman, M., Bowden, E. M., **Haberman, J.**, Frymiare, J. L., Arambel-Liu, S., Greenblatt, R., et al. (2004). Neural activity when people solve verbal problems with insight. *Plos Biology*, 2(4), 500-510.

### Manuscripts under review

- Suchow, J., McDowell, M.\*, & **Haberman, J.** A reflection on faces seen under mirror reversal.

### Manuscripts under revision

- Schill, H.\* & **Haberman, J.** Attending to multiple ensembles across visual domains imposes no cost relative to multiple ensembles within a single visual domain.
- Yamanashi, A., **Haberman, J.**, Chang, K., Harp, T., & Whitney, D. The desirability of groups: Ensemble perception biases ratings of product attractiveness.

### Manuscripts in preparation

- **Haberman, J.**, Suchow, J., & Alvarez, G.A. Adaptation to average orientation is revealed by dissociating local and global changes.
- Mazumder, R.\* & **Haberman, J.** Observers misperceive the size of prosthetic limbs.

### Conference Symposia

- Leib, A.Y., Sweeny, T., **Haberman, J.**, Bai, Y., Gopnik, A., & Whitney, D. (2015). Dual visual processes for perception of individuals and crowds. Part of the 'Consciousness without Control' Symposium, to be presented at the 19<sup>th</sup> Annual Meeting of the *Association of the Scientific Study of Consciousness*, Paris, France.

### Conference Presentations

- Alwis, Y.\* , Hsi, L.\* , & **Haberman, J.** (2019). *Individuals with low other race effect employ a global eye movement strategy when recognizing other race faces.* Poster presented at the 18<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- McDonagh, D.\* & **Haberman, J.** (2019). *Irrelevant ensemble information may be successfully ignored... sometimes.* Poster presented at the 18<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Suresh, S.\* & **Haberman, J.** (2019). *An attentional blink for ensemble orientation representations.* Poster presented at the 18<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Tharmaratnam, V., **Haberman, J.**, & Cant, J.S. (2019). The visual system precisely represents complex scene ensembles. Poster presented at the 18<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Alwis, Y.\* & **Haberman, J.** (2018). *Emotional judgments of individual scenes are influenced by unintentional averaging.* Poster presented at the 17<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.

- McDonagh, D.\* & **Haberman, J.** (2018). *Representation of multiple ensembles across visual domains is more precise than within visual domains*. Poster presented at the 17<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Suresh, S.\* & **Haberman, J.** (2018). *Conceptual size ensembles cannot be predicted by individual item size representations*. Poster presented at the 17<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Thomasson, S.\* & **Haberman, J.** (2018). *No change in perceived hand size after Rubber Hand Illusion induction*. Poster presented at the 17<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- ZeeAbrahamsen, E.\* & **Haberman, J.** (2018). *Ensemble representations are robust to noise inherited from the individual item level*. Poster presented at the 17<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Burkhead, C.\* & **Haberman, J.** (2017). *The emotional valence of scene ensembles is less extreme than its constituents*. Poster presented at the 16<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Mazumder, R.\* & **Haberman, J.** (2017). *Amputees misperceive the size of artificial limbs*. Poster presented at the 16<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- McDowell, M.\*, Suchow, J., & **Haberman, J.** (2017). *A preference for the flipped depictions of self*. Poster presented at the 16<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Suresh, S.\*, Thomasson, S.\*, & **Haberman, J.** (2017). *Ensemble representations account for size constancy*. Poster presented at the 16<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- ZeeAbrahamsen, E.\* & **Haberman, J.** (2017). *Identifying ‘confusability regions’ in face morphs used for ensemble perception*. Poster presented at the 16<sup>th</sup> Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL.
- Mazumder, R.\* & **Haberman, J.** (2016). *Observers misperceive the size of artificial limbs*. *Journal of Vision*, 16(12), 1411.
- McDowell, M.\* & **Haberman, J.** (2016). *The Frozen Body Effect: Bodies in motion are more flattering than bodies frozen in time*. *Journal of Vision*, 16(12), 279.

