Annual Report 2015

This document contains text extracted from our web-based annual report to the National Science Foundation, submitted 4/1/15

LANGUAGE PLASTICITY

genes brain cognition computation

A National Science Foundation IGERT Ph.D. training program at the University of Connecticut





(((Haskins Laboratories)))

PART 1: PROJECT SUMMARY

1A. Project characteristics (not included in this extract; NSF-specific details)

1B. Research achievements (list 3, limit of 1000 characters each)

- A collaboration spanning neuroscience & clinical psychology continues to investigate candidate genes implicated in language & autism (ASD). Both genes may impact development of domains supporting language (mutations associate with acoustic processing & working memory impairments). As reported last year, (fellows) Castelluccio, Rendall, & (associate) Truong linked a CNTNAP2 mouse knockout (KO) model to ASD phenotypic human data, prompted by faculty work (Eigsti & Fein, 2013) linking better pitch discrimination to worse temporal processing & language delays in ASD. Our KO studies revealed a parallel profile (heightened pitch, impaired temporal processing), motivating examination of socio-communicative abilities in CNTNAP2 mice. A manuscript & NIH grant proposal are under review. Subsequent work examines language-relevant behavioral deficits in Dyx1c1 KO mice, where learning & memory deficits arise with intact auditory processing (Rendall et al., in press).
- 2. A new collaboration (funded by CIIF) was launched with IGERT trainee Richie, Landi (DEV), Lillo-Martin (LING) investigates whether processing of prosodic information (the "rhythm" of language) is influenced by language modality. We are comparing EEG/ERP responses of users of sign and spoken languages while viewing or listening to the same set of sentences. We have collected data from 20 Deaf native signers at Gallaudet University and are in the process of collecting English-speaker data at UConn. These results have the potential to be the first that use the same materials across both modalities, and also address a level of linguistic structure that is generally thought to be strongly tied to the peripheral sensorimotor areas that interface with the linguistic signal (i.e., vision for sign languages and audition for spoken languages). Such similarities in the ERP signature (the Closure Positive Shift) across sign and spoken languages would indicate that prosodic processing is amodal.
- 3. Fellow Kacie Wittke, advised by Tammie Spaulding in SLHS, has started a collaboration between UConn (including Letty Naigles in Developmental) and the MIND institute at UC Davis, funded with a CIIF award. She is transcribing linguistic data from archival videos of play sessions between children with Autism and caregivers. Wittke's backgorund in speech pathology and Naigles's background in developmental methods and linguistics provide the perfect combination to better use this data to assess the possibility of overlap between Specific Language Impairment and Autism Spectrum Disorders. Such a finding would have important implications for basic science understanding of the relationship between language, cognition, and affective behavior.

1C. Education achievements (list 3, limit of 1000 characters each)

- 1. Our January intercession courses, "J-Term Primers", were a success again this year. Courses included (1) fMRI fundamentals, (2) Compositional Semantics (an area of theoretical linguistics not covered in a Foundations course), (3) Generative Phonology (another area not covered in detail in a Foundations course), (4) Computational linguistics, (5) Review of Foundations 3 [Neurodevelopment], and (6) Using the PsychoPy open source experimental control platform. There were also two panels: one on Sign Language Research brought in local and external experts from a variety of fields (linguistics, psychology, education, neuropsychology), and another on nativist vs. empiricist approaches to language acquisition introduced students to the latest stages of this long-running theoretical debate by proponents of each approach who are among the IGERT faculty.
- 2. Breadth mentorship continues to promote integrative, multidisciplinary education and research among our trainees and faculty. Students meet with breadth mentors anywhere from weekly to just a few times per semester, and activities range from readings and discussion to research collaboration / lab rotations. Trainees and faculty value the structure and flexibility this model provides.
- 3. Foundations 2 (Psycholinguistics and Linguistic Structure) was completely revamped given trainee and faculty assessment that the formal linguistics content was insufficient. The focus now is primarily

on formal linguistics and psycholinguistics from in the linguistic tradition to language acquisition. Students work in teams with real data on weekly problem sets. More senior students who have taken the course previously volunteered to set up extra student-led tutorial sessions. The consensus is that this new structure is achieving our original aims.

1D. Trainee achievements (max 3, limit of 1000 characters each)

- 1. Approximately three dozen projects involving IGERT fellows and/or associates have been launched. All of these are interdisciplinary (they include students and/or faculty from at least 2 of our 7 programs). Many involve 2 or 3 students. These range from mouse models of autism to human genomics of language to comparative population (brain injured vs. not) investigations of language motivated by theoretical linguistics (see research achievements). Many of these projects have been enabled in crucial ways by pilot funding from the competitive innovation incentive fund.
- 2. We are succeeding in cross-training students from multiple areas. For example, students in from all programs have sought (and received) training in electrophysiological methods used by auditory neuroscientists in SLHS (Skoe lab -- advanced ABR techniques) and cognitive neuroscientists in Psychology, Linguistics and SLHS (EEG/ERP methods). In the latter case, the students receive unusually broad training since the training faculty work in very diverse areas. A new MRI center is opening at UConn in April, and we are organizing multiple courses and apprenticeship programs to jumpstart our students' training with MRI, TMS (transcranial magnetic stimulation), and EEG, including simultaneous MRI+TMS and MRI+EEG. Training in theoretical linguistics for all trainees is leading to enriched sophistication of questions asked in many collaborative projects.

1E. Barriers to implementation (max 3, limit of 1000 characters each)

1. FACULTY TIME.

- <u>CHALLENGE</u>. IGERT faculty do not have enough time (a) to develop new collaborations inspired by our language plasticity themes, nor (b) to "cross-train" deeply, as we need them to achieve our goal of transforming faculty members' ability to engage in cross-disciplinary research.
- **<u>RESPONSE</u>**: We reported last year that in response to our advisory panel's recommendation that we find a way to secure course releases for faculty for research and/or cross-training time, we negotiated "at-cost" course buyout arrangements with all participating programs. Faculty who do lab rotations or actively take courses can qualify for these buyouts, paid for with our unrestricted funds from our university. Unfortunately, two departments have opted out of this formal arrangement because of concerns about university policies for buy-outs. PI Magnuson has initiated negotiations with the dean's office for clarification and formal permission for at-cost buyouts.

2. ACCOMMODATIONS FOR DEAF INDIVIDUALS

- **CHALLENGE:** A strength of our program is our potential for training Deaf scientists, given faculty with near-native fluency in ASL and active sign language research programs. Last year, we were able to recruit an outstanding new fellow, Erica Israel, who happens to be Deaf. Despite our best attempts to lay groundwork for appropriate accommodations for all aspects of Erica's training (interpreting for courses, colloquia, and university-based social events), our Center for Students with Disabilities was unable to provide competent interpreters for all events. Erica and her advisor (Coppola) were wasting hours every week trying to arrange interpreting or informing the CSD that interpreters were not able to keep up with the technical content of courses or talks.
- **RESPONSE:** Coppola, Lillo-Martin, Naigles and (to a lesser extent) Magnuson devoted substantial time to seeking remedies for the problems and educating university administrators and staff about Deaf accommodations and the ADA. This eventually succeeded, and a small cadre of excellent freelance interpreters was identified. Given our geographic location, many of them are traveling as many as 100 miles for these assignments. To grow the pool, Coppola, fellow Gagne (a former

professional interpreter), and some of our core interpreters have begun organizing workshops for interpreters on how to get up to speed on the technical terms of our courses and research. We have also tried to educate our faculty and students as to how to facilitate interpreting (e.g., by providing slides in advance and careful pacing). The university has also stepped up its efforts, and is conducting a national search for an interpreting coordinator who will devote full effort to finding and training interpreters.

1F. Outreach activities

- 1. 2/25/15, Eigsti, Outreach to clinicians, CT Neuropsychology Associates. Dr. Inge-Marie Eigsti spoke to a group of neuropsychologists about the latest basic research in multiple areas related to brain and language.
- Fall-Spring and ongoing, *Sawi, Brain & Language Research Digest, Aimed at CT state legislature and other policy makers. Trainees *Sawi, *Lindsey, *Castellucio, *Drouin, *Meza-Gonzalez, *Rendall, *Snider, *Petrosino & *Ryherd, & faculty Magnuson, Altmann, & Rueckl have worked on this research digest suggested by our local legislative representative. To be delivered 9/15.
- 3. Fall, Spring, ongoing, *Lindsey, Brain Injury Alliance of Connecticut Support Group. Fellow Andre *Lindsey and faculty Pradeep Ramanathan co-facilitate this support group for participants in their research on the impact of traumatic brain injury on language and their families.
- 4. Ongoing, Fellow Julia *Drouin was motivated by her involvement with the research digest effort to start her own website and blog to share her research and thoughts with colleagues and the general public: <u>http://www.juliadrouin.com/</u>
- 5. 10/3/14, *Sawi, Founding of conference for students from underrepresented groups. Fellow *Sawi was co-founder of 1st annual Technology, Engineering, and Science Latinos Symposium (TESLa-S), with research presentations and professional development workshops about Grad School in STEM, opportunities in industry and undergrad research.
- 6. Summer, 2014, *Rendall. Fellow Amanda *Rendall mentored 2 female HS students in summer of 2014 under the UConn Mentor Connections program.
- 7. Ongoing, *Israel. Improving access for Deaf scientists, staff, students, and community members at the University of Connecticut. Fellow Erica *Israel is Deaf. She & faculty Coppola (especially), Lillo-Martin, Naigles and Magnuson have had to work with our Ctr for Students with Disabilities to fix many problems with Deaf access. Result:UConn will hire an interpreting coordinator
- 8. Ongoing. Language interventions for cochlear implant users. Fellow *Tichko and affiliated postdoc Hall are investigating possible therapeutic implications of basic research they learned about in IGERT courses that could improve language development in children with cochlear implants.
- 9. Ongoing. Louis Stokes Alliance for Minority Participation (LSAMP) Graduate Student Panel. Fellow *Sawi served on this panel, which has held multiple sessions for undergraduates from underrepresented groups on research, PhD and industry opportunities, etc.
- 10. Ongoing. Manos Unidas: providing education for Deaf individuals in Nicaragua. IGERT faculty member Marie Coppola, who researches home sign and Nicaraguan sign language, continues to work through her foundation, Manos Unidas, to boost educational opportunities for Deaf individuals in urban and rural Nicaragua.
- 11. Ongoing. Fellow *Sawi mentors students from underrepresented groups via the McNair Program.
- 12. 11/20/14, American Speech and Hearing Association. Dr. Inge-Marie Eigsti gave a plenary presentation to speech pathologists and audiologists about recent advances in autism research and how that research informs understanding of language development in general.
- 13. 11/7/14, Presentation about Manos Unidas to students at Pomfret School in Pomfret, CT. Prof. Marie Coppola: "Manos Unidas: Facing challenges to language access and education for deaf Nicaraguans", regarding her research and her foundation, Manos Unidas, which provides education for Deaf Nicaraguans.

