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EDUCATION AND ACADEMIC APPOINTMENTS

2020-	**Assistant Professor, Brain and Cognitive Sciences, University of Rochester**
2015-2020	**C. V. Starr Postdoctoral Fellow, Princeton University** Princeton Neuroscience Institute PIs: Uri Hasson and Casey Lew-Williams Area of Study: The Role of Neural Coupling in Communication and Learning
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

GRANTS, FELLOWSHIPS, AND AWARDS

2020	Investigating the Neural Hierarchy of Audio-Motor Integration During Natural Music Performance GRAMMY Museum® Research Grant. $20,000. Role: PI.
2016	A Novel Dual-Brain Imaging Device for Assessing Dynamic Brain-to-Brain Coupling Between Infants and Caregivers Eric and Wendy Schmidt Transformative Technology Award (Princeton University). $600,000. Role: PI.
2016	Society for Neuroscience (SfN) Trainee Professional Development Award
2015-2019	C.V. Starr Postdoctoral Research Fellowship, Princeton University ($350,000)
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

PEER-REVIEWED PUBLICATIONS

Piazza, E. A., Nencheva, M., & Lew-Williams, C. (2021). The development of communication across timescales. *Current Directions in Psychological Science, 30,* 459-467.

Piazza, E. A., Cohen, A., Trach, J., & Lew-Williams, C. (2021). Neural synchrony predicts children's learning of novel words. *Cognition, 214*, 104752.

Nencheva, M., **Piazza, E. A.**, & Lew-Williams, C. (2020). The moment-to-moment pitch dynamics of child-directed speech shape toddlers' attention and learning. *Developmental Science*, e12997.

Piazza, E. A., Hasenfratz, L., Hasson, U., & Lew-Williams, C. (2020). Infant and adult brains are coupled to the dynamics of natural communication. *Psychological Science, 31,* 6-17.

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., Iordan, M. C., & Lew-Williams, C. (2017). Mothers consistently alter their unique vocal fingerprints when communicating with infants. *Current Biology, 27,* 3162-3167.*

*Recommended in F1000Prime

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 IN PREP/UNDER REVIEW

Zeng, R., Lilienthal, D., Iordan, M. C., & **Piazza, E. A.** (In prep). Trajectories through sentence embeddings predict human ratings of creativity in improvised stories.

Piazza, E. A., Iordan, M. C., Williams, J., & Hasson, U. (In prep). The neural mechanisms of natural music production and learning.

Izen, S., Cassano, R., & **Piazza, E. A**. (In prep). Using music as a model of complex human communication.

Piazza, E. A.*, Iordan, M. C.*, Williams, J.*, & Hasson, U. (In prep). The impact of preprocessing parameters on inter-subject reliability in naturalistic fMRI paradigms.

CONFERENCE PRESENTATIONS

Piazza, E. A., Cassano, R., Iordan, M. C., Williams, J., Izen, S., & Hasson, U. (2021). A naturalistic approach to studying temporal processing during musical performance. Talk presented at the *181st Meeting of the Acoustical Society of America*, November 29-December 3.

Cassano, R., Williams, J., Iordan, M. C., Hasson, U, & **Piazza, E. A.** (2021). Hierarchical processing of temporal information during naturalistic music production and perception. Poster presented at the *17th Annual NeuroMusic Conference*, November 20.

Piazza, E. A., Cohen, A., & Lew-Williams, C. (2020). Neural synchrony predicts novel word learning from storybooks. Talk presented at the *22nd Biennial International Congress of Infant Studies*, Virtual conference, July 6-9.

Piazza, E. A., Cohen, A., & Lew-Williams, C. (2019). Neural synchrony predicts novel word learning from storybooks. Talk presented at the *44th Boston University Conference on Language Development*, Boston, MA, November 7-10.