- Pandita, S.\*, Suresh, S.\*, & **Haberman, J.** (2016). Average size estimation of dots completing behind an illusory surface is precise. *Journal of Vision*, 16(12), 313.
- Schill, H.\* & **Haberman, J.** (2016). Attending to multiple ensembles across visual domains imposes no cost relative to multiple ensembles within a single visual domain. *Journal of Vision*, 16(12), 1039.
- Ulrich, L.\* & **Haberman, J.** (2016). Observers perceive the average identity of amodally completed faces. *Journal of Vision*, 16(12), 1243.
- **Haberman, J.**, Brady, T.F., & Alvarez, G.A. (2014). Independent ensemble processing mechanisms for high-level and low-level perceptual features. Talk presented at the 13<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, St. Pete Beach, FL.
- **Haberman, J.**, Belkova, J., & Alvarez, G.A. (2013). Individual face representation limits the precision of average face perception. Poster presented at the 12<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- **Haberman, J.**, Fougny, D., & Alvarez, G.A. (2012). The visual system obligatorily integrates information over a greater spatial extent when attention is divided. Poster presented at the 11<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- **Haberman, J.**, Suchow, J., & Alvarez, G.A. (2011). The visual system adapts to average orientation. Poster presented at the 10<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- Puri, A., Morris, S., **Haberman, J.**, Fischer, J., & Whitney, D. (2010). Effects of high-level ensemble representations on visual search. Poster presented at the 9<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- **Haberman, J.** & Whitney, D. (2009). The visual system ignores outliers when extracting a summary representation. Poster presented at the 8<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- Dziuk, A.\*, **Haberman, J.**, & Whitney, D. (2009). Increasing variance in emotional expression in a crowd of faces reduces sensitivity to the average face. Poster presented at the 8<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.

- Harp, T., **Haberman, J.**, & Whitney, D. (2009). Grouping oranges affects their overall appeal. Poster presented at the 8<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- Puri, A., **Haberman, J.**, & Whitney, D. (2009). Do summary statistics influence visual search? Poster presented at the 8<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- **Haberman, J.**, Lee, P.\* , & Whitney, D. (2009). Sensitivity to emotional variance in a texture of faces. Poster presented at the 17<sup>th</sup> Annual Meeting of the *Cognitive Neuroscience Society*, San Francisco, CA.
- **Haberman, J.** & Whitney, D. (2008). Search for Mean(ing): Parallel processes mediate ensemble coding. Poster presented at the 7<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- Harp, T., **Haberman, J.**, & Whitney, D. (2008). Temporal integration of high level summary statistical representation. Poster presented at the 7<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- Iwaki, L.\* , **Haberman, J.**, Post, R.B., & Whitney, D. (2008). The Frozen Face Effect: Why photographs don't do you justice. Poster presented at the 7<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- Sanders, K.\* , **Haberman, J.**, & Whitney, D. (2008). Summary statistical representation of scene shadows and lighting direction. Poster presented at the 7<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- **Haberman, J.** & Whitney, D. (2008). Bypassing the bottleneck: Ensemble coding happens automatically even when change blindness occurs. Poster presented at the 16<sup>th</sup> Annual Meeting of the *Cognitive Neuroscience Society*, New York, NY.
- **Haberman, J.** & Whitney, D. (2007). Face Value: What we get from a crowd of faces. Poster presented at the 11<sup>th</sup> Annual Meeting of the *Association for the Scientific Study of Consciousness*, Las Vegas, NV.
- **Haberman, J.** & Whitney, D. (2007). Saving face: Extracting summary statistics from a set of faces. Poster presented at the 6<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.
- **Haberman, J.** & Whitney, D. (2007). Precise estimation of mean emotion in crowds of faces. Poster presented at the 17<sup>th</sup> Annual Meeting of the *Cognitive Neuroscience Society*, San

Francisco, CA.

- **Haberman, J.** & Janata, P. (2006). On the nature of groove: How some music makes us want to move. Poster presented at the annual *Interdisciplinary Graduate Symposium*, Davis CA.
- Subramaniam, K., Jung-Beeman, M., Clancy, Z., **Haberman, J.**, Patterson, D., & Bowden, E. (2005). Mood effects on creative insight problem solving. Poster presented at the 13<sup>th</sup> Annual Meeting of the *Cognitive Neuroscience Society*, San Francisco, CA.
- Jung-Beeman, M., Bowden, E., & **Haberman, J.** (2002). The Aha! experience and semantic activation in the cerebral hemispheres. Poster presented at the 10<sup>th</sup> Annual Meeting of the *Cognitive Neuroscience Society*, San Francisco, CA.

