

EDUCATION AND ACADEMIC APPOINTMENTS

- 2015-present **Associate Research Scholar, Princeton University**
Princeton Neuroscience Institute
PIs: Uri Hasson and Casey Lew-Williams
- 2009-2015 **Ph.D., University of California, Berkeley**
Primary Co-Advisors: Michael Silver, Martin Banks
Secondary Advisors: David Whitney, David Wessel, Frédéric Theunissen
Area of Study: Auditory, Visual, and Cross-modal Perception
- 2005-2009 **B.A., Magna Cum Laude, Williams College**
Majors: Psychology, Music, and Cognitive Science. Highest Honors in Psychology.
- 2007-2008 **Williams-Oxford Study Abroad Program, University of Oxford, UK**
Designed and completed six one-on-one, graduate-level tutorial courses. GPA: 4.0

REFEREED PUBLICATIONS

- Piazza, E. A.**, Theunissen, F. E., Wessel, D., & Whitney, D. (2018). Rapid adaptation to the timbre of natural sounds. *Scientific Reports*, 8, 13826.
- Piazza, E. A.**, Denison, R. N., & Silver, M. A. (2018). Recent cross-modal statistical learning influences visual perceptual selection. *Journal of Vision*, 18(3):1, 1-12.
- Piazza, E. A.**, Jordan, M. C., & Lew-Williams, C. (2017). Mothers consistently alter their unique vocal fingerprints when communicating with infants. *Current Biology*, 27, 3162-3167.
- Piazza, E. A.** & Silver, M. A. (2017). Relative spatial frequency processing drives hemispheric asymmetry in conscious awareness. *Frontiers in Psychology*, 8:559.
- Liu, Y., **Piazza, E. A.**, Simony, E., Shewokis, P., Onaral, B., Hasson, U., & Ayaz, H. (2017). Measuring speaker-listener neural coupling with functional near-infrared spectroscopy. *Scientific Reports*, 7, 43293.
- Piazza, E. A.** & Silver, M. A. (2014). Persistent hemispheric differences in the perceptual selection of spatial frequencies. *Journal of Cognitive Neuroscience*, 26(9), 2021-2027.
- Banks, M. S., Cooper, E. A., & **Piazza, E. A.** (2014). Camera focal length and the perception of pictures. *Ecological Psychology*, 26, 30-46.
- Piazza, E. A.**, Sweeny, T., Wessel, D., Silver, M. A., & Whitney, D. (2013). Humans use summary statistics to perceive auditory sequences. *Psychological Science*, 24(8), 1389-1397.
- Cooper, E. A., **Piazza, E. A.**, & Banks, M. S. (2012). The perceptual basis of common photographic practice. *Journal of Vision*, 12(5):8, 1-14.

Denison, R. N., **Piazza, E. A.**, & Silver, M. A. (2011). Predictive context influences perceptual selection during binocular rivalry. *Frontiers in Human Neuroscience*, 5:166, 1-11.

Navarra, J., Hartcher-O'Brien, J., **Piazza, E.**, & Spence, C. (2009). Adaptation to audiovisual asynchrony modulates the speeded detection of sound. *Proceedings of the National Academy of Sciences, USA*, 106, 9169-9173.

Piazza, E. (2009). Looking for the “harmonic inversion effect”: The impact of musical expertise on memory for retrograde and inverted harmonic progressions. (Undergraduate honors thesis, Williams College Department of Psychology). Available at: <https://tinyurl.com/ycwku3jv>.

Massaro, D. W., Carreira-Perpiñán, M. A., Merrill, D. J., Sterling, C., Bigler, S., **Piazza, E.**, & Perlman, M. (2008). iGlasses: an automatic wearable speech supplement in face-to-face communication and classroom situations. In *Proceedings of the 10th International Conference on Multimodal Interfaces*, 197-198. V. Digalakis, A. Potamianos, M. Turk, R. Pieraccini, Y. Ivanov (eds.)