Piazza, E. A., Iordan, M. C., Hasenfratz, L., Hasson, U., & Lew-Williams, C. (2019). Using naturalistic paradigms to study how adult speakers accommodate infant listeners' unique processing demands. Invited talk presented at the *177th Meeting of the Acoustical Society of America*, Louisville, KY, May 13-18.

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* presented at the *48th Annual Meeting of the Society for Neuroscience*, San Diego, CA, November 3-7.

*Selected to chair talk session

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 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 behaviors during naturalistic communication. Talk 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). 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., Iordan, 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., Iordan, 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., Iordan, 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.

TEACHING

Teaching Awards

Fall 2014 **Teagle Foundation Award for Excellence in Enhancing Student Learning,** UC Berkeley
Essay prize for graduate student instructors who connect their effective teaching strategies to research on how students learn

Spring 2014 **Teaching Effectiveness Award,** UC Berkeley
Essay prize 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
(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)

Instructor

Fall 2021 **Language (Theme: Naturalistic and Computational Approaches to the Cognitive Neuroscience of Language)**, University of Rochester
Overall Instructor Rating (average rating): 4.83/5

Spring 2021 **Music and the Mind**, University of Rochester
Overall Instructor Rating (average rating): 4.75/5

Fall 2016-17 **Neuroscience Research Methods Tutorial**, Princeton University
Led small-group discussions with neuroscience majors on how to critique journal articles

Overall Teaching Effectiveness (average rating): 4.9/5 (2017)
Overall Teaching Effectiveness (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)

Overall Teaching Effectiveness (average rating): 5.8/7

Assistantships

Spring 2012 **Graduate Student Instructor for Introduction to Cognitive Science,** UC Berkeley
Led two, one-hour discussion sections per week, guest-lectured, held office hours and review sessions, graded papers (40 students)

Overall Teaching Effectiveness (average rating): 6.6/7

Fall 2009-10 **Graduate Student Instructor for Visual Perception and Sensitivity (a graduate course),** UC Berkeley
Led three, two-hour sections of lecture/discussion/lab per week, mentored junior GSI, held weekly office hours and review sessions, graded exams and labs (70 students)

Overall Teaching Effectiveness (average rating): 6.5/7 (2010)
Overall Teaching Effectiveness (average rating): 5.5/7 (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

Invited Guest Lectures

Spring 2021 **Graduate Seminar on Cognition (lecture on music cognition)**, University of Rochester

Summer 2020 **Machine Learning Approaches to Speech Classification**, Princeton University

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

Fall 2016 **Developmental Cognitive Neuroscience**, Princeton University

Spring 2015 **Sensation and Perception**, Cal State University East Bay

Spring 2015 **Visual Cognitive Neuroscience (lecture on multisensory integration)**, UC Berkeley

2013, 2014 **BROCA, an Undergraduate-Led Cognitive Science Methods Course**, UC Berkeley

MENTORSHIP

2021- **Mentor to Postdoctoral Researchers**, University of Rochester
Mentored postdocs: Sarah Izen

2020- **Mentor to Graduate Students**, University of Rochester
Mentored students: Qingzhi (Ruby) Zeng, Riesa Cassano

2021 **Mentor for NSF REU Summer Program: "Computational Methods for Understanding Music, Media, and Minds"**, Goergen Institute for Data Science, University of Rochester
Mentored students: Derek Lilienthal, Rachael Tovar

2020- **Mentor to Undergraduate Students**, University of Rochester
Mentored students: Sophia King, Emily O'Brien, Kaitlyn Phillips, Jiayi Wang, Panzhen Wu†, Abigail Congdon, Ashley Leung, Qiyuan Feng
†Awarded Bilski-Mayer Summer Research Fellowship

2015-2020 **Mentor to Undergraduate Students**, Princeton University
Mentored students: Ariella Cohen*†, Madeline Kushan*, Julia Schorn*, Riesa Cassano*, Renita Jones, John Li
*Advised on senior thesis
†Senior thesis awarded a Brinster Class of '43 Neuroscience Prize

