

EDUCATION AND ACADEMIC APPOINTMENTS

- 2015-present **Associate Research Scholar, Princeton University**
Princeton Neuroscience Institute
Supervisors: Uri Hasson, Casey Lew-Williams
- 2009-2015 **Ph.D., University of California, Berkeley**
Vision Science Graduate Program
Committee: Martin Banks & Michael Silver (co-advisors), David Whitney,
Frédéric Theunissen
- 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.

GRANTS, FELLOWSHIPS, AND HONORS

- 2016 Society for Neuroscience (SfN) Trainee Professional Development Award
- 2016 Eric and Wendy Schmidt Transformative Technology Award, Princeton University
\$577,000 to build an innovative neuroimaging system. Role: lead researcher.
- 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

PUBLICATIONS

Piazza, E. A., Jordan, M. C., & Lew-Williams, C. (2017). Mothers consistently alter their unique vocal fingerprint when communicating with infants. In press, *Current Biology*.

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 from Williams College Libraries. <http://library.williams.edu/theses/pdf.php?id=545>.
- 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 (ICMI 2008)*, 197-198. V. Digalakis, A. Potamianos, M. Turk, R. Pieraccini, Y. Ivanov (eds.)

MANUSCRIPTS

- Piazza, E. A.**, Denison, R. N., & Silver, M. A. (In revision). Recent crossmodal statistical learning influences visual awareness.
- Piazza, E. A.**, Theunissen, F. E., Wessel, D., & Whitney, D. (Submitted). Rapid adaptation to the timbre of natural sounds.
- Piazza, E. A.**, Denison, R. N., Sweeny, T., Sheynin, J., Silver, M. A., & Whitney, D. (In prep). The optimal time scale of statistical summary in human auditory perception.

CONFERENCE PRESENTATIONS

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.

INVITED TALKS

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| Nov 2017 | “The Importance of “Motherese”: Early Drivers of Successful Communication”
Psychology Colloquium, Osaka University |
| Nov 2016 | “Statistical Summary Facilitates Efficient Perception and Communication”
Cognitive Science Colloquium, Williams College |
| Oct 2015 | “Resolving ambiguity in the visual world”
Cognitive Research Seminar, Princeton University |
| 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. |

MEDIA COVERAGE

On the universal timbre fingerprint of “motherese”:

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

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*

SKILLS AND FIELDS OF EXPERTISE

Statistics: MATLAB, R, SPSS

Programming/stimulus design: MATLAB/PsychToolbox, R, Python/PsychPy, Max/MSP, E-Prime, HTML/CSS, Audacity, Sonic Visualizer

Functional Near-Infrared Spectroscopy (fNIRS)

Eye Tracking

Audio Signal Processing

Machine Learning

Visual Perception, Auditory Perception, Music Cognition, Multisensory Integration

Cognitive Neuroscience

TEACHING

Fall 2016-17 **Instructor for a Neuroscience Tutorial Course**, Princeton University

Fall 2016 **Invited Guest Lecturer for Developmental Cognitive Neuroscience**, Princeton University

Summer 2015 **Instructor for an Undergraduate Course, (Psych 8: “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)

Spring 2015 **Invited Guest Lecturer on auditory and multisensory perception for Sensation and Perception**, Cal State University East Bay

Spring 2015 **Invited Guest Lecturer on multisensory integration for Visual Cognitive Neuroscience (a graduate course)**, UC Berkeley

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

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

- Spring 2014 **Teaching Effectiveness Award**
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.
(14 winners chosen from 133 total submissions)
- 2013, 2014 **Invited Guest Lecturer on statistics for BROCA, a student-initiated undergraduate cognitive science methods course, UC Berkeley**
- Spring 2013 **Outstanding Graduate Student Instructor Award**
For exceptional achievements as an instructor for Cog Sci 1
(9% of all UC Berkeley Graduate Student Instructors chosen annually)
- Spring 2012 **Graduate Student Instructor for an Undergraduate Course, (Cog Sci 1: “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—Overall Teaching Effectiveness: 6.6/7
- Fall 2010 **Graduate Student Instructor for a Graduate Optometry Course, (VS 205: “Visual Perception and Sensitivity”), 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—Teaching Effectiveness: 6.5/7
Average Rating—Interactions with Students: 6.6/7
- Fall 2009 **Graduate Student Instructor for “Visual Perception and Sensitivity,” UC Berkeley**
Gave weekly lectures during lab sections, led six hours of lab/discussion sessions per week, held weekly office hours and review sessions, graded exams and lab reports, proctored exams (67 students)

Average Rating—Teaching Effectiveness: 5.8/7
Average Rating—Interactions with Students: 5.8/7
- 2010 **Completion of “Vision Science 300: A Course on Teaching Methods for Graduate Student Instructors,” UC Berkeley**
- 2008 **Teaching Assistant for Department of Music, Williams College**
Tutored and taught undergraduate students for a music theory and philosophy course, held office hours, graded assignments

MENTORSHIP AND OUTREACH

- 2015- **Mentor to Undergraduate Students**, Princeton University
Mentored students: Julia Schorn, Renita Jones, John Li, Ariella Cohen
- 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
- Jacob and Aaron presented a talk on our joint project, “Temporal characteristics of ensemble coding in audition,” at the 2013 Berkeley Interdisciplinary Research Conference
- Aaron presented a poster on our joint project, “Auditory ensemble perception,” at the 2012 Psychology Undergraduate Research Conference at UC Berkeley
- 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
- Spring 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.)

REVIEWING

Journals: *PNAS*, *Nature Communications*, *Scientific Reports*, *Neuropsychology*, *Behavioural Brain Research*, *Frontiers in Human Neuroscience*
Conferences: *Neuroergonomics*

CONFERENCE ORGANIZING

- 2010 **Bay Area Vision Research Day (BAVRD) 2010**
UC Berkeley, August 17, 2010
Organized talks and poster sessions, selected and invited speakers

COURSES INTERESTED IN TEACHING/DESIGNING

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

PROFESSIONAL MEMBERSHIPS

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

EXTRACURRICULAR ACTIVITIES

2016-2017	Princeton University Chamber Orchestra, Princeton University Players Pit Orchestra
2010-2015	UC Berkeley Chamber Music Ensembles
2005-2009	Berkshire Symphony Orchestra, Williams College Symphonic Winds
2007-2008	Oxford University Caving Club
2005-2006	Weekly Staff Writer for the Williams Record

FOREIGN LANGUAGES SPOKEN/WRITTEN

French, Romanian