- 14. 7/14/14, Presentation of research and our IGERT program for STEM Honors Series. IGERT faculty member R. Holly Fitch gave a talk on her behavioral neuroscience and genetics work, with particular emphasis on research that is part of our IGERT efforts.
- 15. 9/5/14, Radio appearance: Colin McEnroe Show on Connecticut Public Radio. Dr. Marie Coppola was invited onto the Colin McEnroe Show on Connecticut Public Radio to discuss the implications for cognitive development of language deprivation. <u>http://wnpr.org/post/sumptuous-silence</u>
- 16. 2/27/15, UConn Louis Stokes Alliance for Minority Participation (LSAMP)/McNair. Dr. Letitia Naigles made a presentation to LSAMP/McNair scholars (students from underrepresented groups) on language creativity and language development in typical children and children with autism, and also described our IGERT training program.
- 17. 11/15/14, University of Connecticut Asian American Cultural Center, Talk delivered at "Identifying the Missing Power of Asian Americans in Connecticut (IMPAACT)" leadership conference. Fellow *Sawi spoke at this leadership meeting for undergraduate and graduate students.
- 18. Ongoing, undergraduate mentoring. Approximately half of IGERT trainees are mentoring undergraduate students in research.
- 1G: Remarkable achievements / discoveries to submit as "NSF Highlights" None submitted.

PART 2: Participants

Abbreviations: LING = Linguistics, PNB = Physiology & Neurobiology; SLHS = Speech, Language & Hearing Sciences

Psychology: BNS = Behavioral Neuroscience, CLIN = Clinical, DEV = Developmental, PAC=Perception-Action-Cognition Faculty

- 1. Allopenna, Paul Program Coordinator
- 2. Fitch, R. Holly BNS
- 3. Read, Heather BNS
- 4. Loturco, Joseph PNB/BNS
- 5. Eigsti, Inge-Marie CLIN
- 6. Fein, Deborah CLIN
- 7. Bortfeld, Heather DEV/Haskins Labs
- 8. Coppola, Marie DEV/LING
- 9. Landi, Nicole DEV/Haskins Labs
- 10. Naigles, Letitia DEV
- 11. Sheya, Adam DEV
- 12. Boscovic, Zeljko -- LING
- 13. Calabrese, Andrea LING
- 14. Lillo-Martin, Diane LING/Haskins
- 15. Snyder, William LING/Haskins Labs
- 16. Sprouse, Jon LING

- 17. Altmann, Gerry PAC
- 18. Large, Edward PAC
- 19. Magnuson, Jim PAC/Haskins Labs
- 20. Pugh, Ken PAC/Haskins Labs
- 21. Rueckl, Jay PAC/Haskins Labs
- 22. Tabor, Whitney PAC/Haskins Labs
- 23. Yee, Eiling PAC
- 24. Coelho, Carl SLHS
- 25. Grela, Bernard SLHS/Haskins Labs
- 26. Myers, Emily SLHS/PAC/Haskins
- 27. Skoe, Erika SLHS
- 28. Spaulding, Tammie SLHS
- 29. Theodore, Rachel SLHS
- 30. Grigorenko, Elena Haskins Labs/Yale Child Study Center

Shaded = incor	ning student · '	* = Fellow	IGERI St : Year 0 = incoming s		ated; + = not completing full program
Trainee	Program	PhD Year	IGERT Year	Advisor	Breadth mentor(s)
1. Nora Alpers	DEV	2	2	Naigles	Pugh (PAC)
2. Karina Bertolini	LING	2	2	Lillo-Martin	Coelho (SLHS)
3. Emily Carrigan	DEV	5	+	Coppola	Tabor (PAC)
4. Brian Castelluccio*	CLIN	3	3	Eigsti	Fitch (BNS)
5. Iris Chin	DEV	4	+	Naigles	Lillo-Martin (LING)
6. Nicole Cruse*	SLHS	0	0	Coelho	
7. Charles Davis	PAC	0	0	Yee	
8. Julia Drouin*	SLHS	1	1	Theodore	Landi (DEV)
9. Zachary Ekves*	PAC	1	1	Altmann	Sprouse (LING)
10. Pamela Fuhrmeister*	SLHS	0	0	Myers	• • •
11. Deanna Gagne*	DEV	3	2	Coppola	Bortfeld (DEV)
12. Joshua Green*	CLIN	2	2	Eigsti	Magnuson (PAC)
13. Erica Israel*	DEV	1	1	Coppola	NA
14. Ted Jenkins*	SLHS	3	3	Coelho	Coppola (DEV)
15. Alexis Johns	PAC	5	+	Myers/Magnuson	Skoe (SLHS)
16. Kyra Krass*	PAC	0	0	Altmann	
17. Anish Kurian	PAC	6	+	Pugh	Fitch (BNS)
18. Monica Li	PAC	1	1	Magnuson	Eigsti (CLIN)
19. Andre Lindsey*	SLHS	2	2	Ramanathan	Landi (DEV)
20. Illiana Meza- Gonzalez*	PAC	2	2	Myers	Skoe (SLHS)
21. Nick Monto	SLHS	1	1	Theodore	NA
22. Emma Nguyen*	LING	2	2	Snyder	NA
23. Roberto Petrosino	LING	2	2	Calabrese	Myers
24. Yanina Prystauka	PAC	0	0	Altmann	
25. Amanda Rendall*	BNS	3	2	Fitch	Eigsti (CLIN)
26. Russell Richie*	DEV	4	3	Coppola	Tabor (PAC))
27. Kayleigh Ryherd	DEV	1	1	Landi	Yee (PAC)
28. Oliver Sawi*	PAC	2	2	Rueckl/Pugh	Coyne (Ed.Psych.)
29. Katie Shaw*	DEV	4	3	Bortfeld	Eigsti (CLIN)
30. Elizabeth Simmons*	PAC	0	0	Magnuson	Eigsti (CLIN), Spaulding (SLHS), Grigorenko (Yale/Haskins)
31. Garrett Smith*	PAC	2	2	Tabor	Bortfeld
32. Laura Snider*	LING	1	1	Boscovic	NA
33. Rachael Steiner*	PAC	0	0	Magnuson	
34. Parker Tichko*	DEV	1	1	Bortfeld	Skoe (SLHS)
35. Charles Wasserman*	BNS	1	1	Read	Large (PAC)
36. Kacie Wittke*	SLHS	1	1	Spaulding	Naigles (DEV)
37. Henry Wolf*	PAC	1	1	Rueckl	Snyder (LING)
			ALUMNI		• • •
38. Anthony Goodwin	DEV	G	Postdoc, UWisc.	Naigles	Magnuson (PAC)
39. Sergey Kornilov	PAC	G	Postdoc, Yale	Magnuson/Landi	Grigorenko (Yale/Haskins)
40. Ashlee Shaw	PAC	G	Postdoc, Rutgers	Magnuson	Landi (DEV)
41. Nhu Truong	BNS	G	Postdoc, Yale	Fitch	LoTurco (PNB)

IGERT Students

3. PROJECT FEATURES

3A. Trainee preparation in multidisciplinary/interdisciplinary research (briefly describe up to three of the promising practices for preparing IGERT trainees to conduct collaborative research that transcends traditional disciplinary boundaries)

- 1. PRACTICE: Our weekly brownbags are a simple but effective mechanism. These bring us together, expose us to each other's research, and naturally lead to further collaborations. This year, we have transformed this meeting completely. It is no longer a traditional, 45 minutes plus questions academic talk. The students have completely taken control, and with the new format, one student is the presenter and a student from another PhD program is the discussant, who introduces the presenter and leads discussion. Talks are 30 minutes with 30 minutes for discussion of content and talk mechanics (with student questions first). This has been very successful, and students still have within-program talk series for traditional, longer talks (and many IGERT participants attend multiple program talk series). These changes have led to more student talks, more discussion of how to communicate across disciplinary boundaries, and a boost in student morale regarding the talk series; it is now truly theirs. MEASURE: Group feedback.
- 2. PRACTICE: Our Foundations courses culminate in team-based research projects and/or grant proposals (for internal or external funds). These team-based efforts have pushed students to design projects related to our IGERT goals, and to discover ways to bridge their home disciplines and those of other trainees. Several of these projects have led to active research programs. For example, three of four teams of first year trainees from Foundations 1 this past fall are implementing their research plans as team-based collaborations. MEASURE: Count of student-initiated, team-based collaborations.
- 3. PRACTICE: Our Breadth Mentorship component continues to be successful in aiding our education and research aims. We explicitly opted against a formal lab rotation mechanism because students in some participating programs have heavy coursework or laboratory time constraints. Instead, trainees must identify a breadth mentor and meet with him/her on a regular but informal basis to discuss connections between their respective fields. Being required to do this has led most Fellows to launch a new collaboration including their breadth mentors, (often) their primary advisors, and (often) other relevant faculty and trainees. MEASURE: Informal surveys.