MANUSCRIPTS UNDER REVIEW

Piazza, E. A., Hasenfratz, L., Hasson, U., & Lew-Williams, C. (Under review). Infant and adult brains are coupled to the dynamics of natural communication. Preprint: <https://www.biorxiv.org/content/early/2018/07/04/359810>.

CONFERENCE PRESENTATIONS

Piazza, E. A., Hasenfratz, L., Hasson, U., & Lew-Williams, C. (2018). Infant and adult brains are coupled to the dynamics of social behaviors during naturalistic communication. Talk to be presented at the *43rd Boston University Conference on Language Development*, Boston, MA, November 2-4.

Nencheva, M., **Piazza, E. A.**, & Lew-Williams, C. (2018). The real-time dynamics of child-directed speech: Using pupillometry to evaluate children’s processing of natural pitch contours. Talk to be presented at the *43rd Boston University Conference on Language Development*, Boston, MA, November 2-4.

Piazza, E. A., Hasenfratz, L., Hasson, U., & Lew-Williams, C. (2018). Infant and adult brains are coupled to the dynamics of social behavior during real-life communication. Talk* to be presented at the *48th Annual Meeting of the Society for Neuroscience*, San Diego, CA, November 3-7.

*Selected to chair talk session

Piazza, E. A., Hasenfratz, L., Hasson, U., & Lew-Williams, C. (2018). Neural coupling between infants and adults supports successful communication. Poster presented at the *40th Annual Meeting of the Cognitive Science Society*, Madison, WI, July 25-28.

Piazza, E. A., Hasenfratz, L., Hasson, U., & Lew-Williams, C. (2018). Neural coupling between infants and adults underlies naturalistic communication. Talk presented at the *21st Biennial International Congress of Infant Studies*, Philadelphia, PA, June 30-July 3.

Piazza, E. A., Jordan, M. C., Hasson, U., & Lew-Williams, C. (2017). The importance of “motherese”: Early drivers of successful communication. Poster presented at the *47th Annual Meeting of the Society for Neuroscience*, Washington, D.C., November 11-15.

- Piazza, E. A.,** Jordan, M. C., & Lew-Williams, C. (2017). Mothers consistently alter the unique statistical fingerprint of their voice when communicating with their infants. Talk presented at the *International Conference on Interdisciplinary Advances in Statistical Learning*, Bilbao, Spain, June 28-30.
- Piazza, E. A.,** Jordan, M. C., & Lew-Williams, C. (2017). Timbre code-switching: How mothers alter their unique vocal statistics to communicate with their children. Talk presented at the *2017 Biennial Meeting of the Society for Research in Child Development*, Austin, TX, April 6-8.
- Piazza, E. A.,** Theunissen, F. E., Wessel, D. & Whitney, D. (2016). Rapid adaptation to the timbre of natural sounds. Poster* presented at the *46th Annual Meeting of the Society for Neuroscience*, San Diego, CA, November 12-16.
- *Presentation selected for inclusion in SfN's *Hot Topics* news release
- Piazza, E. A.,** Theunissen, F. E., Wessel, D. & Whitney, D. (2016). Listeners rapidly adapt to musical timbre. Poster presented at the *14th Meeting of the International Conference on Music Perception and Cognition*, San Francisco, CA, July 5-9.
- Piazza, E. A.,** Wong, K. Y., & Silver, M. A. (2015). Contextual processing modulates hemispheric differences in visual perceptual selection. Poster presented at the *15th Annual Meeting of the Vision Sciences Society*, St. Pete Beach, FL, May 15-20.
- Piazza, E. A.,** Wong, K. Y., & Silver, M. A. (2015). Contextual processing modulates hemispheric differences in visual perceptual selection. Poster presented at the *22nd Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA, March 28-31.
- Piazza, E. A.,** Denison, R. N., Sweeny, T., Sheynin, J., Silver, M. A., & Whitney, D. (2014). The optimal time scale of statistical summary in human auditory perception. Talk presented at the *44th Annual Meeting of the Society for Neuroscience*, Washington, D.C., November 15-19.
- Piazza, E. A.** & Silver, M. A. (2013). Persistent hemispheric differences in the perceptual selection of spatial frequencies. Poster presented at the *43rd Annual Meeting of the Society for Neuroscience*, San Diego, CA, November 9-13.
- Piazza, E. A.,** Sweeny, T. D., Wessel, D., Silver, M. A., & Whitney, D. (2013). Auditory ensemble coding: an efficient mechanism for perceiving tone sequences. Talk presented at the *Society for Music Perception and Cognition*, Toronto, Ontario, Canada, August 8-11.
- Piazza, E.,** Denison, R., Schram, M., & Silver, M. (2013). Recently learned multimodal associations influence visual perceptual selection. Poster presented at the *20th Annual Meeting of the Cognitive Neuroscience Society*, San Francisco, CA, April 13-16.
- Piazza, E.,** Denison, R. N., Schram, M., & Silver, M. A. (2012). Implicit multisensory statistical learning influences visual perceptual selection. Poster presented at the *12th Annual Meeting of the Vision Sciences Society*, Naples, FL, May 11-16.
- Piazza, E.,** Sweeny, T., Wessel, D., & Whitney, D. (2011). Ensemble coding in audition. Talk presented at the *12th International Multisensory Research Forum*, Fukuoka, Japan, October 17-20.