### Invited Talks

- Carmel Cognition Conference Keynote Speaker (postponed) March, 2020
- Rhodes College Psychology Colloquium, Rhodes College February, 2020
- Faculty Development Endowment Talk, Rhodes College January, 2020
- Phi Beta Kappa (En)Lightning Talk, Rhodes College December, 2019
- Rhodes College Psychology Colloquium, Rhodes College December, 2018
- Faculty Development Endowment Talk, Rhodes College March, 2018
- Rhodes College Psychology Colloquium, Rhodes College October, 2017
- National Academies of Science; Standing Committee on Reducing Counterfeiting Using the Behavioral Sciences, Washington DC April, 2017
- NYU Abu Dhabi Psychology Seminar, Abu Dhabi April, 2017
- Science of Beer, 'How beer alters the way you see the world,' Pink Palace January, 2017
- Faculty Development Endowment Talk, Rhodes College November, 2016
- Rhodes College Psychology Colloquium, Rhodes College December, 2015
- Rhodes College Psychology Colloquium, Rhodes College February, 2015
- Harvard University Cognitive, Brain, and Behavior Seminar February, 2014
- Dartmouth College Vision Fest August, 2011
- Harvard University Cognitive, Brain, and Behavior Seminar October, 2010

### Honors and Awards

- **National Eye Institute Early Career Scientist Travel Grant**, VSS Spring 2019
- **Social Sciences Dean's Doctoral Fellowship for Excellence**, UC Davis Spring 2010
- **Gazzaniga Prize: Cognitive Neuroscience Best Trainee Poster**, UC Davis Spring 2008



- Elsevier/Vision Research Travel Award, Vision Sciences Society Spring 2008
- William James Graduate Award, UC Davis Fall 2007
- Interdisciplinary Graduate Symposium First Place for Poster, UC Davis Spring 2006
- Phi Beta Kappa, Colgate University Spring 2001

## Media

- “As It Matters,” (March 27<sup>th</sup>, 2012), produced by the Canadian Broadcasting Corporation.  
<http://www.cbc.ca/asithappens/episode/2012/03/26/the-monday-edition-19/> - Part 3, Minute 18.

## Teaching Experience

Qualified to teach the following: Cognitive Neuroscience, Cognitive Psychology, Introductory Psychology, Methods, Sensation and Perception, Brain and Behavior, Advanced Seminars (e.g., Vision and Art)

- *Course Instructor on Record* – Rhodes College
  - Advanced Neuroscience Methods
  - Senior Seminar: Topics in Vision
  - Senior Seminar: Topics in Neuroscience
  - Cognitive Neuroscience with Lab (lab focuses on computer programming)
  - Sensation and Perception
  - Statistics
- *Teaching Fellow* – Harvard University
  - Cognitive Neuroscience (Fall, 2013). Duties included leading weekly discussion sections, test design, grading, office hours, and review sessions.
- *Teaching Assistant* – UC Davis
  - Nine undergraduate courses: Cognitive Neuroscience (2), Cognitive Psychology (1), Research Methods (1), Perception (3), Sensory Processes (2). Responsibilities included: test design, grading, office hours, and review sessions.

## Institutional Service

- Member, Search Committee for 3-year VAP (candidate selected, but search canceled due to COVID-19) 2020
- Secretary, Technology and Space Committee

- Member, Presidential Alcohol Task Force 2017-2018
- Member, Committee on Culture and Climate 2015-Present  
Initiated an annual speaker series representing scholars from multiple disciplines within psychology and neuroscience.
- Member, Search Committee for Neuroscience 2017-2018
- Member, Search Committee for Clinical Psychology 2016-2017
- Member, Committee on Alumni Relations 2016-2017
- Member, Neuroscience Committee 2015-Present
- SONA Coordinator 2016-Present
- Preview Day Lecture, 'What you see is not what you get: How the brain cheats in perceptual processing' April, 2015; November, 2016
- Met with prospective neuroscience students on multiple occasions as part of the Scholarship Symposium series 2016, 2017

### Science Outreach

- *Brain Awareness Week* (Feb. 2014), Harvard University  
Presented visual demonstrations of color blindness to introduce basic vision concepts to students in area middle schools.
- *Outreach*  
Visited several schools in the greater Sacramento region to introduce students to basic concepts in vision science. Our lab presented various topics including color, depth, motion, and face perception. We targeted schools serving underrepresented communities (Wolfskill Continuation School, Winters; West Sacramento Early College Prep Charter School, West Sacramento; JFK High School, Sacramento). Independent outreach efforts continued in Boston (4 visits to Brookline High School's 'Opportunities for Change' program).