Mark the following components of multidisciplinary/interdisciplinary research preparation that apply to the majority of IGERT trainees involved in your project during this reporting period. I Trainees undertook formal coursework/training in research methods, practices, and instrumentation in

- their primary discipline equivalent to traditional graduate students.
- I Trainees had practical, hands-on laboratory and/or field experience in conducting research across the breadth of disciplines in the IGERT program.
- I Trainees undertook formal coursework/training across the breadth of disciplines encompassed by the IGERT project.
- I Trainees undertook formal coursework/training in both the ethical conduct of research and ethical conduct related to the themes encompassed by your IGERT project.
- \square Other: less formal 'breadth mentorship' meetings.

3B. Trainee preparation in professional skills (Briefly describe up to three formal training activities [e.g. coursework, workshop, professional speaker] for preparing IGERT trainees to effectively communicate science to general audiences.)

1. W In the fall, we conducted an internal retreat, where trainees who participated in workshops last year by Dr. Simsarian (our innovation consultant) led brainstorming, communication, and team building exercises they learned in the workshops. In a key exercise, random pairs of trainees and/or faculty talked for 5 minutes about possible collaborations; each person then wrote a short post-it note about the project and assigned it a score based on their interest in pursuing it. Everyone then joined groups related to the highest rated possibilities and developed an informal collaboration proposal that they presented to the group. This required groups to communicate about sometimes complex, multidisciplinary techniques and theories to the full group. While only two of the projects have led to actual collaborations, the exercise was very useful both for practice in brainstorming and practice in presenting multidisciplinary research ideas to a diverse audience.

- 2. IGERT trainees and a few faculty, led by fellow *Sawi, continue to work on a Brain & Language Research Digest for policy makers. This was suggested by our State Legislator, Gregg Haddad. This turned out to be a harder project than any of us imagined, but it has forced us to learn how to write for non-scientific audiences.
- 3. All trainees were encouraged to develop personal websites to showcase their research for scientific and non-scientific audiences. Many trainees have developed basic, traditional websites. One fellow, Julia Drouin, was inspired to develop a more comprehensive site where she intends to describe research to non-researchers, and a blog aimed at helping undergraduates prepare for graduate school. We will aim this year to have more students develop such sites and/or to develop similar content for our program's website.

Mark the following components of professional skills development that apply to the majority of IGERT trainees involved in your project during this reporting period.

- ☑ Trainees undertook coursework/training that included regular faculty critique of and feedback on professional writing.
- \square Trainees authored, submitted, or published research papers in refereed journals.
- ☑ Trainees undertook coursework/training (e.g., brown bags, seminars) that included regular critique of and feedback on professional speaking/presentation skills.
- ☑ Trainees made presentations at academic/scientific professional conferences or meetings.
- □ Trainees presented results from their IGERT project to professional, nonacademic audiences (e.g., industry, government).
- □ Trainees undertook coursework/training to develop media-based or information technology-based communication skills.
- ☑ Trainees produced multimedia materials, Web sites, or other cyber-enabled tools to communicate the results of their IGERT activities to external audiences.
- □ Trainees used multimedia materials, Web sites, or other cyber-enabled tools as part of their interdisciplinary scientific training and collaboration.
- ☑ Trainees received training in team-building and project management skills.
- □ Trainees received training in effective time and task management.
- ☑ Trainees participated as members of teams engaged in joint research, education, and/or outreach efforts.
- ☑ Trainees led teams engaged in research, education, and/or outreach efforts.
- ☑ Other: J-Term Primer sessions on professional development and non-academic careers.
- **3C. Trainee preparation for STEM careers** (*Mark the following components that apply to the majority of IGERT trainees involved in your project during this reporting period*)
- ☑ Trainees received training or instruction (e.g., courses, workshops) in effective teaching practices.
- Trainees developed and presented course and/or curriculum materials.
- ☑ Trainees served as mentors to others (e.g., graduate students, undergraduates, laboratory technicians).
- ☑ Trainees received training/mentoring in grant proposal preparation.
- \blacksquare Trainees authored/coauthored and submitted grant proposals.
- □ Trainees received training/instruction on the interaction between academic research and industrial technical requirements.

- □ Trainees received training/instruction for applying their research to address public policy concerns or issues.
- □ Trainees had internships (off-campus, research, educational, and/or work experiences) in nonacademic settings (e.g., industry, government).
- □ Trainees had professional interactions other than internships with nonacademic employers (e.g. industry, government) in order to learn about career opportunities and requirements.
- \blacksquare Trainees communicated, worked, or collaborated with scientists of other nationalities.

✓ 3c. Trainee Preparation for STEM Careers

Mark the following components that apply to the <u>majority</u> of IGERT trainees involved in your project during this reporting period.

(Mark all that apply)

- □ Trainees received training or instruction (e.g., courses, workshops) in effective teaching practices.
- ✓ Trainees developed and presented course and/or curriculum materials.
- Trainees served as mentors to others (e.g., graduate students, undergraduates, laboratory technicians).
- ✓ Trainees received training/mentoring in grant proposal preparation.
- Trainees authored/coauthored and submitted grant proposals.
- Trainees received training/instruction on the interaction between academic research and industrial technical requirements.
- Trainees received training/instruction for applying their research to address public policy concerns or issues.
- Trainees had internships (off-campus, research, educational, and/or work experiences) in nonacademic settings (e.g., industry, government).
- Trainees had professional interactions other than internships with nonacademic employers (e.g. industry, government) in order to learn about career opportunities and requirements.
- Trainees communicated, worked, or collaborated with scientists of other nationalities.
- Other preparation for careers in academia.

Please specify:

✓ Other preparation for nonacademic careers (e.g., industry, government).

Please specify: A former postdoc who is now a data scier

- No components of Trainee Preparation for STEM Careers applied during this reporting period.
- **3D. Tactics for recruitment and broadening participation** (One purpose of IGERT is to create a program strategy and a plan for recruiting, mentoring, retaining, and graduating U.S. graduate students that includes efforts aimed at members of groups underrepresented in science and engineering. With these goals in mind, please respond to the following questions for this reporting period.)
- Do you have an overall, active plan with a specific set of goals and timelines for the recruitment and retention of trainees, including specifics for broadening participation of groups underrepresented in science and engineering?

 \checkmark Yes

- Regardless of your response to the previous question, please describe up to three of the promising tactics and results for recruiting qualified trainees to your IGERT project during this reporting period.
- 1. **TACTIC:** In our promotional materials (website, brochures, posters, emails to colleagues and student groups at a variety of institutions, but especially historically minority serving institutions) we have

emphasized our commitment to mentoring all students, but with special attention to the needs of students from underrepresented groups including students with disabilities. We have also stressed the diversity commitment of the UConn Graduate School and the support and mentoring programs it offers to diversity students. Members of our faculty have visited programs serving underrepresented students for recruitment purposes. RESULT: Our communication efforts have paid off. Most of our participating PhD programs observed marked increases in the numbers of applications from members of underrepresented groups over the years of the IGERT program. Seven of 20 fellows (35%) are from underrepresented groups, and 9 are women (45%). Among our associates, 2/13 are from underrepresented groups (15%) and 9/13 (69%) are women. Overall, among 33 current participants, 9 are from underrepresented groups (27%) and 18 (55%) are women. These enrollments compare favorably to national statistics in our respective fields.

- 2. **TACTIC:** We invited our strongest applicants to visit our campus, with special attention given to communication with members of underrepresented groups before, during, and after their visits. Because we had a Deaf prospective student visiting, we held an informational session ahead of the visit to go over communication and accessibility; and we arranged for the highest quality ASL interpreting possible. We told all students about our emphasis on mentoring, and discussed the mechanisms within our program and the UConn Graduate School to address particular needs of students from underrepresented groups, including a visit to the different Cultural Centers. In addition, we arranged meetings between applicants from underrepresented groups and the diversity officer from our graduate school. RESULT: Last year, we were remarkably successful at recruiting members of underrepresented groups: 5 of 8 new fellows in the fall come from underrepresented groups, and 4 of 8 are women. However, this year, since the deadline for our annual report is before the April 15 decision deadline for graduate admission decisions, we do not yet know whether candidates from underrepresented groups will accept our offers.
- 3. TACTIC: We emphasize the need for strong mentorship by primary advisors and breadth mentors. This is applicable to all students, but mentorship for underrepresented students is a particular emphasis. We held two special meetings on mentoring, led by the Graduate School's Diversity officer, one during J-Term and the other during Talk Shop. These meetings stress awareness by mentors (both faculty members and students); the role each student will play as a mentor when s/he completes the program; and resources for students, particularly for those from underrepresented groups. One of our new fellows is a Deaf student, and members of the IGERT faculty had multiple meetings with administration to elevate the quality of ASL interpreting to the standards needed for the program. RESULT: We conduct individual student meetings that indicate a high degree of satisfaction with the program, and very high self-ratings of course and research progress, indicating high student satisfaction, including students from under-represented groups. We have enhanced communication between students, illustrating the types of care that should be taken to be inclusive of all students. We succeeded in upgrading the interpreting services provided for our Deaf student, raising awareness by the administration to the point of their agreeing to hire a full-time, on-site interpreter coordinator for her needs and those of other Deaf students, faculty, and visitors.

