Preview of Award 1449815 - Annual Project Report

Cover

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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. Research-related activities during the first year of the program focused on a series of activities that were designed to stimulate the formation of multi-disciplinary research teams.

i. Our first cohort of 9 prospective trainees worked on developing integrated research and training plans. Our trainees are recruited to the NRT program after they are already in a UMD PhD program. This allows us to engage in a more deliberate and iterative planning process with students before they officially join the program.

ii. Language Science Day is our annual internal conference, serving around 200 students and faculty from throughout the university, plus some of our external partners. Students play a central role in organizing the event. In the service of NRT goals in 2015 we organized a panel on bridging cognition and computation.

iii. Winter Storm is our annual intensive two-week workshop that brings students together outside the bustle of the regular semester, for training, research planning, and professional development. The event was created by our IGERT program, but in 2016 we gave the event an extreme makeover, to mark the start of the NRT program. The event was organized into a series of two-day sections, each on a specific research theme. Each section started with an unscripted roundtable discussion involving faculty from diverse backgrounds, followed by thematically related sessions that developed students' skills in synthesizing research and in communicating it to diverse audiences.

EDUCATION AND TRAINING ACTIVITIES in the first year of the program focused on developing systematic processes to help students to become flexible and effective communicators in writing and speaking. We also worked on creating activities to develop other professional skills.

i. Winter Storm developed different kinds of communication skills, highlighting the importance of tailoring the message to the audience and the medium (speaking, writing, videos, etc.). Other professional development sessions focused on diverse career paths, grant writing, how to make a difference to science policy (even for students who tend to think of it as way out of their reach), and navigating ethical dilemmas.

ii. Our program's outreach activities make important contributions to student training and NRT goals. They develop broad communication skills, they help students to think about the broader context of their work, and they also foster low-risk collaborations among students, which in turn can lead to longer-term research collaborations. The outreach team organized many different events, ranging from school visits to science careers fairs, to the AAAS Family Science Days, and a national linguistic olympiad competition (nacloweb.org; one of our students this year was selected to represent the US in the finals in India). The group also has developed a resource guide for language science outreach that is being used at other institutions, and that now serves as the core of the guidelines circulated by the Linguistic Society of America.

iii. Student leadership. NRT trainees and other graduate students play a central role in planning most of our key language science events. NRT students are expected to serve in graduated leadership roles. This helps the community to function more effectively, and it also makes valuable contributions to students' professional skills.

Our EVALUATION activities during the initial year of the program focused on developing goals and methods. We worked closely with our lead evaluator, Prof KerryAnn O'Meara, an expert in research on higher education careers, and director of UMD's NSF-ADVANCE program. This led to a clarified set of training goals, a detailed list of metrics, and a logic model. The program goals involve training entrepreneurial students ('agency'), preparing students to work effectively with diverse collaborators, developing the ability to connect specific research problems with broad goals ('zooming in and zooming out'), and developing broad oral and written communication skills.

Data will be gathered via periodic surveys, structured student progress reports, observation of NRT events, and focus groups. Our goal is to enlist a control group of students from peer institutions as a comparison. Formative assessment will also play a key role throughout the program. In the current reporting period, evaluation activities have included observation of NRT events (Winter Storm and outreach activities), faculty and student focus groups, and collection of pre vita information about students and faculty. Preparations for a survey of NRT trainees and their counterparts at peer institutions are underway. Our lead evaluator met regularly with key team members during summer and fall 2015 to develop assessment plans and outcomes from initial assessment activities.

PI Colin Phillips and assessment RA Stephanie Hall had the opportunity to participate in the NRT Evaluators' meeting at UC Berkeley in May 2016, and the evaluation plans will be updated based on the many useful ideas shared at that meeting.

Specific Objectives: The main interdisciplinary research objectives are 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.

The project has four major training objectives, each with several sub-parts and associated metrics. (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.

Significant Results:	RESEARCH RESULTS

(i) Sometimes when we listen to speech we are so confident of what we are hearing that we miss blatant errors. E.g., many people miss the absurdity of the following question. "If a plane crashes on the US-Canadian border, where should they bury the survivors?" Looking at related cases where listeners treat highly unlikely words as moderately unlikely, Allyson Ettinger has used state-of-the-art methods from computer science to offer an alternative to the standard account of such effects. A standard account is that comprehenders generate strong expectations for an upcoming word, and that word in turn primes related-but-inappropriate words. Ettinger shows that the effects need not be mediated by a strongly predicted word candidate. This research is co-supervised by faculty with expertise in cognitive science and computer science. It will be presented at the 2016 Cognitive Science Society conference.