### Demos

- "Reflections on a true mirror." (2013)

(with Jordan Suchow)

Presented a demonstration of a 'True Mirror,' a mirror that presents viewers with a non-reversed image of themselves. 12<sup>th</sup> Annual Meeting of the *Vision Sciences Society*, Naples, FL.

### Professional Affiliations

- Vision Sciences Society
- Cognitive Neuroscience Society (2004 – 2010)

### Professional Service

- **Peer Review:** *Acta Psychologica, Attention, Perception, & Psychophysics, Cerebral Cortex, Developmental Science, Emotion, Journal of Cognitive Neuroscience, Journal of Experimental Psychology: Human Perception and Performance, Journal of Psychoactive Drugs, Journal of Vision, Learning and Individual Differences, Memory and Cognition, Nature Communications, Nature: Scientific Reports, Psychological Science, Psychonomic Bulletin & Review, Quarterly Journal of Experimental Psychology, Visual Cognition, Vision Research*
- **Guest Action Editor** — *JEP:General; JEP:HPP*
- **Grant Reviewer** — *Icelandic Research Fund, 2015-2016*
- **Abstract reviewer** for Vision Sciences Society Annual Meeting, 2018; 2019; 2020
- **Meet the Professor panel speaker** at Vision Sciences Society Annual Meeting, 2018

### Honors Thesis Supervision

- Anna Baker-Olson
- Will Morrow

### Ph. D. Dissertation Committee Member

- Daniel Carragher, Flinders University, Australia

### Mentoring

Rhodes College students currently in my lab:

Yavin Alwis (Neuroscience, 2020 — recipient of the 2018, 2019 Rhodes College Neuroscience Fellowship for summer research)

Izzie Gillespie (Neuroscience, 2022)

Ellie Leahey (Neuroscience, 2020 — recipient of the 2019 Rhodes College Neuroscience Fellowship for summer research)

Ava Mitra (Neuroscience, 2022 — recipient of the 2020 Rhodes College Neuroscience Fellowship for summer research)

West Roberts (Neuroscience, 2021)

Demi Shamsa-Basha (Neuroscience, 2022)

Lab Alums:

Chloe Burkhead (Psychology, 2018) — currently a nursing student at UT Health Sciences Center

Yoonkeong Chi (Neuroscience, 2016)

Ritika Mazumder (Neuroscience, 2017 — recipient of the 2015 Rhodes College Korsakov Award for an outstanding student in Psychology) — currently a medical student at U of Kentucky

Delaney McDonagh (Neuroscience, 2019 — recipient of the 2016 and 2017 Rhodes College Neuroscience Fellowship for summer research) — currently a research assistant with Dr. Nozari and Dr. Fisher at Carnegie Mellon University

Malerie McDowell (Neuroscience, 2017) — currently a research assistant with Frank Tong at Vanderbilt University

Swati Pandita (Neuroscience, 2015) — currently a graduate student in Information Science at Cornell University

Hayden Schill (Neuroscience, 2016) — currently a Ph.D. student at UCSD working with Tim Brady

Sneha Suresh (Neuroscience, 2019 — recipient of the 2018 Rhodes College Neuroscience Fellowship for summer research) — currently a research assistant with Jeremy Wolfe at Harvard Medical School

Sam Thomasson (Neuroscience, 2018) — currently working in the DA's office in Houston, TX

Lauren Ulrich (Neuroscience, 2016) — currently a graduate student in physical therapy at William Carey University

Emma ZeeAbrahamsen (Neuroscience, 2018) — currently a nursing student at UT Health Sciences Center

Harvard University (as a postdoctoral fellow, supervising research projects)

Celizbetz Colón (currently a graduate student, Neuroscience, Michigan State University)

Olga Tkachenko (currently a graduate student, Psychology, University of Pennsylvania)

Julie Belkova (currently a graduate student, Clinical Social Work, University of Kentucky)

University of California, Davis (as a graduate student, supervising research projects)

Ashley Dziuk (currently a human resources analyst, State of California)

Lica Iwaki (currently teaches at Interac in Yamanashi, Japan )

Pegan Lee (currently a researcher in the Department of Dermatopathology, UCSF)

Kristin Sanders (currently a nurse practitioner in Los Angeles, CA)

**Personal**

- 28 years of violin and viola performance
- Conversational proficiency in German