Please describe the extent to which each of the following practices have been productive for recruiting trainees <u>overall</u> to your IGERT project during this reporting period.

RECRUITING PRACTICE		SOMEWHAT PRODUCTIVE	NOT PRODUCTIVE	NA
Relationships with NSF programs that can provide an undergraduate pool of potential IGERT trainees (e.g., REUs, NSF Centers)		\bigcirc	\bigcirc	
Relationships with faculty and programs at other academic institutions	$\overline{\bullet}$	\bigcirc	\bigcirc	\bigcirc
Use of recruiting resources on your campus (e.g., career service office, graduate studies office)	\bigcirc	۲	\bigcirc	\bigcirc
Collaboration with other IGERT projects on recruitment		\bigcirc	\bigcirc	ullet
Use of professional meetings, conferences, associations to communicate with, reach out to, and market to potential IGERT Trainees		۲	\bigcirc	\bigcirc
Other Please specify: Website (igert.cogsci.uconn.e	۲	\bigcirc	\bigcirc	\bigcirc

Please describe the extent to which each of the following practices have been productive for recruiting <u>underrepresented minority</u> and <u>women</u> trainees to your IGERT project during this reporting period.

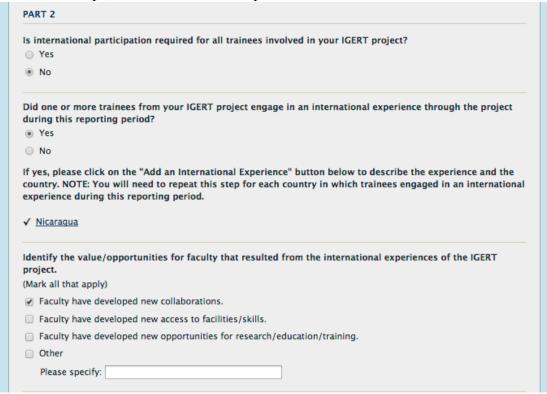
RECRUITING PRACTICE	UNDERREPRESENTED MINORITIES	WOMEN
Relationships with NSF programs that specifically focus on broadening participation of underrepresented minorities or women in STEM (e.g., LSAMP, AGEP, TCUP, or ADVANCE)	 Productive Somewhat productive Not productive NA 	 Productive Somewhat productive Not productive NA
Use of resources on your campus (e.g., academic advancement programs, offices for campus diversity, or minority and women's student groups)	 Productive Somewhat productive Not productive NA 	 Productive Somewhat productive Not productive NA
Interaction with professional associations, organizations, or committees serving underrepresented minority communities or women (e.g., National Action Council for Minorities in Engineering, Society of Women Engineers, committees in professional societies focused on minority communities and women)	 Productive Somewhat productive Not productive NA 	 Productive Somewhat productive Not productive NA
Bridge programs for entering graduate students	 Productive Somewhat productive Not productive NA 	 Productive Somewhat productive Not productive NA
Mentoring or advising arrangements that take advantage of underrepresented minorities or women faculty or graduate students on campus	 Productive Somewhat productive Not productive NA 	 Productive Somewhat productive Not productive NA
Relationships with faculty and programs at minority- serving academic institutions (e.g., historically black colleges and universities, Hispanic-serving institutions, or tribal colleges)	 Productive Somewhat productive Not productive NA 	⊙ NA
Collaboration with other IGERT projects on recruitment	 Productive Somewhat productive Not productive NA 	 Productive Somewhat productive Not productive NA
Other Please specify: Website (which emphasizes d	 Productive Somewhat productive Not productive NA 	 Productive Somewhat productive Not productive NA

3E. International opportunities

PART 1: Briefly describe up to three training experiences or components that provided exceptional "added value" for preparing IGERT trainees to be successful in international/global science and engineering. NOTE: This can include U.S.-based experiences.

Training experiences/components:

- 1. We continue to lay the groundwork for international experiences for our trainees. Several are likely to participate next year in research internships with partners identified in our original proposal. We discovered that the greatest barriers to participation were (a) uncertainty about how to arrange an internship and (b) faculty buy-in (faculty are reluctant to recommend internships before students complete coursework, for example). To address these issues, we are (1) assembling more details about research opportunities at international sites (facilities, participating scientists) and planning "face time" with partners either when they visit the US (see next item) or teleconferences, and (2) planning a workshop for faculty and students to de-mystify the possibilities (this event was cancelled this winter due a blizzard, but will be rescheduled in early summer or early fall).
- 2. We organized an in-person workshop with one of our international partners, Manuel Malmierca, M.D., Ph.D., from the Universidad de Salamanca, when he was in the US for a conference. Dr. Malmierca gave an overview of his research ("Cortical Feedback for Adaptations to Sounds") as a colloquium talk, which was followed by an informal workshop for IGERT students and faculty to ask questions and discuss the mechanisms and implications of this dynamic modulation of sound perception, which was followed by a light dinner reception (all costs paid by UConn, not our IGERT). This personal connection greatly increased student interest in research internships at Salamanca in particular, and seems likely to lead to multiple student visits in the next two years.
- 3. Our first fellow international experience is happening right now. Fellow Deanna Gagne is conducting fieldwork in Nicaragua on "home sign" (gestural communication systems that emerge in homes with Deaf children) and the continuing development of Nicaraguan Sign Language. The visit was facilitated by her advisor, Prof. Marie Coppola, who initially accompanied Deanna to Nicaragua and introduced her to educators, researchers, and private citizens who are facilitating her research. Deanna will give at least one presentation about her experience to the rest of the trainees when she returns.



Briefly describe up to three research or educational achievements resulting from the international component. Each achievement may involve a single trainee or a group of trainees.

1. Fellow Oliver Sawi has played an active role in an international collaboration involving Co-PI Pugh and scientists at UCSF (Dr. Fumiko Hoeft's lab) and our international partner, the BCBL in Spain (via Dr. Manuel Carreiras). The project explores linguistic, cognitive and neural impacts of dual-language immersion programs in schools in San Francisco (English/Chinese) and Spain (Basque/Spanish).

3F. Partnerships/collaborations ✓ 3f. Partnerships/Collaborations Were there active partnerships/collaborations outside of your university through your IGERT project during this reporting period? Yes No NOTE: Examples include other academic institutions (including IGERT partners), industrial or business partners, government agencies and laboratories, and nonprofit organizations. If you are in doubt about whether to include information on a specific relationship between your IGERT project and another organization, please include the information. Partnership/Collaboration Details Please describe each partnership or collaboration by choosing the type of organization with which your IGERT project worked below and entering the details on the form that follows. You will need to repeat this step until all partnership/collaborations are listed. ✓ Basque Center on Brain, Cognition, & Language (Active) ✓ Université Aix-Marseille (Active) ✓ Institute of Cognitive Neuroscience, National Central University (Taiwan) (Active)

✓ Institute of Neuroscience, U. Salamanca, Spain (Active)

4. EVALUATION AND IMPACTS

4A. Project evaluation

Assessment was conducted again by Mariko Chang, PhD.

Please describe a key insight, and your response to it, if any, that has been identified through assessment and evaluation during this reporting period.

1. **INSIGHT/LEARNING.** An external evaluation report was provided at the end of Fall 2014. Utilizing data from interviews and online surveys of student and faculty, the external evaluation several key strengths and weaknesses. The weaknesses included (a) more cultural support for students from underrepresented groups; (b) desire for more informal social settings for faculty/student interaction; (c) more information for non-academic career paths.

RESPONSE: To the three key weaknesses above, we responded with (a) sessions for all students and faculty with the UConn Graduate School Diversity Office on mentoring and microaggressions, as well as increased effort and activity by a new Diversity Committee with several student members; (b) increased social events; and (c) during our "January Term Primers", we had information sessions with a former postdoc working in industry and a junior faculty member who interviewed for several jobs in industry before deciding to stay in academia.

✓ 4b. Institutional Impacts

Please consider your responses to the following in light of changes/impacts that have occurred in your institution as a result of your IGERT project during this reporting period. (Mark all that apply)
The institution(s) involved in your IGERT project has/have been successful in obtaining large-scale Federal grants (e.g., STC, ERC, MRSEC).
Interdisciplinary/multidisciplinary courses have been developed for IGERT Trainees and Associates.
Interdisciplinary/multidisciplinary courses are being delivered to IGERT Trainees and Associates.
Interdisciplinary/multidisciplinary courses that have been developed for IGERT are being delivered to non-IGERT students.
New certificate or degree programs have been developed and are available on the IGERT campus(es).
Department curriculum or policy changes took place to emphasize or require interdisciplinary/multidisciplinary preparation for all graduate students.
Institutional changes that support and encourage team multidisciplinary/interdisciplinary course development and teaching have occurred.
Institutional changes that support and encourage team-based graduate student learning and assessment have occurred.
Institutional changes that support and encourage graduate students to gain laboratory and research experiences across disciplines have occurred.
Institutional changes incorporating improved recruitment and retention policies and practices for underrepresented groups and women based on IGERT have occurred.
Other
Please specify:

5. PUBLICATIONS/ PRESENTATIONS

- 67 publications in refereed journals
- 1 book
- 15 book chapters
- 10 conference publications
- 105 other conference presentations allowed in annual report
- 40 conference presentations not allowed in annual report (April-May 2014; report is due April 1, but is expected to cover June 1, 2014 to May 31, 2015).
- 1 patent

* indicates IGERT trainee supported through NSF fellowship

Publications in refereed journals (67)

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- 21. Flaig, N. K., & Large, E. W. (2014). Dynamic musical communication of core affect. Frontiers in Psychology, 5. http://doi.org/10.3389/fpsyg.2014.00072
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Books (1)

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Book chapters (5)

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- Suh, J. and Fein, D. (2014). Autism and related disorders. In J. L. Matson, P. Sturmey, J. Tarbox & D. Dixon (Eds.), Handbook of early intervention for autism spectrum disorders: Research, practice, and policy (pp. 51 - 82). New York, NY: Springer. ISBN: 978-1493904006

Conference publications (2)

- 1. Boskovic, Z. (2014). More on the edge of the edge. Formal Approaches to Slavic Linguistics: The MacMaster Meeting (pp. 44-66). Michigan Slavic Publications, Ann Arbor.
- Kelty-Stephen, E., Tek, S., Fein, D., & Naigles, L. (2014). Specific effects of joint attention on language development in children with autism spectrum disorders. In W. Orman & M. Valleau (Eds.) Proceedings of the 38th Annual Boston University Conference on Language Development (pp. 205-215). Somerville, MA: Cascadilla Press.