Piazza, E. & Silver, M. A. (2011). The time course of hemispheric asymmetries in perceptual selection of spatial frequency information. Poster presented at the *11th Annual Meeting of the Vision Sciences Society*, Naples, FL, May 6-11.

Denison, R. N., **Piazza, E.**, & Silver, M. A. (2011). Predictive context biases perceptual selection during binocular rivalry. Poster presented at the *11th Annual Meeting of the Vision Sciences Society*, Naples, FL, May 6-11.

Cooper, E., **Piazza, E.**, & Banks, M. S. (2011). Depth compression and expansion in photographs. Poster presented at the *11th Annual Meeting of the Vision Sciences Society*, Naples, FL, May 6-11.

Leib, A. Y., **Piazza, E.**, Bentin, S., & Robertson, L. (2010). Perception and visual working memory emphasize different aspects of face processing. Poster presented at the *10th Annual Meeting of the Vision Sciences Society*, Naples, FL, May 7-12.

Massaro, D. W., Carreira-Perpiñán, M. A., Merrill, D. J., Sterling, C., Bigler, S., **Piazza, E.**, & Perlman, M. (2008). iGlasses: an automatic wearable speech supplement in face-to-face communication and classroom situations. Paper presented at the *10th International Conference on Multimodal Interfaces (ICMI)*, Chania, Greece, October 20-22.

GRANTS, FELLOWSHIPS, AND AWARDS

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| 2016 | Society for Neuroscience (SfN) Trainee Professional Development Award |
| 2016 | Eric and Wendy Schmidt Transformative Technology Award, Princeton University <i>\$577,000 to build an innovative neuroimaging system. Role: lead researcher.</i> |
| 2015-2018 | C.V. Starr Postdoctoral Research Fellowship, Princeton University |
| 2015 | Phi Beta Kappa Dissertation Fellowship, Alpha Chapter, UC Berkeley |
| 2014 | Sigma Xi Grant-in-Aid of Research |
| 2014 | Psi Chi Graduate Research Grant |
| 2014 | Teagle Foundation Award for Excellence in Enhancing Student Learning, UC Berkeley |
| 2014 | Teaching Effectiveness Award, UC Berkeley |
| 2013 | Outstanding Graduate Student Instructor Award, UC Berkeley |
| 2011-2014 | National Defense Science and Engineering Graduate (NDSEG) Fellowship |
| 2009-2011 | NIH National Eye Institute Training Grant in Vision Science |
| 2009 | Horace F. Clark 1833 Prize for Graduate Research, Williams College |
| 2009 | William Kleinhandler Prize for Excellence in Music, Williams College |
| 2009 | Phi Beta Kappa, Williams College |
| 2008-2009 | Class of 1960 Scholar in Psychology, Williams College |
| 2007 | Class of 1972 Alumni-Sponsored Research Fellowship, Williams College |
| 2006, 2007 | Summer Science Research Fellowship, Williams College |