(ii) Our listening abilities are shaped by years of exposure to the fine acoustic detail of our native language and dialect. But in an increasingly mobile world we spend more and more time listening to accented speech, often spoken by non-native speakers. It is striking how quickly speakers are able to adapt to the different sound patterns of accented speech. Kasia Hitczenko used her computational modeling skills to examine two accounts of the cognitive mechanisms underlying accent adaptation. In one account we shift the boundaries of speech categories, in another account we simply become more forgiving. Hitczenko shows that well-known evidence that has been taken as support for the 'shift' account turns out to be captured even better by a model of the 'forgiving' account.

(iii) Laurel Perkins has used a combination of experimental studies with infants and computational modeling to probe how language learners identify the meaning of verbs based on the contexts where they occur. It is attractive to assume that the number and type of arguments in a clause provides a strong cue to the meaning of the verb, as argued in highly influential research, e.g., Gleitman 1990. But many linguistic processes potentially obscure the evidence, e.g., argument omission and argument displacement. Perkins shows how learners overcome this.

EDUCATION/TRAINING RESULTS

(i) Successfully bridging cognitive and computational approaches to language is not easy, but a number of our students have made substantial progress on creating this bridge. This connection is increasingly becoming a part of the culture of our research community. Allyson Ettinger is a student who entered with strong linguistic and cognitive background but limited computational experience. After embedding herself with computer scientists she now has an enviable ability to work between the two fields. Laurel Perkins has developed the computational modeling skills needed to accompany her research on early language development. And Kasia Hitczenko is a computational expert who is turning her skills increasingly to cognitive problems. An example that nicely captures the progress on this front: to strengthen the cognitive-computational bridge Naomi Feldman developed a new cross-listed undergraduate course. Rachel

Adler is an NRT PhD student who enrolled in this course. Her home department is Hearing & Speech Sciences, and she comes with minimal computational experience, so this course was at a good level for her. In the course, the TA was fellow NRT student Allyson Ettinger, who was the ideal person to help students with this bridge.

(ii) NRT students have multiple venues for developing their skills in communicating to diverse audiences via diverse media. Winter Storm 2015 and 2016 have incorporated multiple activities on oral and written communication. In addition, the weekly student-led lunchtime talks have developed an increasingly structured process to help students to give accessible talks and to provide constructive feedback.

(iii) Our team has experimented with different formats for stimulating improved interaction among students and faculty from diverse areas of expertise. This was evident in the way that we ran the sessions at the NRT Teams Meeting in Maryland in May 2016. One interesting format was the series of roundtable discussions that served as anchors for this year's Winter Storm workshop. We invited groups of 6 faculty who approach a particular topic from diverse disciplines/approaches, and gave them the instruction to prepare nothing in advance. Their task was to engage in discussion. The unpredictable format is risky: it requires close attention and cooperation, and this makes it more interesting to audiences. Each roundtable attracted around 50 students and faculty, who were tasked with creating crowd-sourced notes on the discussion via a shared Google Doc. Participants contributed to the Google Doc anonymously, removing effects of hierarchy.

EVALUATION RESULTS.

The most important evaluation results to date come from faculty and student focus groups held in conjunction with the January 2016 2-week Winter Storm workshop. Overall, students and faculty were enthusiastic about the opportunities offered by the UMD language science community that go well beyond what individual departments are able to offer. They clearly see how this benefits student training. However, they also expressed concerns about communication in the startup phase of the NRT program. Even individuals who are well connected to the community are uncertain of the programs goals, activities, participants, etc. They also expressed concern about imbalances in the contributions of certain departments, and the diverse demands on students' time.

These reactions are all appropriate, and they are influencing our next steps. We have convened meetings between students and key faculty to develop strategies for team-based research efforts, and we are working to improve communication and broad engagement. The two national NRT meetings in May 2016 (Maryland, Berkeley) have had a strong influence on our program. On the one hand, they have provided our team with a wealth of ideas and inspiration. On the other hand, our role in organizing the NRT Teams' Annual Meeting took a great deal of effort from program leadership, at the expense of attention to our own program development.