Conference presentations allowed to be in report (105)

- *Castelluccio, B. C., Stevens, M. C., Eigsti, I. M., Schultz, R. T., Naigles, L., Kelley, E., & Fein, D. (2015, February). Characterizing the white matter tract integrity of youth with a history of autism spectrum disorder who have achieved optimal outcome. Poster, International Neuropsychological Society Annual Meeting, Denver, CO.
- *Gagne, D. & Coppola, M. (2014, July). Disentangling language and education effects on False Belief understanding: Evidence from homesigners, signers, and unschooled Spanish speakers. Poster, Cognitive Science Society, Quebec City, Canada.
- 3. *Gagne, D., & Coppola, M. (2014, July). Numerical cognition with inadequate linguistic input: Explaining (and improving) Deaf children's poor mathematical performance. Oral presentation, in the

symposium 'The role of culture and language for Numerical Cognition,' Cognitive Science Society, Quebec City, Canada.

- 4. *Jenkins, T., Coehlo, C., & Coppola, M. (2014, July). Effects of gesture restriction on quality of narrative discourse. Poster, International Society for Gesture Studies, San Diego, CA.
- 5. *Jenkins, T., Coehlo, C., & Coppola, M. (2015. May). The Interaction of gestures and narrative structure in persons with aphasia. Poster, Clinical Aphasiology Conference, Monterey, CA.
- *Lindsey, A., & Ramanathan, P. (2015, March). Neural Substrates of Judgments of Learning. Poster accepted for presentation at the annual meeting of the Cognitive Neuroscience Society, San Fransisco, CA.
- *Richie, D. R., Yang, C., & Coppola, M. (2014, June). Modeling emergence of natural language lexicons. Poster, Finding Common Ground: Social, Ecological, and Cognitive Perspectives on Language Use, Storrs, CT.
- 8. *Richie, R., Kaufmann, S., & Tabor, W. (2014, September). An LSA-based method for estimating word meaning specificity: An application to an account of Zipf's Law. Poster presented at the 9th Annual Mental Lexicon Conference, Niagara-on-the-Lake, Ontario, Canada.
- 9. *Shaw, K., & Bortfeld, H. (2014, November). Infants are sensitive to asynchronous audiovisual speech. Poster presented at the 39th Boston University Conference on Language Development, Boston, MA.
- 10. *Shaw, K., Baart, M., & Bortfeld, H. (2014, June). Infants perceive audiovisual speech asynchrony. Paper presented at the International Multisensory Research Forum, Amsterdam, the Netherlands.
- 11. *Shaw, K., Gaafar, J., Baart, M., & Bortfeld, H. (2014, November). Infants perceptually tune to multisensory speech. Poster presented at the annual meeting of the Psychonomic Society, Long Beach, CA.
- 12. *Shaw, K., Powers, L., & Bortfeld, H. (2014, July). Infants are sensitive to speech asynchrony. Poster presented at the International Conference on Infant Studies, Berlin, Germany.
- 13. *Smith, G., Cho, P.W., Tabor, W. (2014, August). Phase transitions in language learning: Evidence from a recursive artificial grammar learning experiment and model. Paper presented at the Ninth Guy Van Orden/UConn Workshop on Cognition and Dynamics in Storrs, Connecticut.
- 14. *Smith, G., Cho, P.W., Tabor, W. (2014, November). Gradual emergence of a discrete recursive structure in an artificial language learning task. Poster presented at the Gradient Symbolic Computation Workshop in Baltimore, Maryland.
- 15. *Smith, G., Cho, P.W., Tabor, W. (2015, March). Evidence for dynamic interdependence in learning a recursive artificial language. Poster presented at the 28th CUNY Conference on Human Sentence Processing in Los Angeles, California.
- Abrams, D. N., Robins, D. L., Adamson, L. B, & Fein, D. (2015, February). Early child characteristics predict transition from ASD to non-ASD. Poster presented at the International Neuropsychological Society, Denver, CO.
- 17. Alpers, N., Torabian, S., McIntyre, N., Oswald, T., Swain-Lerro, L., Novotny, S., Kapelkina, T., Naigles, L., & Mundy, P. (2015, March). Assessing language in school-aged children with ASD in a virtual, public speaking task. Poster presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA.
- 18. Antzaka, A. & Yee, E. (June, 2014). How can recent attention to colour modify its salience as a semantic feature. Poster presented at Color in Concepts: The Representation and Processing of Color in Language and Cognition, Dusseldorf, Germany.
- 19. Arthur, D., & Grela, B., (2014, June). Influences of nonword repetition performance in young children. Poster presented at the 35th Annual Symposium on Research in Child Language Disorders, Madison, WI.
- 20. Bortfeld, H., *Shaw, K., & Baart, M. (2014, August). Infants can perceive audiovisual speech asynchrony (if it's ansynchronous enough). Paper presented at the 6th Annual Meeting of the Society for the Neurobiology of Language, Amsterdam, the Netherlands.

- 21. Boskovic, Z. (2014, June). On the Complex NP Constraint and locality of movement, International Conference on Generative Linguistics and Philosophy, Goethe Universitat, Frankfurt, Germany.
- 22. Boskovic, Z. (2014, November). Deducing the Subject Condition, the Adjunct Condition, the thattrace effect and tucking in from labeling. Paper presented at the International Workshop in Linguistics, Dokkyo University, Tokyo, Japan.
- 23. Boskovic, Z. (2014, November). On extraction from clausal and other complements functioning as phases. Paper presented at the English Linguistic Society of Japan 32, Gakushuin University, Tokyo, Japan.
- 24. Bradbury, K. R., Dumont-Mathieu, T., Barton, M., & Fein, D. (2015, February). A comparison of children with ASD drawn from high and low risk samples. Poster presented at the International Neuropsychological Society (INS) Annual Meeting, Denver, CO.
- 25. Brennan, L., Fein, D., Barton, M., Robins, D. L., & Manning, C. (June, 2014). Relationship of maternal education to parent-report of autism spectrum disorder symptoms on the Modified Checklist for Autism in Toddlers, Revised (M-CHAT-R). Poster presented American Academy of Clinical Neuropsychology, New York, NY.
- 26. Brentari, D., M. Coppola, and L. Horton. (2014, December). Levels of redundancy in silent gesture, home sign systems, and sign languages. Poster, American Anthropological Association, Washington, DC.
- 27. Calabrese, A. (2014, June). Irregular morphology and athematic verbs in Italo-Romance. Paper presented at the 8th Cambridge Italian Dialect Syntax and Morphology Meeting, University of Padova-University of Venice, Italy.
- 28. Calabrese, A. (2014, October). On the morphophonology of metaphonic alternations in some Italian dialects. What do they tell us about the organization of the grammar? Paper presented at the Ferrara International Phonology Meeting, Phonological Questions for the Next Decade, Ferrara, Italy.
- 29. Carrigan, E., Tabor, W., & Coppola, M. (2014, July). The emergence of linguistic use of space in an interactive experimental gesture communication study. Paper presentation at the International Society for Gesture Studies, San Diego, CA.
- 30. Ceruti, J., Waryasz, S., Ramanathan, P., & Musiek, F. (2015, March). Effects of sports-related concussion on behavioral and electrophysiological measures of central auditory processing. Accepted for poster presentation at the American Audiology Society, San Antonio, TX.
- 31. Ceruti, J., Waryasz, S., Ramanathan, P., & Musiek, F. (2015, March). Effects of sports-related concussion on behavioral and electrophysiological measures of central auditory processing. Poster presentation at the annual meeting of the American Audiology Society, Scottsdale, AZ.
- 32. Chen Pichler, D., Davidson, K., & Lillo-Martin, D. (2014, July). Spoken language development in native signing children with cochlear implants. Poster presented at the session on Diversity and Multifaceted Language Abilities of Dual Language Learners: Implications for Assessment and Policies. Head Start Workshop, Washington, DC.
- 33. Chen Pichler, D., de Quadros, R. M., & Lillo-Martin, D. (2014, November). Code-blending in bimodal bilingual development is constrained. Poster presented at Boston University Conference on Language Development (BUCLD) 39, Boston, MA.
- 34. Chen Pichler, D., Hochgesang, J., & Lillo-Martin, D. (2015, March). American Sign Language (ASL) Bibibi project. Poster presented at the Digging into Signs Workshop: Developing Annotation Standards for Sign Language Corpora, London, UK.
- 35. Chin, I., Vosoughi, S., Goodwin, M. S., Roy, D., & Naigles, L. (2014, July). How the Speechome Recorder can change our understanding of developmental trajectories. Poster presented at the 13th International Congress for the Study of Child Language, Amsterdam, The Netherlands.
- 36. Cuevas, K., Bryant, L., Landi, N. & Irwin, J. R. (2014, November). Functional connectivity During audio-visual speech integration: comparisons between TD children and children with ASD. Poster, International Society for Developmental Psychobiology, Washington, DC.