TEACHING

Instructor

Fall 2016-17 **Junior-year tutorial for neuroscience majors**, Princeton University
Led small-group discussions on how to critique journal articles, graded papers

Average Rating: 4.9/5 (2017)

Average Rating: 4.5/5 (2016)

Summer 2015 **Music and the Brain**, UC Berkeley

Independently designed and taught a course on the psychology and neuroscience of music
Lectured for five hours per week, held office hours and review sessions (60 students)

Assistantships

Spring 2012 **Graduate Student Instructor for Introduction to Cognitive Science**, UC Berkeley

Led two, one-hour discussion sections per week, acted as guest lecturer, held office hours and review sessions, graded papers, proctored exams (40 students)

Average Rating: 6.6/7

Fall 2009-10 **Graduate Student Instructor for Visual Perception and Sensitivity (a graduate course)**, UC Berkeley

Gave weekly lectures during lab sections, led six hours of lab/discussion sessions per week, mentored junior GSI, held weekly office hours and review sessions, graded exams and lab reports, proctored exams (70 students)

Average Rating: 6.6/7 (2010)

Average Rating: 5.8/7 (2009)

Fall 2008 **Teaching Assistant for Fundamentals of Music**, Williams College

Tutored and taught undergraduate students for a music theory and philosophy course, held office hours, graded assignments

Teaching Awards

Fall 2014 **Teagle Foundation Award for Excellence in Enhancing Student Learning**, UC Berkeley

Essay prize for Teaching Effectiveness Award winners who connect their effective teaching strategies to research on how students learn

Spring 2014 **Teaching Effectiveness Award**, UC Berkeley

For Outstanding Graduate Student Instructor Award winners who have made a significant contribution to teaching and learning in their departments through their identification of and response to a problem that they have faced in their own classes, laboratories, and sections.

(Awarded to 0.5% of all Graduate Student Instructors)

Spring 2013 **Outstanding Graduate Student Instructor Award**, UC Berkeley

For exceptional achievements as an instructor for Introduction to Cognitive Science
(Awarded to 9% of all Graduate Student Instructors)

Invited Guest Lectures

Spring 2018 **Neuroscience Graduate Core Methods Course**, Princeton University

- Fall 2016 **Developmental Cognitive Neuroscience**, Princeton University
- Spring 2015 **Sensation and Perception (lecture on auditory and multisensory perception)**, Cal State University East Bay
- Spring 2015 **Visual Cognitive Neuroscience (lecture on multisensory integration)**, UC Berkeley
- 2013, 2014 **BROCA, a student-initiated undergraduate cognitive science methods course (lecture on statistics)**, UC Berkeley

MENTORSHIP AND OUTREACH

- 2015-present **Mentor to Undergraduate and Graduate Students**, Princeton University
Mentored students: Mira Nancheva, Julia Schorn, Renita Jones, John Li, Ariella Cohen
- 2018 **Presenter, Young Women's Conference in STEM**, Princeton University
- 2011-2015 **Mentor, Undergraduate Research Apprentice Program and NEI T35 Training Program**, UC Berkeley
Mentored students: Maxwell Schram, Aaron Bloch, Jacob Sheynin, Vyoma Shah, Saad Mohammad, Karen Wong, Aditya Challa
- 2014, 2015 **Invited speaker, National Student Leadership Conference and National Youth Leadership Forum**, UC Berkeley
Lectured to audiences of high school students on visual perception, neuroscience
- 2014, 2015 **Presenter, Dinner with a Scientist**, Oakland Zoo
Gave demonstrations to Bay Area teachers and 4th- and 5th-graders on auditory perception
- 2014 **Volunteer instructor, Bay Area Scientists in Schools (BASIS) program**, Oakland schools
- 2010-2011 **Presenter, Mind and Brain Night**, Alliance Academy Middle School, Willard Middle School
Gave demonstrations to local middle school students and parents on various topics in visual neuroscience (perceptual illusions, etc.)