Key outcomes or Other achievements:	The research of two NRT trainees, Allyson Ettinger (Linguistics) and Rachel Adler (Hearing & Speech Science), highlights the effectiveness of our NRT program in attaining its interdisciplinary research goals.

RESEARCH

As highlighted elsewhere in this report, students are successfully bridging cognitive and computational science in their research. This is easy to talk about but hard to do. Individual students have been doing this at different levels, appropriate to their interests |

and courage. Allyson Ettinger is a linguist and cognitive neuroscientist who has become a true hybrid researcher, collaborating and presenting with experts from quite different disciplinary cultures. Rachel Adler is based in the Dept of Hearing & Speech Sciences, and her comfort zone is experimental psychology, but she has been putting herself in settings outside her comfort zone, either via presenting at a linguistics-dominated workshop (Berlin, January 2016) or by taking an undergraduate course that bridges cognitive and computational approaches to language.

At the level of the research community, we used the Winter Storm roundtables (described above) to jump start discussions about how to build effective team-based science. During the spring semester students met with key faculty members to map out strategies for allowing research teams to grow in an unforced, sustainable fashion. We aim to redouble efforts on this front in the coming months.

EDUCATION/TRAINING

Key NRT-supported events have attracted broad participation, allowing students to build a diverse network of connections across the university. Language Science Day (September) is a one-day showcase of research and training opportunities within the University of Maryland. In 2015 it attracted around 200 participants, including 70 graduate students and 25 undergraduate students, drawn from 10 departments. The weekly Language Science Lunch Talks (LSLT) focus on student presentations of ongoing research to an interdisciplinary audience, often with lunch prepared by fellow students. The talks attract 25-50 participants each week. Winter Storm is our annual intensive two-week workshop, led by students, that aims to build skills and collaborations. In 2016 there were around 75 participants, including 45 graduate students.

NRT trainees have been highly engaged in leadership of program activities and events. In addition to events like Language Science Day, Winter Storm, and LSLT, this includes the growing network of outreach and public engagement activities, and the planning of NRT research efforts ("Teams and Themes"). These leadership activities take time, but we believe that they also make an important contribution to students' training, for whatever career path they choose to pursue. They also create a lower-risk form of collaboration, which acts as a seed for higher-risk research collaborations.

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

SUMMARY

Our team has developed or implemented many of the aspects of our traineeship model, from applications and mentoring to collaborative research, communications and professional development, events, and leadership training. This much is all positive. However, there is ample room for further development of the plans, and there is an urgent need for students and faculty to better understand how the various pieces create a coherent program. This should contribute to broad buy-in to the NRT program.

SPECIFIC PROGRAM ELEMENTS

Applications and mentoring. The NRT program application is an important training element. Students apply to the NRT program after they are already enrolled at UMD and typically after they have already been active in a number of program activities. The application is then refined in response to feedback from a faculty committee. This process is demanding for early-stage PhD students, but they find it to be beneficial. This process is implemented, but could work more efficiently. Once officially admitted to the program, students track their progress via an online record that combines features of an IDP, e-Portfolio, and CV. They receive feedback, but a focus is on having students and their mentors generate their own feedback based on critical reflection. The aim is also for this data gathering to contribute to program evaluation without requesting

additional redundant survey data. This aspect of the program is only partially implemented at present, and needs updating and more systematic implementation.

Community events and leadership training. These include Winter Storm (2 weeks, January), Language Science Lunch Talks (weekly), Language Science Day (September), and outreach events (throughout the year). All of these are underway, and students are successfully leading them. These build upon pre-existing activities, but all have undergone moderate to extreme changes to reflect NRT program goals. The events have been quite successful when they occur, but there is room for improvement in our goal of integrating them more into ongoing research and training activities throughout the year. We need to find effective ways to ensure more consistent follow through.

Research on multi-scale data, bridging computation and cognition. This is the piece of the program that needs the most development, and whose success will contribute the most to the perception that the NRT program is valuable to faculty and students. We have organized panels on bridging computation and cognition, and we can point to a number of cases where individual students have successfully crossed that bridge. It is undoubtedly becoming more normal for students to pursue this connection. We have also seeded broad interdisciplinary discussions related to our multi-scale data theme, e.g., through Winter Storm roundtables, and students have been working on developing strategies for building productive research teams. But the process takes time, is delayed by other commitments and events, and people expect rapid results.

