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Cover

Federal Agency and Organization Element to Which Report is Submitted:	4900
Federal Grant or Other Identifying Number Assigned by Agency:	1449815
Project Title:	NRT-DESE: Flexibility in Language Processes and Technology: Human- and Global-Scale
PD/PI Name:	Colin Phillips, Principal Investigator Hal Daume, Co-Principal Investigator Robert M DeKeyser, Co-Principal Investigator William J Idsardi, Co-Principal Investigator Rochelle Newman, Co-Principal Investigator
Recipient Organization:	University of Maryland College Park
Project/Grant Period:	04/01/2015 - 03/31/2020
Reporting Period:	04/01/2017 - 03/31/2018
Submitting Official (if other than PD\PI):	Colin Phillips Principal Investigator
Submission Date:	07/18/2018
Signature of Submitting Official (signature shall be submitted in accordance with agency specific instructions)	Colin Phillips

Accomplishments

* What are the major goals of the project?

The impact of “Big Data” analysis on language science and technology is exemplified by tools like Siri and Google Translate. This technology relies on analysis of billions of words and sentences in English, but it is squarely outperformed by human children, who learn language using only modest amounts of data. Understanding how human learners make such economical use of language input and translating these insights into “smarter” methods in language technology requires an interdisciplinary approach. Our NRT project combines team based research on the efficient use of language data (“Beyond

Big Data”) with a strong emphasis on student leadership, science communication, outreach, public policy activities and preparation for diverse careers.

Major goals of the project include: (i) understanding efficient use of language data, with a focus on the informativity of data to human and machine learners; (ii) adopting team-based approaches to complex research problems spanning multiple fields; (iii) providing students with the experience and skills to be flexible communicators in writing and speaking; (iv) training students to become future leaders in interdisciplinary research.

The project’s training model is designed to train future leaders in the field of language science: researchers who are creative, adaptable, and skilled at working in teams to solve complex problems.

Building on lessons learned from our IGERT program, emphasis is placed on “enabling” activities-- activities that may at first seem like distractions, but in fact build communication skills and catalyze cross-disciplinary interactions, providing students with skills needed to become leaders in interdisciplinary and translational research. Specific activities fall into one or more of the following six categories: community activities, communication training, team-based research on flexible data use, career development, public policy experiences, and training that pushes students beyond their comfort zone. These activities are discussed in greater detail in the Major Activities section of this report.

We have been working in close conjunction with our NRT evaluator, Prof. KerryAnn O’Meara, to develop a comprehensive training and evaluation model. The model comprises a detailed program objectives statement, a logic model, and guidelines for measuring outcomes. Each of these components are included in the report. The program objectives statement is included in the Specific Objectives section. The logic model is included as a PDF attachment to the Accomplishments section. Finally, guidelines for measuring outcomes are included under the relevant subheading of the Major Activities section.

*** What was accomplished under these goals (you must provide information for at least one of the 4 categories below)?**

Major Activities: RESEARCH

We highlight two growing areas of interdisciplinary research activity: (i) understanding the impact of poverty on the development of language and literacy; (ii) using computational models to understand language acquisition and processing.

i. We continued our efforts in the area of Language and Poverty, building on foundations laid in 2016-2017. In Fall 2017 we organized a seminar, co-taught by Jan Edwards (Hearing & Speech Sciences) and Jeff Lidz (Linguistics). This brought together students from 3 departments who would not normally share classes, and exposed them to new perspectives. The project has led to several new student projects currently in development. A related theme emerged this year at the intersection of our research, communication, and policy efforts. As part of the communication and outreach efforts, students organized a screening of the PBS documentary “Talking Black in America”, together with a Q&A with filmmaker Walt Wolfram of NC State University. The event attracted over 500 people, and stimulated a discussion on attitudes to dialect differences at the university. As part of the NRT’s policy experience effort, students are now researching attitudes and experiences related to dialect diversity at the university, with a view to developing activities that could be included as part of general diversity training at the university. This new effort has created a collaboration between students and faculty who would not have come together otherwise.

ii. We see continued growth in the number of students who are combining research with humans and computational models to understand language learning or language processing. NRT trainees Kasia Hitzcenko, Laurel Perkins, Phoebe Gaston and Nick Huang are all pursuing this in some fashion. All but one of these students began graduate school with very limited computational experience and now routinely use computational methods in their research. Perkins, Hitzcenko and Huang are using modeling to understand how language learners tackle the challenge of sparse or noisy input in their language experience. Gaston has used computational simulations of word recognition processes to understand how listeners use context in word recognition. Aside from the individual results, students such as these have led to a culture change, where new students are inspired and empowered to combine human and computational

research. We have heard from many of this year's new crop of NRT students that they want to do the kind of research that these students are doing

EDUCATION AND TRAINING

This year we made major progress in the development of policy and advocacy efforts. We also introduced new supports for students' communication skills. Two co-taught interdisciplinary seminars exposed students to unfamiliar perspectives and prompted new research projects.

i. Building on momentum generated by last year's "Language Science Day of Action" (1/20/2017) and our participation in Language Advocacy Day on Capitol Hill (2/16-17/2017), we encouraged the formation of a new student committee focused on policy and advocacy. The committee was first convened in May 2017, led by NRT trainee Lara Ehrenhofer (who was also completing her policy internship that summer) and including several other NRT trainees. Since then, the committee has made significant progress in understanding potential roles for academic researchers in policy-related advocacy. They have launched several task forces to tackle specific topics, and designed events and workshops to engage a broader group of language scientists at UMD.

ii. Language Science Lunch Talks (LSLT) have been an essential part of our community for many years, and NRT evaluation results suggest that they are effective in improving students' communication skills. Based on student suggestions, in Fall 2017 we initiated a more rigorous system for providing support and feedback for students presenting Language Science Lunch Talks (LSLT). In the past, we had simply reminded presenters that the audience was interdisciplinary and encouraged them to design their talks accordingly. Most students have seen at least two semesters of weekly LSLTs before presenting their own, and we hoped that they would be able to apply what they learned from observation (with some guidance from their advisors). But many students reported that they didn't know how to make their talks more accessible, and that their advisor's input was not always helpful. Our new approach has four components. (1) Students are provided with a written guide to designing an accessible talk. (2) Presenters are assigned to "peer feedback groups" of 3-4. Each group includes students from multiple fields, and a mix of more junior and more senior students. Two weeks before their scheduled talk, presenters are reminded to convene a meeting of the group to get feedback on their planned talk. Some presenters give a full practice talk; others get input at an earlier stage. (3) At the end of the talk, audience members give anonymous feedback through an online survey. (4) Presenters complete a brief self-evaluation survey, and are then sent the audience feedback.

Students in the Professional Development committee initiated additional supports for writing. They held a workshop on "How to Write a Lot" and how to use writing groups effectively, and then launched a weekly writing accountability group for students.

iii. Profs. Jeff Lidz (Linguistics) and Jan Edwards (Hearing & Speech Sciences) co-taught an interdisciplinary seminar entitled, "Language and Poverty: Beyond the Word Gap." The course explored how poverty affects children's linguistic development through the complex relationships between experience, cognitive development, and the acquisition of grammar. Enrollment included students from Linguistics, Neuroscience & Cognitive Science, Hearing & Speech Sciences, and Education; 6 were current NRT trainees and one is joining the program in the fall.

Profs. Ellen Lau (Linguistics, Neuroscience & Cognitive Science), Omer Preminger (Linguistics), and Philip Resnik (Linguistics, UM Institute for Advanced Computer Studies) co-taught a so-called "Violently Multidisciplinary Language Seminar". Although the instructors all reside within the Linguistics Department, they represent very different subfields: psycho-/neurolinguistics, theoretical syntax, and computational linguistics. The idea was to promote productive crosstalk by examining the same linguistic phenomenon from different perspectives. Enrollment included students from Linguistics,

Neuroscience & Cognitive Science, Computer Science, and Hearing & Speech Sciences; 6 were current NRT trainees and 5 are joining the program in the fall.

EVALUATION

The NRT internal evaluation is guided by case study methods and seeks to answer two research questions: 1) To what extent has the NRT program achieved its seven stated goals? 2) Which elements of the program were most influential in accomplishing these goals? The evaluation draws primarily from qualitative data sources including interviews, focus groups, and ethnographic observations of NRT program events. To date, the evaluation team has conducted focus groups with both students (3) and faculty (3), done one-on-one interviews with 13/19 current NRT students, and completed ethnographic observations at several NRT events (approximately 40 hours).