- 37. de Marchena, A., & Eigsti, I. M. (2014, July). Adolescents with autism spectrum disorder highlight the varied functions of gesture. Paper presented at the International Society of Gesture Studies, San Diego, CA.
- 38. de Marchena, A., Eigsti, I. M., & Yerys, B. E. (2015, March). Generalization impairments in Autism Spectrum Disorder can be demonstrated using an experimental problem solving task. Paper presented at the Society for Research in Child Development, Philadelphia, PA.
- de Quadros, R. M., Chen Pichler, D., & Lillo-Martin, D. (2014, July). Code-Blending in Bimodal Bilingual Development. Paper, 6th Conference of the International Society for Gesture Studies (ISGS), San Diego, CA.
- 40. de Quadros, R. M., Chen Pichler, D., & Lillo-Martin, D. (2015, January). Linguistic features of codeblending in bimodal bilingual development. Paper, Linguistic Society of America (LSA) Annual Meeting, Portland, OR.
- Del Tufo, S. N. & Myers, E. (2014, July). Phonemic restoration in developmental dyslexia. Poster presented at the July, 2014 meeting of SSSR (Society for the Scientific Study of Reading), Santa Fe, NM.
- 42. Depowski, N., Nowels, M., Abaya, H., Oghalai, J., & Bortfeld, H. (2014, July). Subtle modality use differences in joint attention between hearing parent-deaf child dyads and hearing parent-hearing child dyads. Poster, International Conference on Infant Studies, Berlin, Germany.
- 43. Earle, F. S, Myers, E. B., Gumkowski, N. & Landi, N. (2015, March). Changes to neural sensitivity before and after overnight consolidation of phonetic training are absent in adults with language-based disorders. Poster presented at the twenty-second annual meting of the Society for Cognitive Neuroscience, San Francisco, CA.
- 44. Eigsti, I. M., & Canfield, A. (2014, July). Oral presentation: Autism spectrum disorder and gesture production: Correlations between severity and interactive gesture production. Paper presented at the International Society of Gesture Studies, San Diego, CA.
- 45. Fein, D. (2014, June). Optimal outcome in children with autism. Keynote presentation: 2nd Annual National Conference on Autism Spectrum Disorders, National University of Ireland, Galway, Ireland.
- 46. Fein, D. (2014, June). Screening for autism in toddlers. Paper presented at the 2nd Annual National Conference on Autism Spectrum Disorders, National University of Ireland, Galway, Ireland.
- 47. Fein, D. (2015, February). The Birch Memorial Lecture: Optimal outcome in autism spectrum disorders and obstacles to autism research. Paper presented at the International Neuropsychological Society, Denver, CO.
- 48. Fusaroli, R., Weed, E., Fein, D., & Naigles, L. (2014, November). Linguistic adaptation between mothers and children in ASD: a longitudinal perspective. Paper presented at the Annual Meeting of the Psychonomic Society, Long Beach, CA.
- 49. Gokgoz, K., Bogomolets, K., Tieu, L, Palmer, J. L., & Lillo-Martin, D. (2015, February). Contrastive focus in children acquiring English and ASL: Cues of prominence. Paper presented at Generative Approaches to Language Acquisition North America (GALANA) 6, College Park, MD.
- 50. Gokgoz, K., de Quadros, R. M., Oliveira, J., & Lillo-Martin, D. (2014, November). Pointing and eyegaze in bimodal bilingual language development. Poster, Boston University Conference on Language Development (BUCLD) 39, Boston, MA.
- 51. Gokgoz, K., Lillo-Martin, D., & de Quadros, R. M. (2015, January). Function, distribution and duration of pointing in bimodal bilingual language development. Poster presented at Linguistic Society of America (LSA) Annual Meeting, Portland, OR.
- 52. Goodwin, A., Sherman, J., Goldin-Meadow, S. Fein, D. & Naigles, L. (2014, July) The Role of gesture in the language development of high- and low-verbal children with autism. Poster presented at the 13th International Congress for the Study of Child Language, Amsterdam, The Netherlands.
- 53. Haisley, L., Troyb, E., Knoch, K., Herlihy, L., & Fein, D. (2015, February). Executive functioning deficits associated with parenting stress: Parents of children with ASD. Poster presented at the International Neuropsychological Society, Denver, CO.

- 54. Hall, M., Bortfeld, H., Eigsti, I. M., & Lillo-Martin, D. (2015, March). Executive function in deaf children: Is sign language a protective factor? Paper presented at the Society for Research in Child Development, Philadelphia, PA.
- 55. Hall, M., Eigsti, I. M., Bortfeld, H., & Lillo-Martin, D. (2015, March). Auditory deprivation doesn't impair executive function, but language deprivation might: Evidence from a parent-report measure. Poster presented at the 2015 Society for Research on Child Development Biennial Meeting, Philadelphia, PA.
- 56. Harwood, V., Preston, J., Irwin, J., Grela, B., & Landi, N. (2014, June). Electrophysiological correlates of speech perception in young children: Associations among RP, nonword repetition, and language. Poster presented at the 35th Annual Symposium on Research in Child Language Disorders, Madison, WI.
- 57. Irvine, C., & Eigsti, I. M. (2015, March). Embodiment effects of physical warmth on interpersonal warmth in Autism Spectrum Disorder. Paper presented at the Society for Research in Child Development, Philadelphia, PA.
- 58. Irvine, C., Eigsti, I. M., & Fein, D. (June, 2014). Filler disfluencies in high functioning autism, optimal outcome, and typical development: A marker of pragmatic language skills. Poster presented by Irvine C. at the Symposium on Research in Child Language Disorders (SRCLD), Madison, WI.
- 59. Irvine, C., Mayo, J., & Eigsti, I. M. (2014, June). Filler disfluencies in high functioning autism, optimal outcome, and typical development: A marker of pragmatic language skills. Paper presented at the Symposium on Research in Child Language Disorders, Madison, WI.
- 60. Jashar, D., Brennan, L., Robins, D. L., Barton, M., & Fein, D. (2014, June). Adaptive and cognitive Skills in toddlers with DSM-IV but not DSM-5 autism. Poster presented at the 2014 meeting of the American Academy of Clinical Neuropsychology, New York, NY.
- 61. Jasinska, K. & Landi, N. (2014, July). Common but impactful genetic polymorphisms in COMT & BDNF are associated strongly with reading and related skills and associated patterns of neural activity. Poster presented at the 21st Annual Meeting of the Society Scientific Study of Reading (SSSR); Symposium organized by Marc Joanisse, Santa Fe, NM.
- 62. Jyotishi, M., Fein, D., & Naigles, L. (2015, March). Mom, are you listening? Comparing children's use of grammar measured by maternal report vs. spontaneous speech in TD and ASD. Poster presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA.
- 63. Jyotishi, M., Tovar, A., & Naigles, L. (2015, March). Wh-questions are really hard for children with autism to understand. Poster to be presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA.
- 64. Kang, X., Joergensen, G. H., Altmann, G. T. M. (2014, March). Representing multiple instantiations of an object: Effects of visual and linguistic context on real-time event processing. Poster presented at the 27th annual CUNY Conference on Human Sentence Processing, Columbus, OH.
- 65. Kelty-Stephen, E., Tek, S., Fein, D., & Naigles, L. (2014, July). Specific effects of joint attention on language development: Lexicon and syntax. Poster presented at the 13th International Congress for the Study of Child Language, Amsterdam, The Netherlands.
- 66. Kelty-Stephen, E., Tek, S., Fein, D., & Naigles, L. (2014). Specific effects of joint attention on language development in children with autism spectrum disorders. Poster, proceedings of the 38th Annual Boston University Conference on Language Development. Cascadilla Press.
- 67. Kim, J. C., & Large, E. W. (2014, August). Pitch dynamics on multiple time scales in a neurodynamic model of melodic perception. Poster, International Conference on Music Perception and Cognition, Seoul, South Korea.
- Kim, J. N., Kim, J. C., & Large, E. W. (2014, August). Oscillatory brain dynamics in the processing of implied harmony. Poster, International Conference on Music Perception and Cognition, Seoul, South Korea.