It would be misleading to conclude that little is happening in the development of our research themes. One of our Winter Storm roundtables ("Flexible Speech Recognition") triggered plans for an interdisciplinary seminar (linguistics + engineering) that will be held in Fall 2016. Another team has been developing a large-scale grant proposal that connects basic science to educational practice, focusing on language issues that affect school readiness for African American K-1 children. Another research theme is being advanced by a group of students from diverse disciplinary backgrounds. Yet another team submitted an interdisciplinary proposal to NSF's RIDIR program (Resource Implementation or Data-Intensive Research), for a project that closely aligns with NRT goals. Another team of faculty and students is about to leave for a month-long research trip to our new field station in Sololá, Guatemala, where they are pursuing linguistic research on Mayan languages and developing connections with health organizations that have an interest in minority languages. A great deal is happening. But what is missing is the sense of how these projects are coming together and serving students and NRT goals in a systematic fashion.

COMMUNICATION

Students in our program face an increasing range of opportunities to practice effective communication with diverse audiences, and communication skills are increasingly valued in our community. There is a gradual growth in structured feedback to students, much of it designed by students. But we do not yet have comprehensive rubrics or assessments, and there is ample opportunity to provide a more structured range of communication training. Also, there is a risk that communication training be too closely associated with spoken communication. Writing matters too.

Winter Storm included many sessions related to communication training, and these sessions were closely connected with the research themes of Winter Storm. Sessions covered topics such as grant writing, engaging with potential collaborators, and talking with diverse audiences. Of particular note, we invited a BA graduate from our program who now runs a successful YouTube channel to talk about his work, and to give feedback on brief student pitches. At Language Science Day students are involved in communicating to broad audiences in various ways. In particular, we encourage them to develop posters that are not a recycling of their latest disciplinary presentation, and instead convey their research group's overall goals and progress to the broad language science community. This is a surprisingly rare undertaking for students, who generally are tasked with only explaining their own research project.

The Language Science Lunch talks currently are the venue where feedback is most systematic. All students present once during the year. All audience members are encouraged to offer written feedback to the presenter via a structured form, that was designed by students. Students also receive guidelines on how to present to this audience, via a document that was co-authored by faculty and students.

A consistent venue for group feedback on communication is the debriefing sessions that we hold after each of our larger outreach events. Students get together to share their experiences and to offer ideas on what went well and what could be improved in the future.

Our program offered numerous additional activities related to professional development, especially during Winter Storm. We held a panel discussion on how to contribute to science policy. Erin Heath, Associate Director for Government Relations at AAAS, emphasized the many ways that it is possible to contribute, without needing to be a Big Shot. We held a session on diverse career pathways for PhDs, with representatives from industry and the university careers center. Students are increasingly confident in thinking about pathways that are different than their mentors. We also offered an engaging session on research ethics. Instead of a standard menu of things that one should do to be a responsible researcher, we invited faculty to lead discussions of "grey areas". By focusing on situations that we often encounter and where the answers are not straightforward, we were able to get a much higher level of engagement.

Students who participated in the Future STEM Leaders meeting in Washington DC had an unusual opportunity to engage with policy-makers and policy-shapers on a topic where they have unusual expertise, i.e., innovation in graduate training.

* 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 all NRT teams. These should, in principle, be of interest to prospective NRT applicants, an important and receptive audience.

(ii) Blogs. Peer-reviewed publications are nice, but well-written blog posts get far more attention, especially if they are provocative. Phillips wrote one piece ("Pro choice on the linguistics curriculum") that highlighted the mismatch between a wave of interdisciplinary faculty hiring and conservative graduate curricula. It was very widely read and triggered a national conversation. Another piece, with guidance on building successful interdisciplinary programs, was less provocative and less successful in reaching the target audience.

(iii) Social media. LSC's Facebook page has 450 followers, and some of our posts reach thousands of viewers. This is valuable for reminding people that things are happening. Our Flickr albums are also a great way of keeping people aware of what's going on: when they come looking for pictures of one activity they stumble across pictures of other activities.