The annual survey of NRT trainees was distributed to UMD students and students from three universities (University of Connecticut, University of Wisconsin, and The Ohio State University) in Fall 2017. These institutions are all public flagship universities with some kind of cross-departmental coordination of language science activities, and so their inclusion as comparisons is valuable for understanding the value added by our program. The evaluation team prepared and presented a comprehensive Year three report of their findings to the PI and program staff in February 2017.

Specific Objectives:

Our research objectives have not changed since last year. We aim to create productive bridges between cognitive and computational research on language, to examine how human and machine learners can do more with less, and to create sustainable research teams that draw from multiple fields. The project falls under the NRT “data-enabled science” umbrella, but in our case this does not entail a focus on Big Data. Rather, the focus is on how to do more with less.

Our training objectives are also the same as last year. We aim to (i) enhance students’ ‘agency’ as interdisciplinary researchers, via their research skills, independence, collaborative skills, risk-taking and ability to move beyond the personal comfort zone, and ownership of program activities; (ii) change students’ professional networks, across disciplines, institutions, career stages, and career types; (iii) enhance students’ ability to connect specific research problems with their broader context (“zooming in” and “zooming out”); (iv) enhance student ability to communicate particular research problems and the contexts surrounding them to diverse academic and nonacademic audiences in writing, in speaking and in diverse contexts; and (v) enhance students’ ability to pursue careers within and outside of academia by helping them assess their own skills and values, understand the career options available, and make a plan to achieve their career goals.

Significant Results:

RESEARCH

i. Kasia Hitzcenko (Linguistics) uses computational models to understand how humans overcome variability in speech sounds when learning phonological categories. While this is apparently an easy task for human learners, machine learners regularly fail. Researchers have struggled to identify consistent mappings between acoustic cues and phonological categories. One popular hypothesis is that human learners could “normalize out” predictable sources of acoustic variability, allowing the underlying categories to emerge more clearly. Kasia tested this hypothesis by modeling the acquisition of a Japanese vowel length contrast. With additional support from the EAPSI program, she traveled to Japan in summer 2017 to work with Dr. Reiko Mazuka at the

RIKEN Brain Sciences Institute and use the RIKEN Japanese Mother Infant Conversation Corpus. She found that normalizing out systematic variability did not substantially improve categorization performance in a machine learning system. A strategy using both acoustic cues and top-down contextual information was more effective. She plans to work with faculty in Hearing and Speech Sciences to apply her findings to theories of how actual human infants learn sound categories, and test those theories in the lab.

ii. Phoebe Gaston (Linguistics) has been investigating how adults use syntactic structure to predict, recognize, and integrate words during the course of sentence comprehension. For example, we know that listeners use partial linguistic input (e.g. “c...”) to activate a cohort of potential matches (“car”, “clash”, “clan”, “cleave”), which is gradually reduced based on additional input (e.g. “cl...”). Similarly, a listener could use syntactic context (e.g. “the cl...”) to further narrow the group of candidates by category (nouns). Previous research on whether and how listeners use syntactic category to restrict lexical access has produced conflicting results across different methodologies. Phoebe has used a combination of computational, neuroscientific, and eye-tracking methods to understand how comprehenders integrate information from incoming sounds with syntactic context, leading to a deeper understanding of some core information processing mechanisms in language.

EDUCATION AND TRAINING

i. Before this year and the creation of the student policy committee, events and workshops related to policy or advocacy were more sporadic. In focus groups and interviews, NRT students articulated a general understanding of how their research might apply to “real-world” issues such as education, healthcare, or technological development, but showed varying levels of confidence when asked about the extent to which they felt comfortable communicating with policy-makers. The more consistent, student-led efforts of the policy committee have engaged more students and faculty in discussions about roles for scientists in policy and advocacy. For example, a panel discussion at Language Science Day 2017 included two UMD faculty members and one NSF Program Officer, each of whom discussed how their research--in very different fields--led them to develop close partnerships with community leaders and decision makers. The importance of two-way communication between researchers and the communities they work in was a continuing theme in a talk and a workshop at Winter Storm, highlighting partnerships between linguistic researchers and the community at our Guatemala Field Station.

Several groups of students have coalesced to work on specific policy issues. The Dialect Diversity task force aims to study attitudes toward non-mainstream dialects of American English on campus at UMD, and use their findings to design a module to be included in Diversity & Inclusion training for instructors. The Bias in Linguistics group has been collecting data on gender disparities in linguistics across the US, focusing initially on career progress and publication rates. They aim to better understand the effect of policies at the level of the university and department, as well as other gatekeepers like journals, conferences, and funding organizations. Another task force is focusing on policies that affect English learners in the public school system, and how to disseminate information to parents in our local area about those policies, as well as the science of multilingualism.

ii. Our efforts to improve support for LSLT presenters have had a positive effect for both presenters and audiences. Most presenters have found the feedback from their peer group quite useful, and worth the extra work. One presenter commented, “They gave feedback on how to make each step of the presentation build on previous steps, ... to keep the audience on board”. Another said, “it allowed me to calibrate my talk according to the audience ... to choose the right level of abstraction for the talk, without making it

overly simplistic.” Audience members generally find the talks to be more accessible, even when they have different disciplinary backgrounds.

iii. Evaluation results suggest that interdisciplinary seminars helped develop trainees’ identity as interdisciplinary scholars and agency within their graduate program. In interviews and focus groups, trainees indicated the seminars allowed them to develop an awareness of the way disciplinary affiliation shapes research approaches. Students also mentioned that the seminars provided a platform for making connections with faculty and students outside of their department and participating in interdisciplinary research projects. Faculty teaching interdisciplinary courses noted that having a significant number of students from other disciplines forces them to teach the content in new ways that they think mostly improves the course.

EVALUATION

In fall 2017, our evaluation team distributed a survey to UMD’s NRT trainees and doctoral students at three peer institutions: University of Connecticut, The Ohio State University, and University of Wisconsin. The survey will be administered annually to track students’ professional growth over time. The survey was designed to examine the extent to which students experience their graduate programs as contributing to their development as interdisciplinary researchers. The survey items were developed based on the extant literature on doctoral student development as well as the seven goals of the UMD NRT program.

Overall, we found three major areas where UMD trainees reported more positive outcomes compared to non-UMD peers. One area was professional development. Trainees participated in a high number of professional development activities, and had more opportunities to learn about academic and non-academic career options compared to non-UMD students. A second area of strength was cross-listed courses and interdisciplinary seminars. For example, 88% of trainees reported that cross-listed courses were offered, compared to 66% of non-UMD students. UMD trainees reported greater opportunities to access team-taught courses by faculty from different departments and to take courses in other departments. Finally, UMD trainees indicated that they had more opportunities to interact and communicate with diverse audiences. For example, they reported more opportunities to learn about the impact of their research on clinical applications, industry, or public policy, and more opportunities to communicate their research to non-academics. These findings suggest that the program’s emphasis on communication, outreach, and policy have broadened students’ awareness of the scope of their work and given them unique opportunities to practice interacting with diverse audiences.

Key outcomes or Other achievements:

RESEARCH

i. The NRT program has encouraged numerous students pursuing research in psycholinguistics or language acquisition to begin using computational methods to better understand their experimental results. There seems to be a sense of momentum and excitement building around this type of work in the Linguistics department. Several students applying to the NRT program this spring cited the success of these projects as their inspiration to pursue training in computational methods. For example, Laurel Perkins (Linguistics) has been using computational modeling to investigate how infants’ developing parsers affect their acquisition of grammatical structure. This approach has attracted interest from students studying sentence processing, language acquisition, and even theoretical syntax.

ii. The NRT program strongly encourages multiple advisors, including advisors from multiple departments. Two trainees who are graduating in Summer 2018 demonstrate the value of this approach. Allyson Ettinger has been co-supervised by a computer scientist and a cognitive (neuro)scientist, leading to research that neither of her mentors could have carried out themselves. Allyson has applied methods normally used to

understand human brains to better understand the successes and limitations of state-of-the-art machine learning tools. And she has applied computational tools to gain insights into current controversies in language understanding. Lara has benefited from a diverse advising team, with expertise in adult and child language, leading to new insights about parallels between processes that make adults more robust comprehenders and children more fragile comprehenders.