- 69. Kush, D., Lohndal, T., & Sprouse, J. (2015, January). Experimental syntax and the linguistic variation of island effects in Norwegian and Swedish. Poster presented at the Annual Meeting of the Linguistic Society of America, Portland, OR.
- 70. Lerud, K., Kim, J. C., & Large, E. W. (2014, August). A neurodynamic account of residue pitch perception. Poster, International Conference on Music Perception and Cognition, Seoul, South Korea.
- 71. Lillo-Martin, D. (2014, October). Bimodal bilingual language acquisition and theories of bilingualism. Invited keynote speaker at UIC BilForum, Chicago, IL.
- 72. Lillo-Martin, D., Davidson, K., & Chen Pichler, D. (2014, December). Deaf native signing children with cochlear implants display age-appropriate spoken English development. Paper, 14th Symposium on Cochlear Implants in Children, Nashville, TN.
- 73. Magnuson, J. S. (2014, July). Phoneme restoration in interactive activation models: Yes they can! Poster, Proceedings of the 36th Annual Cognitive Science Society Conference, p. 3347. Quebec City.
- 74. Magnuson, J. S. (2014, July). Simple Recurrent Networks and human spoken word recognition. Poster, Proceedings of the 36th Annual Cognitive Science Society Conference, p. 3348. Quebec City, Canada.
- 75. Matsuo, A. & Naigles, L. (2014, November). Children's use of morphosyntax and the number of arguments to infer the meaning of novel transitive and intransitive verbs. Poster presented at the International Workshop on Children's Acquisition and Processing of Head-Final Languages, Harvard, University, Cambridge, MA.
- 76. Molnar, M., Pejovic, J., Yee, E. & Carreiras, M. (2014, July). Are all bilingual infants created equal? Cognitive gains in preverbal Basque-Spanish bilingual and Spanish monolingual infants. Poster presented at XIX Biennial International Conference on Infant Studies, Berlin, Germany.
- 77. Moulton, E., Barton, M., & Fein, D. (2015, February). Developmental trajectories in toddlers with ASD. Poster presented at the 2015 International Neuropsychological Society (INS) Annual Meeting, Denver, CO.
- 78. Mozeiko, J., Myers, E., & Coelho, C. (2014, November). Changes in lateralization of language-related brain activation over an intensive course of aphasia treatment. Poster. American Speech-Language-Hearing Assoc. Convention, Orlando, FL.
- Mozeiko, J., Myers, E.B. & Coelho, C.A. (2014). Neurobehavioral response to increased treatment dosage in chronic, severe aphasia. Poster. Front. Psychol. Conference Abstract: Academy of Aphasia -52nd Annual Meeting. doi: 10.3389/conf.fpsyg.2014.64.00029
- 80. Naigles, L. (2014, July). The role of grammar and extralinguistic cognition in verb learning. Symposium. Invited discussant at the 13th International Congress for the Study of Child Language, Amsterdam, The Netherlands.
- 81. Naigles, L. (2014, July). Word learning and language processing in children with autism: Evidence from eye tracking. Symposium. Invited discussant at the 13th International Congress for the Study of Child Language, Amsterdam, The Netherlands.
- 82. Orinstein, A., Barton, M., Helt, M., Suh, J., Eigsti, I. M., Kelley, E., & Fein, D. A. (2015, March). Early histories of youth with a history of autism who achieve optimal outcomes. Paper presented at the Society for Research in Child Development, Philadelphia, PA.
- 83. Orinstein, A., Suh, J., Porter, K., de Yoe, K., Tyson, K., Troyb, E., Fein, D. A. (2015, March). Socialcommunicative functioning in optimal outcome children and adolescents with an autism history. Paper presented at the Society for Research in Child Development, Philadelphia, PA.
- 84. Parish-Morris, J., Fein, D., & Naigles, L. (2015, March) A fine-grained analysis of naturalistic longitudinal verb use. Poster to be presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA.
- 85. Peach, R. & Coelho, C. (2014, November). Macro- and microlinguistic processes for narrative production following TBI. Poster. American Speech-Language-Hearing Assoc. Convention, Orlando, FL.

- 86. Pejovic, J., Molnar, M., Martin, C., & Yee, E. (2014, August). Shape-sound matching abilities are limited in young monolingual and bilingual infants. Poster presented at the Society for the Neurobiology of Language (SNL), Amsterdam, The Netherlands.
- 87. Pejovic, J., Molnar, M., Martin, C., & Yee, E. (2014, July). The development of sound-shape correspondence effect in infants. Poster presented at the Second Basque neuroscience meeting. Neurogune, San Sebastian, Spain.
- 88. Pejovic, J., Molnar, M., Martin, C., & Yee, E. (2015, June). The development of sound-shape correspondence effect. Poster to be presented at the Society for the Neurobiology of at the Second Workshop on Infant Language Development (WILD), Stockholm, Sweden.
- 89. Rimzhim, A. & Naigles, L. (2014, July). Effects of NP Number, case markers, and verbal morphology in syntactic bootstrapping in Hindi. Paper presented at the 'A cross-linguistic look at the use of morphosyntax in child language' symposium, 13th International Congress for the Study of Child Language, Amsterdam, The Netherlands.
- 90. Rimzhim, A. & Naigles, L. (2014, November). Use of morphosyntactic markings and number of NPs in verb acquisition in Hind. Paper presented at the International Workshop on Children's Acquisition and Processing of Head-Final Languages, Harvard University, Cambridge, MA.
- 91. Skoe, E., & Kraus, N. (2015, February). Auditory brainstem development: Insights from Expert and Impaired populations. Poster presented at the Association for Research in Otolaryngology MidWinter Meeting, Balitmore, MD.
- 92. Snyder, W., Lillo-Martin, D. & Naigles, L. (2015, February). How to Set the Compounding Parameter: New Evidence from IPL. Paper presented in special session on 'Learning in generative grammar: 50 years since the Evaluation Metric'. Generative Approaches to Language Acquisition -North America (GALANA) 6, College Park, MD.
- 93. Sprouse, J. (2014, March). Experimental syntax: chasing monsters. Invited speaker at WCCFL 32, University of Southern California, Los Angeles, CA.
- 94. Sprouse, J. (2015, March). It is time to get serious about gradience. Invited speaker at FLYM 2, Eckerd College, St. Petersburg, FL.
- 95. Tabor, W., *Smith, G., and Cho, P. W. (2014, September). Evidence for a phase transition in learning a recursive artificial grammar. Talk presented at the 2014 Architectures and Mechanisms in Language Processing in Edinburgh, Scotland.
- 96. Theodore, R. M. (2014, July). Functional plasticity of speech sound categories. Paper presented at the 13th International Congress for the Study of Child Language, Amsterdam, The Netherlands.
- 97. Tucker, M., Idrissi, A., Sprouse, J., & Almeida, D. (2015, March). Resumption ameliorates but does not repair island violations: Evidence from Modern Standard Arabic acceptability. Poster presented at the 18th CUNY Conference on Human Sentence Processing. University of Southern California, Los Angeles, CA.
- 98. Weed, E., Fusaroli, R., Fein, D., & Naigles, L. (2015, March). Longitudinal adaptation in language development: a study of typically-developing children and children with ASD. Poster to be presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA.
- 99. Xie, X., & Myers, E. B. (2014, November). Individual differences in talker identification: Do musical experience and linguistic background matter. Poster presented at the November, 2014 Annual Meeting of the Psychonomic Society, Long Beach, CA.
- 100. Yee, E. (2014, August). The neural representation of lexical concepts. Invited talk at the Workshop on Lexical Processing, Oxford, UK.
- 101. Yeh, M. & Naigles, L. (2014, September). When an adjective behaves like a verb: Adjectival verbs in Mandarin Chinese maternal input. Paper presented at the North American Conference on Psychology and the Behavioral Sciences, Providence, RI.
- 102. Yeh, Y. C., & Naigles, L. (2015, March). When an adjective behaves like a verb: The acquisition of adjectival verbs in Mandarin Chinese. Poster to be presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA.

- 103. Yeh, Y.C. & Naigles, L. (2014, July). Putting object before or after verb the acquisition of VO and OV word orders in Mandarin Chinese. Paper. The 2nd European Conference on Language Learning, Brighton, England.
- 104. Yeh, Y.C. & Naigles, L. (2014, March). Acquiring non-canonical word orders from Mandarin input. Poster presented at the Fourth Asian Conference on Psychology and the Behavioral Sciences, Osaka, Japan.
- 105. Zhang, C., Pugh, K. R., Mencl, W. E., Molfese, P. J., Frost, S. J., Magnuson, J. S., Peng, G., & Wang, W. S-Y. (2014). Temporal locus of interaction of phonetic and talker processing in speech perception: An ERP study. Poster. Proceedings of the Annual Meeting of the Society for the Neurobiology of Language, p. 34. Amsterdam.

Conference presentations from April-May 2014 that were not allowed in annual report (40)