INVITED TALKS

- Oct 2018 "A novel paradigm for studying communication in naturalistic environments"
Interdisciplinary Research Seminar, Ohio State University
- Sept 2018 "Infant and adult brains are coupled to the dynamics of natural communication"
Social Brain Brown Bag Series, Dartmouth College
- Feb 2018 "The seeds of naturalistic human communication"
Cognitive Research Seminar, Princeton University

- Nov 2017 “The importance of ‘motherese’: Early drivers of successful communication”
Neuroscience Colloquium, CiNET, Osaka, Japan
- Nov 2016 “Statistical summary facilitates efficient perception and communication”
Cognitive Science Colloquium, Williams College
- Mar 2015 “Mechanisms for efficiently perceiving complex sounds”
Cognitive Science Lunchtime Talk Series, Princeton University
- Dec 2014 “Resolving ambiguity in the visual world”
Vision Lunch, Stanford University
- Nov 2010 “The perceptual bases of some rules of thumb in photography”
Google Inc.

SERVICE

Volunteer reviewer for:

Behavioural Brain Research
Developmental Psychology
Frontiers in Human Neuroscience
Human Brain Mapping (HBM)
Nature Communications
Neuroergonomics
Neuropsychology
Proceedings of the National Academy of Sciences (PNAS)
Psychological Review
Scientific Reports
Social Cognitive and Affective Neuroscience (SCAN)
Spatial Senses (Book chapter; Routledge)

Conference organizer for Bay Area Vision Research Day (BAVRD), UC Berkeley (2010)

SELECTED MEDIA COVERAGE

On the universal timbre fingerprint of “motherese”:

[PBS](#), [Science Friday](#), [Washington Post](#), [Discover Magazine](#), [The Guardian](#), [BBC](#), [CNN](#), [Princeton News](#)

On using fNIRS to measure neural coupling during successful communication:

[Huffington Post](#), [WIRED](#), [ScienceAlert](#), [ScienceDaily](#)

On summary statistics in auditory perception:

[UC Berkeley press release](#), [Science Today interview](#)

[Princeton University press release](#) about Schmidt Transformative Technology Award

[Story](#) in the *Key Reporter* (Phi Beta Kappa’s magazine)

[Interview](#) for the *Princeton Alumni Weekly*

COURSES INTERESTED IN TEACHING/DESIGNING

Introduction to Psychology
Introduction to Cognitive Science
Developmental Psychology
Music and the Brain
Cognitive Science and the Arts
Perception
Cognitive Neuroscience
Multisensory Perception
Programming for the Behavioral Sciences
Research Methods and Statistics

SKILLS AND FIELDS OF EXPERTISE

Statistics: MATLAB, R, SPSS
Programming/stimulus design: MATLAB/PsychToolbox, R, Python/PsychoPy, Max/MSP, E-Prime, HTML/CSS, Audacity, Sonic Visualizer, Praat
Experimental methods: Functional Near-Infrared Spectroscopy (fNIRS), Eye Tracking and Pupillometry, Audio Signal Processing, Machine Learning
Visual and Auditory Perception, Music Cognition, Multisensory Integration, Cognitive Neuroscience

PROFESSIONAL MEMBERSHIPS

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| 2018 | Cognitive Science Society |
| 2018 | International Congress of Infant Studies |
| 2017 | Society for Research in Child Development |
| 2014 | Graduate Women in Science |
| 2013 | American Association of University Women |
| 2013 | Society for Neuroscience |
| 2013 | Society for Music Perception and Cognition |
| 2013 | Sigma Xi |
| 2012 | Cognitive Neuroscience Society |
| 2010 | Psi Chi International Honor Society for Psychology |
| 2009 | Vision Sciences Society |
| 2009 | Phi Beta Kappa Honor Society |