EDUCATION AND TRAINING

Our education strategy emphasizes the importance of developing students' professional networks and agency. Evaluation results suggest that our training efforts are effective in these respects.

There is strong evidence that the NRT program has positively contributed to the development of interdisciplinary professional networks among students. Trainees' networks become larger and more diverse (in discipline and research methods), and include peers, more senior students, and faculty. Students reported developing these networks through several specific activities including interdisciplinary seminars, Winter Storm, Language Science Day, reading groups, and Language Science Lunch Talks. Students frequently cited the value of reading groups and research teams for working with peers on research projects over a prolonged period of time (multiple semesters and in some cases over multiple years).

Based on interviews and focus groups, as well as reviewing trainees' CVs, we find significant evidence that the NRT program has been effective in enhancing doctoral student agency as interdisciplinary researchers. Trainees are given opportunities to engage with other disciplines, participate on multi-disciplinary research teams, and develop skills that will enable them to do interdisciplinary research. Students report that interdisciplinary seminars and outreach events help them gain familiarity with and appreciation for the research approaches and methods of other disciplines. Students also demonstrate agency by taking on leadership roles within the language science community, such as leading sessions during Winter Storm, planning Language Science Day, or coordinating outreach events. Through these activities, students develop confidence in their collaboration skills and feel increased ownership of the NRT program: they feel able to make positive contributions to an interdisciplinary community.

*** What opportunities for training and professional development has the project provided?**

PROGRAM ELEMENTS

i. Applications.

The process of developing a training plan to apply to the program is intimidating for early stage students. Last year we added an extra stage to the application process, requiring applicants to submit a letter of intent and meet with the program coordinator before submitting their full proposal. This approach was quite successful: students reported that the meeting was helpful for thinking through their research and training plan, and made the process less intimidating. We continue to focus on helping students to hone their priorities and ensure that their training plan matches their research and career goals.

ii. Mentoring.

This year we continued to refine our approach to our mentoring of trainees, particularly in the spring progress report and meeting. Prior to meeting with the program coordinator to discuss their progress and plans, each trainee updated their information in a database we created to track trainees' research and training activities and products. They also completed an online self-assessment for career development (ImaginePhD.com), and wrote an IDP with their goals for the next year. Creating the IDP proved to be a revelatory experience for many trainees. They had not previously considered how to prioritize and create a timeline for all of their various goals and responsibilities in different areas. The IDP made the process more concrete.

At this year's Winter Storm, we provided trainees with opportunities to discuss strategies and challenges for building effective mentoring relationships, as both the mentee or the mentor. One session featured a panel of three faculty members and a postdoc, who discussed their strategies for setting expectations and mentoring students with diverse needs. In a second session led by a faculty member from the UMD Counseling Center, students discussed strategies and challenges for navigating difficult conversations or conflicts with their advisors.

iii. Career development.

Although this year we did not have any workshops specifically about career development, discussions about career plans have become routine in meetings with trainees: when they apply to become an Apprentice, when they are working on their research and training proposal to join the program, and in annual progress meetings. Students described their career goals and identified skills to work on in their IDP for the progress meeting.

iv. Community events and leadership training.

As usual, students ably led a variety of community events and activities throughout the year, via the committees on Research Skills & Collaboration, Professional Development & Communication, Outreach, and Policy & Advocacy. However, students often report that they feel unprepared for the leadership roles that they have, so we want to take a more structured approach to leadership training. This year we collected information about challenges and strategies for student leadership. We plan to hold our first leadership workshop on May 22, open to any students taking on leadership roles in the near future.

COMMUNICATION

Trainees in our program have many opportunities to practice and improve their skills communicating to broad audiences. These include the weekly Language Science Lunch Talks, regular outreach activities (primarily aimed at high school students), advocacy events, and numerous workshops offered during Winter Storm and throughout the year (see the attached table for a full list). We are gradually adding more structure to this training. This year we implemented several mechanisms (discussed in detail above) to increase the training benefit of LSLT: written guidelines, peer feedback groups, self-evaluation, and written audience feedback. The results have been positive, and we plan to continue this approach next year. Our next target is writing. NRT trainee Allison Johnson spearheaded the formation of a new writing group for students, but the group focuses more on productivity than quality. The new language science blog is a promising venue for feedback and discussion about writing skills. Writing a blog post for a broad audience is challenging, but lower stakes than a journal article, and with a more straightforward communications goal. In this way the blog could improve written communication skills the way outreach to high school students improves oral communication skills.

EVALUATION

Professional development topics are included in all program evaluation activities, including the survey, student interviews, and focus groups with students and faculty. As mentioned above (under Significant Results), this year's survey results suggest that, compared to students at peer institutions, our trainees participate in more professional development activities, have more opportunities to learn about academic and non-academic career options, and have more opportunities to communicate with diverse audiences and non-academics.

*** How have the results been disseminated to communities of interest?**

Our team has been doing many different things to get the word out about what we are doing, reaching different audiences via multiple channels. There is no clear line between NRT-specific activities and the broader range of activities of the Maryland Language Science Center, and our communications strategy reflects this.

(i) Websites. We have deliberately avoided creating an NRT-specific website, as we believe that it is hard to get broad buy-in to a short-term grant with an obscure acronym. As we did with our earlier IGERT program, we embed NRT materials as a section within the broader Language Science Center website. These materials are primarily aimed at prospective NRT students and their mentors.

We created websites for the NRT Teams' Meeting and Future STEM Leaders meeting in Maryland and Washington DC in May 2016. These sites now include materials from those meetings, making them a valuable resource on the activities of the first two NRT cohorts. These should, in principle, be of interest to prospective NRT applicants, an important and receptive audience.

(ii) New Blog. In April 2018 we launched a new language science blog, "Language in Mind". The final form and purpose of the blog was determined in multiple student-led brainstorming and planning sessions held during Winter Storm and the spring semester. The blog includes posts aimed at a range of audiences with different levels of expertise. (We established a "nerd-level" rating system to alert readers to the intended audience of each post.) For example, trainee Adam Fishbein published a speculative piece about the structure of birdsong, intended to provoke a dialogue between neuroscientists studying birds and linguists studying human grammar. Trainee Allison Johnson published a post about the importance of person-first language for researchers, clinicians, and average citizens. We also plan to use the blog to disseminate our approach to interdisciplinary graduate training, discussing successes and challenges from the NRT program and IGERT program.

(iii) Social media. LSC's Facebook following grew to about 650 this year. Our posts reach 200-300 people on average, and some as many as a thousand. These are not huge numbers, but our activities have high visibility among language scientists, which increases the impact of our NRT program in our field(s). The primary goal of these posts is highlighting the culture of our interdisciplinary community to scientific peers.

(iv) Meetings with (inter)disciplinary groups. Our team's activities were highlighted in a special session at the January 2018 meeting of the Linguistic Society of America, as well as a symposium organized by Phillips for the 2017 National Humanities Conference in Boston.

(v) Dissemination to other (prospective) NRT teams. Aspiring NRT teams at UMD and elsewhere regularly seek out Phillips for advice on developing interdisciplinary programs. We make all of our program's materials, including the proposal and reviews, available online. Our team has met with the PIs of the other NRT program at UMD and the language science NRT program at UConn, as well as a handful of other NRT hopefuls at UMD and other universities.

(vi) Dissemination to other units at UMD. NRT program coordinator Dr. Shevaun Lewis has taken on a part-time appointment with the Neuroscience and Cognitive Science program at UMD to work on PhD student career development. In this way, the workshops, resources, and mentorship models developed for the NRT program are now available to a different group of students.

(vii) Dissemination of evaluation results. Our evaluation team is developing two or three academic papers out of the data collected from evaluation activities. The first of these was submitted to the annual conference of the Association for the Study of Higher Education (ASHE).

*** What do you plan to do during the next reporting period to accomplish the goals?**

In the past year our project made substantial progress in evaluation, including the deployment of a control group of 3 peer institutions. In a report on evaluation results to date (attached as a supporting document), our evaluation team made several recommendations for program improvements.

i. Facilitate policy experiences.