- 1. *Castelluccio, B. C., *Rendall A. R., Truong, D. T., Eigsti, I. M., & Fitch, R. H. (2014, May). Language-relevant auditory processing in the Cntnap2 knockout mouse. Presented at the International Meeting for Autism Research. May 2014. Atlanta, GA.
- *Castelluccio, B., Fitch, R., & Eigsti, I. M. (2014, May). Language-relevant auditory processing in the Cntnap2 knockout mouse. Paper presented at the Oral presentation, International Meeting for Autism Research (IMFAR-14), Atlanta, GA.
- 3. *Jenkins, T., Coppola, M., & Coelho, C. (2014, April). Effects of gesture restriction on quality of narrative discourse. Poster presented at the Cognitive Neuroscience Society, Boston, MA.
- 4. *Shaw, K., Powers, L., & Bortfeld, H. (2014, April). Infants are sensitive to audiovisual speech asynchrony. Poster presented at the annual meeting of the Cognitive Neuroscience Society, Boston, MA.
- 5. Bisaillon, M., Roscillo, D., & Theodore, R. M. (2014, April). Contextual influences on speech perception in developmental populations. Presented at the 17th annual Frontiers Exhibition in Undergraduate Research, University of Connecticut, Storrs, CT.
- 6. Boskovic, Z. (2014, May). Multiple left-branch extraction as scattered deletion and familiar demonstratives, Formal Approaches to Slavic Linguistics 23, University of California Berkeley.
- 7. Boddy, P., & Yee, E. (April, 2014). What the ear hears affects what the eyes see: Semantic interference on visual task. Poster presented at 21st Annual Meeting of Cognitive Neuroscience Society (CNS), Boston, MA.
- 8. Boddy, P., & Yee, E. (May, 2014). What the ear hears affects what the eyes see: Semantic interference on visual task. Poster presented at the Workshop on Concepts, Actions and Objects, Rovereto, Italy.
- 9. Casey, K., Marmon, S., Butterworth, E., Katz, E., Vasil-Dilaj, K. A., & Theodore, R. M. (2014, May). Effects of auditory and visual variability on word learning in children. Presented at the 167th meeting of the Acoustical Society of America, Providence, RI.
- 10. Chlebowski, C., Robins, D. L., & Fein, D. (2014, May). ASD screening at 18 and 24 Months: Incremental validity and characteristics of screen positive cases. International Meeting for Autism Research, Atlanta, GA.
- 11. Del Tufo, S. N., Noyes, J., Sylvia, R., Montanaro, S., & Theodore, R. M. (2014, May). Locus of phonological deficits in adults with dyslexia. Presented at the 167th meeting of the Acoustical Society of America, Providence, RI.
- 12. Del Tufo, S., Frost, S. J., Molfese, P., Fulbright, R. K., Rothman, D., Mason, G. F., Preston, J. L., Landi, N., Mencl, W. E., Hoeft, F., Grigorenko, E., & Pugh, K. R. (2014, April). Neurochemical basis of reading ability in emergent readers. Poster presented at the 21st Annual Meeting of The Cognitive Neuroscience Society, Boston, MA.
- 13. Earle., F. S., & Myers., E. (2014, May). Native language interference on the overnight consolidation of a learned nonnative contrast. Poster presented at the May 2014 meeting of the Acoustical Society of America, Providence, RI.

- 14. Frost, S., Landi, N., Molfese, P., Magnuson, J. S., Sharoh, D., Rueckl, J., Preston, J., Mencl, W. E., & Pugh, K. (2014, April). Differential functional activation in speech/language areas associated with auditory lexical learning as a function of sleep consolidation. Poster presented at the Cognitive Neuroscience Society, Boston, MA.
- 15. Irvine, C., & Eigsti, I. M. (2014, May). Belief reasoning in ASD: The role of language and executive functions. Paper presented at the International Meeting for Autism Research (IMFAR-14), Atlanta, GA.
- 16. Jashar, D., Brennan, L., Robins, D. L., Barton, M., & Fein, D. (2014, May). Adaptive skills in toddlers with DSM-IV but not DSM-5 autism. Poster presented at the 2014 meeting of the International Meeting for Autism Research, Atlanta, GA.
- 17. Johns, A. R., & Magnuson, J. S. (2014, May). Lexically-mediated perceptual learning generalizes to new word positions. Poster presented at the semiannual meeting of the Acoustical Society of America, Providence, RI.
- 18. Johns, A., & Myers, E. (2014 May). Lexically-mediated perceptual learning generalizes to new word positions. Presented at the May 2014 meeting of the Acoustical Society of America, Providence, RI.
- 19. Johns, C. L., Braze, D., Molfese, P. J., Van Dyke, J. A., Magnuson, J. S., Tabor, W., Mencl, W. E., & Shankweiler, D. P. (2014, April). Structural MRI reveals correlations between individual differences in language-related cognitive abilities and thickness of language-relevant cortical areas. Poster presented at the Cognitive Neuroscience Society, Boston, MA.
- 20. Kang, X., Joergensen, G. H., Altmann, G. T. M. (2014, April). Representing conflicting states of a single object requires identity binding: Evidence from the visual world paradigm. Presented at the Experimental Psychology Society Meeting, Kent, UK.
- 21. Kornilov, S., Magnuson, J., Rakhlin, N., Grigorenko, E., & Landi, N. (2014, April). Phonological and lexical-semantic event related potentials are atypical in children with developmental language disorders. Poster presented at the 21st Annual Meeting of The Cognitive Neuroscience Society, Boston, MA.
- 22. Kurian, A., Diehl, J. J., Frost, S. J., Mencl, W. E., & Pugh, K. R. (2014, April). Neural correlates of a language and non-language visuospatial processing in adolescents with reading disability. Poster presented at the annual meeting of the Cognitive Neuroscience Society, Boston, MA.
- 23. Landi, N. (2014, April). Common but impactful genetic polymorphisms on COMT and BDNF impact reading skill, evidence from behavioral and brain data. Invited Talk, Haskins Laboratories, pre CNS, International Cross Language Symposium. Haskins laboratories, New Haven, CT
- 24. Landi, N., Frost, S. J., Molfese, P. J., Magnuson, J. S., Sharoh, D., Preston, J., Mencl W. E., & Pugh, K. R. (2014, April). Differential functional activation in language areas associated with learning as a function of consolidation. Poster presented at the 21st Annual Meeting of The Cognitive Neuroscience Society, Boston, MA.
- 25. Magnuson, J. S., Frost, S., Landi, N., Molfese, P., Sharoh, D., Rueckl, J., Preston, J., Mencl, W. E., & Pugh, K. (2014, April). A crucial role for phonological inhibition in auditory referential word learning: Evidence from an artificial lexicon paradigm. Poster presented at the Cognitive Neuroscience Society, Boston, MA.
- 26. Molfese, P., Bogaerts, L., Frost, S., Mencl, W. E., Rueckl, J. G., Landi, N., & Pugh, K. R. (2014, April). Investigating neural correlates of implicit memory and reading ability. Poster presented at the 21st Annual Meeting of The Cognitive Neuroscience Society, Boston, MA.
- 27. Moulton, E., Barton, M., Robins, D. L., & Fein, D. (2014, May). Early characteristics of children who lose their autism diagnosis between age 2 and 4", in panel "Resilience in Infants at High Risk for Developing Autism Spectrum Disorders?. International Meeting for Autism Research, Atlanta, GA.
- 28. Mozeiko, J., Myers, E., & Coelho, C. (2014, May). Neurobehavioral response to increased treatment dosage in chronic, mild aphasia. Clinical Aphasiology Conference, St. Simon's Island, GA.
- 29. Myers, E. (2014, May). Neural sensitivity to phonetic category structure. Paper presented at the May 2014 meeting of the Acoustical Society of America, Providence, RI.

- 30. Orinstein, A., Helt, M., Troyb, E., Tyson, K. E., Barton, M., Eigsti, I. M., Naigles, L., & Fein, D. (2014, May). Intervention history of children and adolescents with high-functioning autism and optimal outcomes. Talk presented at the 2014 International Meeting for Autism Research, Atlanta, GA.
- 31. Parish-Morris, J., Gilman, C., Fein, D., & Naigles, L. (2014, May). A fine-grained analysis of longitudinall language use in toddlers with ASD: The case of GAP verbs. Poster presented at the 2014 International Meeting for Autism Research, Atlanta, GA.
- 32. Peach, R. & Coelho, C. (2014, May). Difficulty linking macro- and microlinguistic processes for narrative production following TBI. Clinical Aphasiology Conference, St. Simon's Island, GA.
- 33. Potrzeba, E., Tek, S., Fein, D., & Naigles, L. (2014, May). Investigating the shape bias for word learning in children with autism spectrum disorders. Poster presented at the 2014 International Meeting for Autism Research, Atlanta, GA.
- 34. Skoe, E., Krizman, J., Spitzer, E., & Kraus, N. (2014, April). Top-down guided learning: Evidence from simultaneous brainstem and cortical auditory-evoked potentials. Cognitive Neuroscience Society Annual Meeting, Boston, MA.
- 35. Su, Y., Naigles, L., & Su, L. (2014, May). Expressive language profiles in Chinese preschool children with autism spectrum disorders: Assessment with the Putonghua Communicative Development Inventory (Toddler Form). Poster presented at the 2014 International Meeting for Autism Research, Atlanta, GA.
- 36. Suh, J., Eigsti, I. M., Naigles, L. M., Barton, M., Orinstein, A., Irvine, C., Jashar, D., Haisley, H., Kelley, E. A., & Fein, D. (2014, May). Peer ratings of videotaped story-telling of optimal outcome children with a history of ASD. Poster presented at the 2014 meeting of the International Meeting for Autism Research, Atlanta, Georgia.
- 37. Theodore, R. M. (2014, May). Talker-specific influences on phonetic category structure. Presented at the 167th meeting of the Acoustical Society of America, Providence, RI.
- 38. Torabian, S., Alpers, N., Naigles, L., McIntyre, N., Oswald, T., Swain-Lerro, L., Novotny, S., Kapelkina, T., & Mundy, P. (2014, May). Assessing language in school-aged children with ASD in a virtual, public speaking task. Poster presented at the 2014 International Meeting for Autism Research, Atlanta, GA.
- 39. Yeh, Y.C. & Naigles, L. (2014, May). The role of frequency in the acquisition of Mandarin Chinese word orders. Paper presented at the North American Conference on Chinese Linguistics (NACCL)/ International Association of Chinese Linguistics (IACL), College Park, MD.
- 40. Zhang, C., Pugh, K. R., Mencl, W. E., Molfese, P. J., Frost, S. J., Magnuson, J. S., Peng, G., & Wang, W. S-Y. (2014, April). Neural processing of phonetic and talker information in a tone language: An fMRI study. Poster presented at the Cognitive Neuroscience Society, Boston, MA.

Patent (1)

1. Skoe, E. (2014). Systems and Methods for Measuring Complex Auditory Brainstem Response. US 8825149 B2. Washington, DC: U.S. Patent and Trademark Office.