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

INVITED TALKS

April 2022 "Neural coupling: a framework for understanding naturalistic communication and learning"
Center for Mind, Brain, and Culture, Emory University

June 2021 "Interpersonal synchrony: A framework for understanding communication, learning, and creativity in real life"
Goergen Institute for Data Science Colloquium Series, University of Rochester

April 2021	"The development of communication across timescales" University of California, San Diego
February 2021	"Neural synchrony: a framework for understanding naturalistic communication and learning" Developmental Research Group, UT Austin
February 2021	"Neural synchrony predicts children's learning from storybooks" Developmental Psychology Research Group, Santa Clara University
December 2020	"Using naturalistic paradigms to study music performance and learning" Eastman School of Music/Upstate NY Music Cognition Symposium
August 2020	"The neural underpinnings of real-life music performance" Naturalistic Neuroscience Lab Meeting, Johns Hopkins University
March 2020	"Neural mechanisms of music performance" Music Cognition Group Meeting, Princeton University
June 2019	"An integrative approach to studying naturalistic human communication" Seminar for Postdocs in Neuroscience: Extramural Series (SPiNES), NYU
January 2019	"An integrative approach to studying naturalistic human communication" Joint Developmental Lab Meeting, Temple University
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.

COMMITTEES

2020-2021 Served on PhD thesis committees for Thomas Stoll (Biomedical Engineering), Ethan Lustig (Eastman School of Music), and QE committee for Johanna Fritzinger (Neuroscience)

2021 Chair, Diversity, Equity, & Inclusion committee (Brain & Cognitive Sciences Department)

OUTREACH

2021- **Mentor, Project SHORT**
Provide mentorship/consulting to underrepresented PhD applicants

2020- **Presenter, Skype with a Scientist**

2018 **Presenter, Young Women's Conference in STEM**, Princeton University

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,** Oakland schools
Gave demonstrations to local middle school students and parents on various topics in visual neuroscience (perceptual illusions, etc.)

Volunteer reviewer for:

- Behavioural Brain Research
- Cognition
- CogSci conference
- Cortex
- Developmental Psychology
- Developmental Science
- Frontiers in Human Neuroscience
- Human Brain Mapping (HBM)
- Journal of Educational Psychology
- Journal of Experimental Psychology: Human Perception and Performance (JEP: HPP)
- Journal of Neuroscience
- Language Learning and Development
- Nature Communications
- Neuroergonomics
- NeuroImage
- Neuropsychology
- Neuroscience
- Open Mind
- Proceedings of the National Academy of Sciences (PNAS)
- Psychological Review
- Psychological Science

Scientific Reports
Social Cognitive and Affective Neuroscience (SCAN)
Spatial Senses (Book chapter; Routledge)
Trends in Cognitive Sciences

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, Psychology Today, ScienceAlert, ScienceDaily, Princeton University press release

On summary statistics in auditory perception:
UC Berkeley press release, Science Today interview

COURSES INTERESTED IN TEACHING/DESIGNING

Introduction to Psychology; Introduction to Cognitive Science
Music and the Brain; Computational Models of Music Cognition; Cognitive Science and the Arts
Perception; Multisensory Perception
Language; Neuroscience of Communication; Developmental Psychology; Cognitive Neuroscience
Programming for the Behavioral Sciences; Research Methods and Statistics

SKILLS AND FIELDS OF EXPERTISE

Stimulus design/analysis tools: MATLAB/PsychToolbox, Python/PsychoPy, R, Max/MSP, SPSS, E-Prime, HTML/CSS, Audacity, Sonic Visualizer, Praat, AFNI/SUMA/FreeSurfer, fMRIPrep, Git
Experimental methods: fMRI, fNIRS, Eye Tracking and Pupillometry, Audio Signal Processing, Natural Language Processing
Research topics: Communication, Development, Auditory Perception, Music Cognition

PROFESSIONAL MEMBERSHIPS

2020	Society for the Neuroscience of Creativity
2019	Acoustical Society of America
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