Many trainees are intimidated by the policy experience. We sympathize, as it lies beyond our own comfort zone as academics. Students have expressed confusion about the nature of the requirement, and a lack of confidence in their ability to find a relevant opportunity. We have addressed this issue in several different ways and we are confident that the situation has already improved and will continue to do so.

a. The NRT coordinator has held multiple group meetings about the policy experience requirement, and addresses individual trainees' plans in annual progress meetings.

b. Trainees who completed a policy experience in Summer 2017 presented about it in one of the first LSLT meetings in the fall, providing a reassuring example for other trainees to follow.

c. The formation of the student policy committee brings policy-related activities into regular community events like Language Science Day and Winter Storm. The committee has also launched several team projects focusing on policy issues (described above under Significant Results), providing further examples for other students to follow.

ii. Provide more training in non-academic communication.

Our program provides many opportunities to practice non-academic communication, but not so much explicit training. We highlight this skill as part of the broader goal of training students to flexibly adjust their communication to diverse contexts. We have already implemented one new activity that will help with this: our new student-led blog, "Language in Mind." We have

held multiple workshops related to writing compelling pieces for broad audiences, and student contributors to the blog receive several rounds of feedback from peers and faculty. The other type of communication that we need to provide better training for is the outreach activities for high school students and younger children. Student leaders in the outreach committee have developed many creative, interactive activities for teaching basic language science concepts. Many trainees get to practice their communication skills by using these pre-made materials and activities. However, trainees don't necessarily know how to create new activities, to explain different concepts. We hope to work with the new leader of the outreach committee to develop more effective training activities to be included in Winter Storm.

iii. Facilitate feedback at interdisciplinary talks.

Because linguists are the largest and most visible group in our language science community, they often dominate the Q&A portion of our weekly LSLT meetings. They bring a straightforward, critical style of questioning that is common in linguistics but sometimes comes as a surprise to students from other departments. Some student presenters feel unequal to the task of managing the audience during their talk, or feel discouraged by the critical feedback during the discussion. Similarly, many students in the audience, especially those who aren't from Linguistics, do not feel confident enough to ask questions or give feedback in that environment. Although we firmly believe that public critical feedback is valuable for everyone involved, we also know that it is most effective in an environment with a high level of trust. At LSLT, the students and faculty from Linguistics know and trust each other, which can lead others to feel like outsiders. It's very important for us to engineer an environment for critical feedback that is welcoming to everyone. In the coming year we will experiment with some adjustments to the Q&A format for LSLT: for example, having a non-presenting student moderate questions during and after the talk, or designating a period for student-only questions before faculty can join in.

iv. Return focus to different types of careers.

Over the past two years, we focused our career development efforts on giving students general tools for career planning: identifying their interests and skills, and making a plan to include professional development in their training. We have spent less time giving students specific information about possible career paths. We address this in individual meetings, discussing career paths of potential interest to the individual student and providing resources and contacts so that they can learn more. But recently we haven't had any highly visible events highlighting specific career options, which provide the additional benefit of publicizing and normalizing "non-traditional" career paths for the broader community. In the coming year we will be sure to include one or more career panels during Winter Storm and/or Language Science Day.

v. Provide more training in leadership skills.

Although many trainees take on leadership roles in the language science community, they are not all equally successful. Many student leaders feel that they lack the skills or authority to manage the efforts of a team of peers. Some students take to it naturally, or figure things out on their own, or seek advice from peers or mentors. But as a program we haven't been providing much explicit support. We have already begun to address this gap: in May 2018 we held our first ever leadership and management workshop, covering the basics of leadership, people management, and project management. It was attended by all the incoming student committee chairs, as well as a couple students in other kinds of leadership roles. The goal was to not only provide some tools for addressing common challenges, but also create a community of peers in similar positions who can provide each other with input and support throughout the year.

vi. More institutional dissemination.

We should continue to seek new ways of sharing our methods and best practices for interdisciplinary community building and graduate training with other units at UMD. Our evaluation team is planning to initiate a series of interviews with faculty, department chairs, deans, and other relevant campus leaders to gauge whether and how much we have influenced other units. That process may also be useful for discovering new opportunities for dissemination and collaboration. We already have plans to establish a "Language Science Council" including chairs, directors, and deans from all units relevant to language science. The goals of that group would be broader than graduate education, but we hope to generally increase awareness of the activities of the Language Science Center. We have also considered working with the Graduate School to host a workshop on best practices and innovations in graduate education across the university.

Supporting Files

Filename	Description	Uploaded By	Uploaded On
trainee_table_2018.pdf	List of trainees.	Colin Phillips	07/17/2018
NRT-Logic_Model-2018progress.pdf	Logic model and associated activities from this reporting period	Colin Phillips	07/17/2018
NRT-2018 Internal Evaluation Third Year Report.pdf	Internal evaluation report (February 2018)	Colin Phillips	07/17/2018
PDTable-2018-revised.pdf	List of professional activities (revised as requested).	Colin Phillips	07/18/2018

Products

Books

Book Chapters

Inventions

Journals or Juried Conference Papers

Alexander Williams and Jeffrey Green (2017). Why control of PRO in rationale clauses is not a relation between arguments. Proceedings of NELS 47. . Status = PUBLISHED; Acknowledgment of Federal Support = No ; Peer Reviewed = No

Allyson Ettinger and Sudha Rao and Hal Daume III and Emily Bender (2017). Towards Linguistically Generalizable NLP Systems: A Workshop and Shared Task. Proceedings of the First Workshop on Building Linguistically Generalizable NLP Systems. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = No

Anton Malko and Lara Ehrenhofer and Colin Phillips (2017). Theories and Frameworks in Second Language Processing (Commentary on Cunnings, 'Parsing and working memory in bilingual sentence processing'). Bilingualism: Language and Cognition. . Status = PUBLISHED; Acknowledgment of Federal Support = No ; Peer Reviewed = Yes

Laurel Perkins and Naomi Feldman and Jeffrey Lidz (2017). Learning an Input Filter for Argument Structure Acquisition. Proceedings of the 7th Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2017). . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Phoebe Gaston and Nick Huang and Colin Phillips (2017). The logic of syntactic priming and acceptability judgments. Behavioral and Brain Sciences. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Stephanie Antetomaso and Kouki Miyazawa and Naomi Feldman and Micha Elsner and Kasia Hitczenko and Reiko Mazuka (2017). Modeling phonetic category learning from natural acoustic data. BUCLD 41: Proceedings of the 41st annual Boston University Conference on Language Development. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Sudha Rao and Hal (Daume III) (2017). Are you asking the right questions? Teaching Machines to Ask Clarification Questions. Proceedings of the 55th Annual Meeting of the Association for Computational Linguistics- Student Research Workshop. . Status = PUBLISHED; Acknowledgment of Federal Support = No ; Peer Reviewed = Yes

Sudha Rao, Daniel Marcu, Kevin Knight and Hal Daumé III (2017). Biomedical Event Extraction using Abstract Meaning Representation. Proceedings of the BioNLP 2017 workshop. . Status = PUBLISHED; Acknowledgment of Federal Support = No ; Peer Reviewed = Yes

Licenses

Other Conference Presentations / Papers

N. Basak Karatas and Ellen Lau (2018). A Morphological Cue Beats a Semantic Constraint in Turkish Agreement Attraction. 31st Annual CUNY Conference on Human Sentence Processing. University of California, Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Alexander Williams and Laurel Perkins and {Angela Xiaoxue} He and Sigríður Björnsdóttir and Jeffrey Lidz (2017). A New Test of One-to-One Matching Between Arguments and Participants in Verb Learning. 42nd Boston University Conference on Language Development (BUCLD 42). Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Nick Huang (2017). A missing NP illusion in Mandarin Chinese doubly center-embedded sentences. 30th Annual CUNY Conference on Human Sentence Processing. MIT, Cambridge, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Allison Johnson and Patrick Reidy and Benjamin Munson and Danielle Revai and Jan Edwards (2017). Acquisition of the /t-/k/ contrast in children with cochlear implants & children with normal hearing. Annual Convention of the American Speech-Language-Hearing Association. Los Angeles, California, United States of America. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jeffrey Green (2018). Adjunct control as logophoric control. Annual meeting of the Linguistic Society of America. Salt Lake City, Utah. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adam Fishbein and Robert Dooling (2017). An Efficient Behavioral Assay for Measuring Auditory Pattern Processing in Budgerigars. 4th International Symposium on Acoustic Communication by Animals. Omaha, NE. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Zoe Ovans and Jared Novick and {Yi Ting} Huang (2018). Better to be reliable than early: Cognitive control effects on developmental parsing. 31st Annual CUNY Conference on Human Sentence Processing. University of California, Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Mina Hirzel and Aaron White and Jeffrey Lidz (2017). Biased distributions in dialogs do not shape verb learning. 42nd Boston University Conference on Language Development (BUCLD 42). Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

N. Basak Karatas and Kira Gor and Ellen Lau (2017). Comparison of Sensitivity to Case Violations across Native and Nonnative Speakers of Turkish. International Morphological Processing Conference. Trieste, Italy. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lara Ehrenhofer and Neomi Rao and Julia Buffinton and Ellen Lau and Colin Phillips (2018). Competing predictions drive N400 sensitivity to argument role reversals. 31st Annual CUNY Conference on Human Sentence Processing. University of California, Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

N. Basak Karatas and Kira Gor and L. Robert Slevc and Ellen Lau (2018). Complex Sentence Planning in L1 & L2 Turkish. 31st Annual CUNY Conference on Human Sentence Processing. University of California, Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jeffrey Lidz and Alexander Williams and Laurel Perkins (2017). Conceptual correlates of transitivity in early verb learners. 42nd Boston University Conference on Language Development (BUCLD 42). Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Rachel Adler and Jared Novick and {Yi Ting} Huang (2018). Context, conflict, and the time course of interpreting irony. 31st Annual CUNY Conference on Human Sentence Processing. University of California, Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Tyler Knowlton and Athena Wong and Justin Halberda and Paul Pietroski and Jeffrey Lidz (2018). Different Determiners, Different Algorithms: Two Majority Quantifiers in Cantonese Bias Distinct Verification Strategies. 31st Annual CUNY Conference on Human Sentence Processing. University of California, Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Julianne Garbarino and Nan {Bernstein Ratner} (2017). Differential analysis of disfluency types produced by teens/young adults with and without ASD. . American Speech-Language Hearing Association Convention. Los Angeles, CA.. Status =

PUBLISHED; Acknowledgement of Federal Support = Yes

Tyler Knowlton and Justin Halberda and Paul Pietroski and Jeffrey Lidz (2017). Distinguishing First- from Second-order Specifications of Each, Every, and All. Mid-Atlantic Colloquium of Studies in Meaning. Georgetown University, Washington DC. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Erskine, M. & Mahr, T.J. & Edwards, J. (2017). Effects of dialect familiarity on lexical processing efficiency using the visual world paradigm: a preliminary investigation.. 42nd Boston University Conference on Language Development (BUCLD 42). Boston, Massachusetts . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Julianne Garbarino and Nan {Bernstein Ratner} (2017). Internal state language produced by high school and college students with high functioning autism. . American Speech-Language Hearing Association Convention. Los Angeles, CA.. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phoebe Gaston and Chia-Hsuan Liao and William Matchin and Ellen Lau (2017). Investigating task-modulated syntactic prediction with MEG. Society for the Neurobiology of Language Conference. Baltimore, MD, USA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Colin Phillips (2017). Language is everywhere: Institutionalizing a grassroots language science community. National Humanities Conference. Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Colin Phillips (2018). Language is everywhere: Institutionalizing a grassroots language science community. Linguistic Society of America Annual Meeting. Salt Lake City, Utah. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Patrick Reidy and Mary Beckman and Jan Edwards and Benjamin Munson and Allison Johnson (2017). Learning acoustic features for English stops with graph-based dimensionality reduction. Acoustical Society of America and European Acoustics Association. Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Laurel Perkins and Naomi Feldman and Jeffrey Lidz (2017). Learning to Filter Non-Basic Clauses for Argument Structure Acquisition. 42nd Boston University Conference on Language Development (BUCLD 42). Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Laurel Perkins and Tyler Knowlton and Mina Hirzel and Rachel Dudley and Alexander Williams and Jeffrey Lidz (2017). Linguistic and Conceptual Structure in Verb Learning. The James S. McDonnell Plenary Workshop on the Ontogenetic Origins of Combinatorial Thought. San Diego, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phoebe Gaston and Ellen Lau and Colin Phillips (2018). Modeling cross-method conflicts in the timing of context effects on the cohort. 31st Annual CUNY Conference on Human Sentence Processing. University of California, Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Theodore Levin and Paulina Lyskawa and Rodrigo Ranero (2018). Optional agreement in Santiago Tz'utujil (Mayan): The effects of animacy and grammatical function. LSA 2018. Salt Lake City. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jeffrey Green and Michael McCourt and Ellen Lau and Alexander Williams (2018). PRO in adjuncts is interpreted as quickly as overt pronouns. Annual meeting of the Linguistic Society of America. Salt Lake City, Utah. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Laurel Perkins (2017). Perceiving transitivity: consequences for verb learning. 7th Annual Mid-Atlantic Colloquium of Studies in Meaning (MACSIM). Washington, DC. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Shelby Lawson and Adam Fishbein and Nora Prior and Greg Ball and Robert Dooling (2017). Perception of Structural Changes in Song Motifs by Zebra Finches. 4th International Symposium on Acoustic Communication by Animals. Omaha, NE. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Colin Phillips (2018). Prediction, production, and memory. CUNY Sentence Processing Conference. Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jeffrey Green and Michael McCourt and Ellen Lau and Alexander Williams (2018). Processing adjunct control: Rapid use of structural information in the resolution of anaphora. 31st Annual CUNY Conference on Human Sentence

Processing. University of California, Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Allison Johnson and Patrick Reidy and Benjamin Munson and Danielle Revai and Jan Edwards (2017). Production of the /t-/k/ contrast in children with cochlear implants and children with normal hearing. Annual Meeting on Phonology. New York, New York, United States of America. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Nick Huang (2017). Restructuring control predicates can appear in biclausal configurations: a reply to Cinque and Grano. ECO5. University of Connecticut, Storrs, CT. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Nick Huang and Chia-Hsuan Liao and Valentine Hacquard and Jeffrey Lidz (2017). Selection properties of Mandarin attitude verbs and consequences for syntactic bootstrapping. SelectionFest. Berlin, Germany. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Tyler Knowlton and Justin Halberda and Paul Pietroski and Jeffrey Lidz (2017). Sentences, Centers, and Sets: Set Selection and the Meanings of More and Most. Cognitive Development Society biennial meeting. Portland, OR. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adam Fishbein and Julia Löschner and Julie Mallon and Gerald Wilkinson, G. S. (2017). Sex-Specific Responses to Synthetic Songs in a Duetting Suboscine Passerine. 4th International Symposium on Acoustic Communication by Animals. Omaha, NE. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Ellen Lau and Mina Hirzel and Natalia Lapinskaya and Jeffrey Lidz (2017). Syntactic constituent rate effects in EEG. Society for the Neurobiology of Language Annual Meeting. Baltimore, MD. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Nick Huang (2017). The bound possessor effect: a new argument for the phasehood of definite DPs. 48th annual meeting of the North East Linguistic Society. University of Iceland, Reykjavik, Iceland. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Gesoel Mendes and Annemarie van Dooren and Nick Huang (2017). The future of want. 7th Mid-Atlantic Colloquium of Studies in Meaning. Georgetown University, Washington, D.C.. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adam Fishbein and Greg Ball and Robert Dooling (2017). Use of Transition and Abstract Rules by Budgerigars in Auditory Pattern Processing. Birdsong 7. College Park, MD. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adam Fishbein and Greg Ball and Robert Dooling (2018). Use of Transition and Abstract Rules by Budgerigars in Auditory Pattern Processing. 175th Meeting of the Acoustical Society of America. Minneapolis, MN. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lara Ehrenhofer, K Yatsushiro, T Fritsche, B Höhle, Jeffrey Lidz, Colin Phillips, & Yi Ting Huang (2018). Verbs, not subjects, drive subject-as-agent misinterpretation in children's comprehension of passives. CUNY Sentence Processing Conference. Davis, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jeffrey Lidz and Laurel Perkins (2017). Vocabulary Predicts Filler-Gap Dependency Comprehension at 15 Months. 42nd Boston University Conference on Language Development (BUCLD 42). Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Paulina Lyskawa (2017). Zero-vowel alternation in heritage Polish. Tenth Heritage Language Research Institute. University of Illinois at Urbana-Champaign. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Other Products

Other Publications

Patents

Technologies or Techniques

Thesis/Dissertations

Websites

Participants/Organizations

What individuals have worked on the project?

Name	Most Senior Project Role	Nearest Person Month Worked
Phillips, Colin	PD/PI	1
Daume, Hal	Co PD/PI	0
DeKeyser, Robert	Co PD/PI	0
Idsardi, William	Co PD/PI	0
Newman, Rochelle	Co PD/PI	0
Dooling, Robert	Faculty	0
Edwards, Jan	Faculty	0
Feldman, Naomi	Faculty	0
Gor, Kira	Faculty	0
Huang, Yi Ting	Faculty	0
Lasnik, Howard	Faculty	0
Lau, Ellen	Faculty	0
Lewis, Shevaun	Faculty	9
Lidz, Jeffrey	Faculty	0
Mckinnon, Tim	Faculty	0
Novick, Jared	Faculty	0
O'Meara, KerryAnn	Faculty	1
Polinsky, Maria	Faculty	0
Preminger, Omer	Faculty	0
Ratner, Nan	Faculty	0
Resnik, Philip	Faculty	0
Uriagereka, Juan	Faculty	0

Name	Most Senior Project Role	Nearest Person Month Worked
Williams, Alexander	Faculty	0
Wood, Tess	Faculty	1
Adler, Rachel	Graduate Student (research assistant)	6
Culpepper, Dawn	Graduate Student (research assistant)	2
Ehrenhofer, Lara	Graduate Student (research assistant)	6
Erskine, Michelle	Graduate Student (research assistant)	6
Ettinger, Allyson	Graduate Student (research assistant)	6
Fishbein, Adam	Graduate Student (research assistant)	6
Garbarino, Julianne	Graduate Student (research assistant)	6
Gaston, Phoebe	Graduate Student (research assistant)	6
Green, Jeffrey	Graduate Student (research assistant)	6
Hall, Stephanie	Graduate Student (research assistant)	2
Hirzel, Mina	Graduate Student (research assistant)	6
Hitczenko, Kasia	Graduate Student (research assistant)	6
Huang, Nick	Graduate Student (research assistant)	6
Johnson, Allison	Graduate Student (research assistant)	6
Karatas, Nur Basak	Graduate Student (research assistant)	6
Knowlton, Tyler	Graduate Student (research assistant)	6
Lyskawa, Paulina	Graduate Student (research assistant)	6
Malko, Anton	Graduate Student (research assistant)	6
Ovans, Zoe	Graduate Student (research assistant)	6
Perkins, Laurel	Graduate Student (research assistant)	6
Rao, Sudha	Graduate Student (research assistant)	6
Buffinton, Julia	Non-Student Research Assistant	0

Name	Most Senior Project Role	Nearest Person Month Worked
Eaves, Caitlin	Other	1

Full details of individuals who have worked on the project:

Colin Phillips

Email: colin@umd.edu

Most Senior Project Role: PD/PI

Nearest Person Month Worked: 1

Contribution to the Project: PI

Funding Support: NRT, University

International Collaboration: Yes, Germany

International Travel: No

Hal Daume

Email: hal@umiacs.umd.edu

Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 0

Contribution to the Project: Co-PI

Funding Support: University

International Collaboration: No

International Travel: No

Robert M DeKeyser

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Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 0

Contribution to the Project: Co-PI

Funding Support: University

International Collaboration: No

International Travel: No

William J Idsardi

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Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 0

Contribution to the Project: Co-PI

Funding Support: University

International Collaboration: No

International Travel: No

Rochelle Newman

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Most Senior Project Role: Co PD/PI
Nearest Person Month Worked: 0

Contribution to the Project: Co-PI

Funding Support: University

International Collaboration: No
International Travel: No

Robert Dooling

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Most Senior Project Role: Faculty
Nearest Person Month Worked: 0

Contribution to the Project: Mentor

Funding Support: University

International Collaboration: No
International Travel: No

Jan Edwards

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Most Senior Project Role: Faculty
Nearest Person Month Worked: 0

Contribution to the Project: Mentor

Funding Support: University

International Collaboration: No
International Travel: No

Naomi Feldman

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Most Senior Project Role: Faculty
Nearest Person Month Worked: 0

Contribution to the Project: Mentor, key faculty in cognition-computation bridge

Funding Support: University

International Collaboration: No
International Travel: No

Kira Gor

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Most Senior Project Role: Faculty
Nearest Person Month Worked: 0

Contribution to the Project: Mentor

Funding Support: University

International Collaboration: No
International Travel: No

Yi Ting Huang

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Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Mentor, key psycholinguistics faculty

Funding Support: University

International Collaboration: Yes, Germany

International Travel: No

Howard Lasnik

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Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Mentor

Funding Support: University

International Collaboration: No

International Travel: No

Ellen Lau

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Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Mentor, key cognitive neuroscience faculty

Funding Support: University

International Collaboration: No

International Travel: No

Shevaun Lewis

Email: shevaun@umd.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 9

Contribution to the Project: NRT program coordinator

Funding Support: NRT, University

International Collaboration: No

International Travel: No

Jeffrey Lidz

Email: jlidz@umd.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Mentor, key language learning faculty, faculty advisor for outreach

Funding Support: University

International Collaboration: Yes, Germany

International Travel: No

Tim Mckinnon

Email: timm@umd.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: n/a - former NRT program coordinator

Funding Support: n/a

International Collaboration: No

International Travel: No

Jared Novick

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Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Mentor

Funding Support: University

International Collaboration: No

International Travel: No

KerryAnn O'Meara

Email: komeara@umd.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 1

Contribution to the Project: Lead evaluator

Funding Support: NRT

International Collaboration: No

International Travel: No

Maria Polinsky

Email: polinsky@umd.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Mentor, key language diversity faculty

Funding Support: University

International Collaboration: Yes, Guatemala

International Travel: No

Omer Preminger**Email:** omerp@umd.edu**Most Senior Project Role:** Faculty**Nearest Person Month Worked:** 0**Contribution to the Project:** Mentor**Funding Support:** University**International Collaboration:** Yes, Guatemala**International Travel:** No**Nan Ratner****Email:** nratner@umd.edu**Most Senior Project Role:** Faculty**Nearest Person Month Worked:** 0**Contribution to the Project:** Mentor**Funding Support:** University**International Collaboration:** No**International Travel:** No**Philip Resnik****Email:** resnik@umd.edu**Most Senior Project Role:** Faculty**Nearest Person Month Worked:** 0**Contribution to the Project:** Mentor**Funding Support:** University**International Collaboration:** No**International Travel:** No**Juan Uriagereka****Email:** juan@umd.edu**Most Senior Project Role:** Faculty**Nearest Person Month Worked:** 0**Contribution to the Project:** Mentor**Funding Support:** University**International Collaboration:** No**International Travel:** No**Alexander Williams****Email:** alxndrw@umd.edu**Most Senior Project Role:** Faculty**Nearest Person Month Worked:** 0**Contribution to the Project:** Mentor**Funding Support:** University

International Collaboration: No
International Travel: No

Tess Wood

Email: ewood1@umd.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 1

Contribution to the Project: Helped organize and manage NRT-related events, including Language Science Day and Winter Storm

Funding Support: University

International Collaboration: Yes, Guatemala

International Travel: No

Rachel Adler

Email: radler1@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: University

International Collaboration: No

International Travel: No

Dawn Culpepper

Email: dkculpep@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 2

Contribution to the Project: research assistant for program evaluation

Funding Support: NRT

International Collaboration: No

International Travel: No

Lara Ehrenhofer

Email: ehrenhof@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee, chair of Policy committee

Funding Support: University

International Collaboration: Yes, Germany

International Travel: Yes, Germany - 0 years, 3 months, 0 days

Michelle Erskine

Email: merskine@umd.edu

Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 6

Contribution to the Project: Trainee, chair of Winter Storm organizing committee

Funding Support: NRT

International Collaboration: No

International Travel: No

Allyson Ettinger

Email: aetting@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: NSF GRF

International Collaboration: No

International Travel: Yes, Denmark - 0 years, 0 months, 6 days

Adam Fishbein

Email: afishbei@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee, PULSAR mentor, chair of Professional Development & Communication committee

Funding Support: University

International Collaboration: No

International Travel: No

Julianne Garbarino

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Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: University

International Collaboration: No

International Travel: No

Phoebe Gaston

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Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee, PULSAR mentor, co-chair of Research Skills & Collaboration committee

Funding Support: University

International Collaboration: No
International Travel: No

Jeffrey Green

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Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: University

International Collaboration: No

International Travel: No

Stephanie Hall

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Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 2

Contribution to the Project: research assistant for program evaluation

Funding Support: NRT

International Collaboration: No

International Travel: No

Mina Hirzel

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Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee, co-chair of Outreach committee

Funding Support: NRT

International Collaboration: No

International Travel: No

Kasia Hitczenko

Email: khit@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: University

International Collaboration: Yes, Japan

International Travel: Yes, Japan - 0 years, 2 months, 0 days

Nick Huang

Email: znhuang@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: University

International Collaboration: No

International Travel: Yes, Iceland - 0 years, 0 months, 4 days; Germany - 0 years, 0 months, 4 days

Allison Johnson

Email: ajohns51@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee, leader of student writing group

Funding Support: NRT

International Collaboration: No

International Travel: No

Nur Basak Karatas

Email: nkaratas@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: University

International Collaboration: Yes, Turkey

International Travel: Yes, Italy - 0 years, 0 months, 5 days; Turkey - 0 years, 1 months, 0 days

Tyler Knowlton

Email: tknowlt@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: NRT

International Collaboration: No

International Travel: No

Paulina Lyskawa

Email: lyskawa@umd.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 6

Contribution to the Project: Trainee, co-chair of Outreach committee

Funding Support: University

International Collaboration: Yes, Guatemala

International Travel: Yes, Guatemala - 0 years, 1 months, 0 days

Anton Malko**Email:** amalko@umd.edu**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6**Contribution to the Project:** Trainee**Funding Support:** University**International Collaboration:** Yes, Russian Federation**International Travel:** No**Zoe Ovans****Email:** zovans@umd.edu**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6**Contribution to the Project:** Trainee, co-chair of Research Skills & Collaboration committee**Funding Support:** NSF GRF**International Collaboration:** No**International Travel:** No**Laurel Perkins****Email:** perkinsl@umd.edu**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6**Contribution to the Project:** Trainee**Funding Support:** University**International Collaboration:** No**International Travel:** Yes, Spain - 0 years, 0 months, 6 days**Sudha Rao****Email:** raosudha@umd.edu**Most Senior Project Role:** Graduate Student (research assistant)**Nearest Person Month Worked:** 6**Contribution to the Project:** Trainee**Funding Support:** University**International Collaboration:** No**International Travel:** No**Julia Buffinton****Email:** julia.buffinton@gmail.com**Most Senior Project Role:** Non-Student Research Assistant**Nearest Person Month Worked:** 0**Contribution to the Project:** n/a - former LSC staff**Funding Support:** n/a

International Collaboration: No

International Travel: No

Caitlin Eaves

Email: ceaves@umd.edu

Most Senior Project Role: Other

Nearest Person Month Worked: 1

Contribution to the Project: LSC Business Manager

Funding Support: University

International Collaboration: No

International Travel: No

What other organizations have been involved as partners?

Name	Type of Partner Organization	Location
American Association for the Advancement of Science	Other Nonprofits	Washington, DC
American Council on the Teaching of Foreign Languages	Other Nonprofits	Alexandria, VA
Planet Word Museum	Other Nonprofits	Washington DC
Prince George's County Schools	School or School Systems	Maryland
US Dept of Defense	Other Organizations (foreign or domestic)	Washington DC
Wuqu Kawoq Maya Health Alliance	Other Nonprofits	Boston, MA & Guatemala
Expert Systems	Industrial or Commercial Firms	Rockville, MD
Helmholtz Association	Other Nonprofits	Germany
Linguistic Society of America	Other Nonprofits	Washington DC
Montgomery-Blair High School	School or School Systems	Silver Spring, MD
North American Computational Linguistics Olympiad	Other Nonprofits	Pittsburgh, PA
Northwood High School	School or School Systems	Silver Spring, MD
Paint Branch High School	School or School Systems	Burtonsville, MD
Paul Public Charter School	School or School Systems	Washington DC

Full details of organizations that have been involved as partners:

American Association for the Advancement of Science

Organization Type: Other Nonprofits

Organization Location: Washington, DC

Partner's Contribution to the Project:

Other: Staff expertise, outreach support

More Detail on Partner and Contribution: Erin Heath (Associate Director for Govt Relations) participated in our science policy forum, and the Future STEM Leaders meeting. AAAS hosted Family Science Days, where our team was a key contributor to the Language Science for Everyone exhibit.

American Council on the Teaching of Foreign Languages

Organization Type: Other Nonprofits

Organization Location: Alexandria, VA

Partner's Contribution to the Project:

Other: Host for student policy internship

More Detail on Partner and Contribution: Hosted Jeff Green for a policy internship in summer 2017

Expert Systems

Organization Type: Industrial or Commercial Firms

Organization Location: Rockville, MD

Partner's Contribution to the Project:

Other: Career development support

More Detail on Partner and Contribution: Dr Scott Fults participated in Winter Storm careers forum

Helmholtz Association

Organization Type: Other Nonprofits

Organization Location: Germany

Partner's Contribution to the Project:

Other: Host for student policy internship

More Detail on Partner and Contribution: Hosted Lara Ehrenhofer for a policy internship in summer 2017

Linguistic Society of America

Organization Type: Other Nonprofits

Organization Location: Washington DC

Partner's Contribution to the Project:

Other: Science policy partner

More Detail on Partner and Contribution: Collaborate on science policy and public engagement, consultant to Future STEM Leaders meeting

Montgomery-Blair High School

Organization Type: School or School Systems

Organization Location: Silver Spring, MD

Partner's Contribution to the Project:

Other: Outreach partner

More Detail on Partner and Contribution: Bilateral visits for language science outreach

North American Computational Linguistics Olympiad

Organization Type: Other Nonprofits

Organization Location: Pittsburgh, PA

Partner's Contribution to the Project:

Other: Outreach partner

More Detail on Partner and Contribution: NACLO is the umbrella organization for a language-focused olympiad. We served as a host site, and also contributed logistical support to the organization.

Northwood High School

Organization Type: School or School Systems

Organization Location: Silver Spring, MD

Partner's Contribution to the Project:

Other: Outreach partner

More Detail on Partner and Contribution: Bilateral visits for language science outreach

Paint Branch High School

Organization Type: School or School Systems

Organization Location: Burtonsville, MD

Partner's Contribution to the Project:

Other: Outreach partner

More Detail on Partner and Contribution: Bilateral visits for language science outreach

Paul Public Charter School

Organization Type: School or School Systems

Organization Location: Washington DC

Partner's Contribution to the Project:

Other: Outreach Partner

More Detail on Partner and Contribution: Bilateral visits for language science outreach

Planet Word Museum

Organization Type: Other Nonprofits

Organization Location: Washington DC

Partner's Contribution to the Project:

Other: Joint planning of museum activities

More Detail on Partner and Contribution: Planet Word is the first major US museum dedicated to language. It is due to open in 2019 in downtown Washington DC.

Prince George's County Schools

Organization Type: School or School Systems

Organization Location: Maryland

Partner's Contribution to the Project:

Other: Science Fair sponsor

More Detail on Partner and Contribution: Sponsored ATLAS STEM fair

US Dept of Defense

Organization Type: Other Organizations (foreign or domestic)

Organization Location: Washington DC

Partner's Contribution to the Project:

Other: Science policy panel

More Detail on Partner and Contribution: Erin Fitzgerald participated in Winter Storm science policy panel

Wuqu Kawoq Maya Health Alliance

Organization Type: Other Nonprofits

Organization Location: Boston, MA & Guatemala

Partner's Contribution to the Project:

Collaborative Research

Personnel Exchanges

More Detail on Partner and Contribution: Partner on our field station in Sololá, Guatemala, connecting minority languages to health.

What other collaborators or contacts have been involved?

Numerous UMD faculty contributed to talks, workshops, and panels at Winter Storm, and talks and posters at Language Science Day.

Impacts

What is the impact on the development of the principal discipline(s) of the project?

It is difficult to draw a clear line between the grassroots community that hosted an IGERT program (2008-2015), the university-wide center that grew out of that program (2013-) and the NRT program that the center now hosts. They are part of a continuous effort, which has had interdisciplinary graduate training at its heart. These efforts have had clear impacts on the development of language science as an integrated field.

Nationally, the success of Maryland's language science group and its graduates has drawn attention, especially in the field of linguistics. Departments have diversified their hiring, and graduate curricula are starting to evolve to reflect this, and the pace of change is accelerating. Phillips frequently serves as a consultant on graduate program reform, and new programs and initiatives are being formed at other institutions that are modeled on what our team has done. The UMD team's efforts were

highlighted at a symposium at the Linguistic Society of America conference in 2018 and at the National Humanities conference in 2017.

Nationally, the success of our outreach programs contributed to the creation of the multi-institution Language Science for Everyone network, which is expanding disciplinary interest in public engagement. This network has coordinated activities that serve thousands of children and families, and it has created an online resource guide for language science outreach.

What is the impact on other disciplines?

Our training practices and results influence programs in other disciplines at UMD, to a greater degree now that we are more integrated into university-level graduate training initiatives. Nevertheless, these impacts remain limited, as student training models are so strongly influenced by disciplinary peers.

NRT program coordinator Dr. Shevaun Lewis has taken on a part-time appointment with the Neuroscience and Cognitive Science program at UMD to work on PhD student career development. In this way, the workshops, resources, and mentorship models developed for the NRT program are now available to a different group of students.

Our training model has some impact on other disciplines via other NRT programs. By making all of our materials publicly available, including our proposal and reviews, our practices are readily visible to teams that are preparing NRT proposals. That is probably the time at which teams are the most receptive to outside suggestions, as they are the most motivated. Also, we were able to influence other disciplines via our hosting of the 2016 NRT Teams meeting at UMD. Both our organization of the meeting and the thematic focus reflect our findings about best practices in graduate training.

What is the impact on the development of human resources?

GRADUATE STUDENTS BENEFITTED

There are currently 19 trainees enrolled in our NRT program, 8 of whom have received NRT stipends (4 during this reporting period). There are 7 students applying to join the program this year, of which we expect to award a stipend to one. (The rest are either ineligible because of their nationality, or already have generous funding through NSF GRF or UMD recruitment fellowships.)

We serve a much broader group of graduate students through our various events and courses. For example, about 45 graduate students participated in Winter Storm in January 2018, and 85 graduate students attended Language Science Day in September 2017.

TRAINEE ACHIEVEMENTS/OUTCOMES

i. Lara Ehrenhofer, who defended her dissertation in June 2018, has used the resources and activities of the NRT program to develop plans for a career in science policy. She was able to expand her professional network in this area by traveling (with NRT support) to the annual meetings of AAAS in 2017 and 2018. In summer 2017 she completed an internship with the Helmholtz Association in Berlin, working on projects related to science diplomacy. Her leadership experience in the language science community here, particularly the student Policy Committee, has also helped prepare her for a science policy career.

ii. Rachel Adler, who defended her dissertation in June 2018, has used the resources and activities of the NRT program to develop plans for a career as a data scientist in industry. The career development workshops and mentorship offered through the NRT program helped her to define her skills and interests, and narrow her focus to data science. In summer/fall 2017, with NRT support, she completed a 200-hour online course to develop technical skills and expand her professional network.

iii. In previous reports, we have highlighted Allyson Ettinger's remarkable success bridging linguistics and computer science in interdisciplinary research and teaching. She defended her dissertation in June 2018, and has accepted a tenure-track faculty position in the Linguistics department at the University of Chicago, with an additional appointment at the Toyota Technological Institute at Chicago (TTIC), a philanthropically endowed academic computer science institute.

BROADENING PARTICIPATION

i. Women are underrepresented in computer science in general, but they are not a minority in our computational group. It certainly helps that we can offer strong mentorship from successful female faculty, but male faculty also help through their words and deeds. For example, co-PI Hal Daumé published a series of blog articles celebrating the work of female computer scientists and how they influenced his research. The linguistics-CS bridge contributes, as a number of female students from linguistics have joined the computational linguistics research group. And the fact of having strong female students doing computational research becomes a self-fulfilling prophecy, as it helps to attract more female students.

ii. In our community there is now a greater emphasis on and respect for research with direct applications for underserved populations in the US (ToggleTalk, Language Poverty) and internationally (Guatemala). Also, in the current political climate more students are trying to connect their work with social justice issues. These have led to a subtle but noticeable shift in attitudes toward applied research in general, and have contributed to our ability to recruit a more diverse student population.

iii. We continue to make contact with minority students in local high schools through our outreach activities. We do not expect this to lead to direct impact on the diversity of our graduate program, but it is nevertheless valuable to engage with large numbers of minority students and to contribute to interest in college and science careers.

In our current group of 19 NRT students, 14 are women, 6 are international, and one is African American. The demographics of our trainee group are similar to those of our participating units (although women are perhaps overrepresented).

What is the impact on physical resources that form infrastructure?

In January 2017 the Language Science Center relocated to new space in the fully renovated HJ Patterson Building, in the center of the U of Maryland campus. The 4500 sq. ft. facility had been in development for 2 years, and it would not have been possible without the success of our graduate training efforts and our internationalization plans. This facility, with ample space for large and small events and group activities, has become a hub for language science community activities at UMD, including the NRT program. We have hosted large events like Winter Storm and the workshop on Language and Poverty, as well as the regularly scheduled meetings like the weekly Language Science Lunch Talks, cross-listed courses, lab meetings, reading groups, and committee meetings. Some students utilize the space regularly to meet with collaborators or as a quiet space for writing. It is also an ideal place for meetings with external partners, such as our quarterly briefings with government agencies, or our partners at the in-development Planet Word museum in downtown Washington DC.

What is the impact on institutional resources that form infrastructure?

In focus groups for program evaluation, faculty attribute significant benefits and progress to the NRT program and related efforts by the Language Science Center. The NRT program has facilitated opportunities for language science faculty to become familiar with each other and identify potential areas for collaboration. Faculty have, for example, co-taught courses with faculty from other departments, and have frequent opportunities to present their research to a multi-disciplinary community. In some departments, the NRT program and Language Science Center have helped shift expectations about faculty service roles and the value of interdisciplinary research. For example, some faculty reported that in their home departments they were encouraged to do service in the Language Science Center or that there was more recognition of interdisciplinary research in the promotion process than there had once been. However, the progress has been uneven across departments, and some faculty still perceive institutional constraints on their time that undermine their ability to participate in Language Science Center activities. Future evaluation activities will focus on better understanding the role of the NRT program in facilitating interdisciplinary research among faculty and within graduate education at UMD more broadly.

What is the impact on information resources that form infrastructure?

The primary information resources from our program are the materials that we publicly share about our training efforts and our outreach programs, and the Langscape online portal that aggregates expertise on the world's 6000 languages (langscape.umd.edu).

What is the impact on technology transfer?

Nothing to report.

What is the impact on society beyond science and technology?

We approach language from a science and technology perspective, but language is important for many different aspects of society. Our trainees are engaged in various ways in connecting the science of language to broader societal concerns. They

do this via K-12 and public outreach programs, via more targeted efforts to contribute to literacy and other educational efforts, and via research that has direct societal implications. For example, some of our trainees are involved in research on dialect mismatch training in the schools, testing ways to help African American K-1 children navigate the different varieties of language that they need to succeed in different spheres of life.

Changes/Problems

Changes in approach and reason for change

Nothing to report.

Actual or Anticipated problems or delays and actions or plans to resolve them

While we have made significant progress in supporting students' professional development and preparing them for diverse careers, we have had more difficulty realizing our goals for team-based interdisciplinary research. All of the trainees are pursuing interdisciplinary research, and many of them are involved in cross-departmental collaborations. These collaborations arise organically around concrete projects with relatively narrow goals. But we have had less success pushing for larger-scale collaborations with more ambitious, long-term research goals. One reason for this is a lack of enthusiasm from faculty. They are reluctant to invest time in new group projects without a promise of fairly immediate returns.

We are concerned that some see the program only as a mechanism for professional/career development, rather than a driver of ambitious interdisciplinary research. It is all too easy to establish a division of labor where NRT activities focus on professional development (which is neglected by most faculty and departments), while faculty focus on research. In the coming year, we will focus our efforts on developing program activities around research goals and engaging more faculty in program activities.

Changes that have a significant impact on expenditures

Nothing to report.

Significant changes in use or care of human subjects

Nothing to report.

Significant changes in use or care of vertebrate animals

Nothing to report.

Significant changes in use or care of biohazards

Nothing to report.