(iv) Meetings with (inter)disciplinary groups. We are spreading the word about interdisciplinary language science, plus the value of broad public engagement, to diverse groups within our field(s). Phillips is part of two groups in the Linguistic Society of America (LSA) that are working to strengthen ties between different language-focused disciplines. He gave a well-received presentation on building cross-field ties to a meeting of department chairs at the 2016 LSA Conference, and the LSA has now made changes to its strategic plan to facilitate greater integration. Our team played a central role in coordinating language exhibits at the AAAS Family Science Days event in Washington DC, and organized a reception on public engagement for all language scientists at the meeting. Phillips also is spreading the model globally via the Global Research Alliance in Language initiative (go.umd.edu/grail) which promotes language science and a new model of integrated internationalization across a worldwide network. This initiative has been in development since 2014, and it has already led to creation of new interdisciplinary groups in other universities, e.g., the new Language Sciences Initiative at the U of British Columbia. It received a formal green light from the presidents/VCs of the Universitas 21 global alliance in May 2016.

(v) Dissemination to other NRT teams and to broader stakeholders. Our team devoted a great deal of effort in 2015-2016 to organizing the NRT Teams Meeting and the Future STEM Leaders meeting held on May 2-4 2016. The NRT Teams Meeting brought together around 120 participants from 18 NRT teams, including many more than PIs and program coordinators. It created a community of NRT participants, and offered much opportunity for sharing program results. It made it possible to highlight some topics that our team has found to be especially valuable, e.g., student ownership and active formative assessment. The Future STEM Leaders meeting connected NRT Teams to representatives from government, industry,

foundations, academia, and professional organizations. The focus of the meeting was on connecting small scale innovations in graduate training to broader change, and on trying to connect independent conversations that have been taking place in different fields and communities. The meeting created a very promising starting point. It remains to be seen whether this will be built upon.

(vi) Institutional dissemination. We want to contribute to sustainable change in graduate training at our own institution. Given our team's unusual status as recipients of both IGERT and NRT awards (and also a Dept of Education training grant; with an NIH training grant under review), we should be a useful resource for the institution. But despite our efforts we have had limited impact. Phillips has given occasional presentations to interested groups from other fields, most recently in Spring 2015, prospective NRT applicants occasionally consult us, and we regularly meet with senior administration officials. We have wondered whether this reflects skepticism about whether we are real scientists. Fortunately, organizing the May 2016 meetings led to a breakthrough, as we were able to engage key members of the university administration and have them see the opportunities for making use of us.

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

We thought that launching the NRT program would be easier, given our experience with IGERT. But the experience has been remarkably similar. One year in, we feel that we have done a lot, and yet there is so much more to do, and we need to make our management more robust and help our community to better understand the program. There are four main things that we need to do.

(i) Further develop and implement various program elements that are already partially implemented: evaluation, communication, mentoring, multi-scale data training, professional development. We have already done a lot on these, but we are not at a stage where we are simply carrying out and refining a plan.

(ii) Implement plans for developing our research teams. We already have a great deal of collaborative research in our community, but we need to develop teams in a more intentional fashion, and empower students to take (developmentally appropriate) roles in these teams. This is the most ambitious part of our NRT program, and it will take the most careful curation. We have already had a useful series of meetings with students about how to do this.

(iii) Launch program elements that have barely begun, especially the policy experiences and the external advisory board. We hope that the success of the Future STEM Leaders meeting will provide some additional points of contact to support our policy experiences program. We are looking forward to working with our advisory board, and have had great experiences in the past. Our primary current concern is to devise a strategy to avoid advisory board overload, since we are expected to convene multiple boards for different functions of our new center that houses the NRT.

(iv) Create a broader and more sustainable management and communications plan for NRT, including improvement of online resources that students will actively contribute to as a community resource, rather than as a static webpage.

Supporting Files

Filename	Description	Uploaded By	Uploaded On
NRT Trainees Table.pdf	Table of NRT Trainees	Colin Phillips	05/31/2016
UM NRT Goals Final.pdf	Logic model & goals for U of Maryland NRT program	Colin Phillips	05/31/2016
NRT Professional Skills Table 2016.pdf	Table of NRT Professional Skills Training 2016	Colin Phillips	05/31/2016
NRT Report Pictures LSD.pdf	Pictures from 3 NRT program events in 2015-2016: Language Science Day, Winter Storm, Future STEM Leaders	Colin Phillips	05/31/2016

Products

Books

Book Chapters

DeKeyser, R. (2015). Skill acquisition theory. *Theories in Second Language Acquisition: An introduction 2.* J. Williams and B. VanPatten. London. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes

Gor, K. (2015). Raspberry, not a car: Context predictability and a phonological advantage in early and late learners? processing of speech in noise. *Learning a Non-Native Language in a Naturalistic Environment: Insights from Behavioural and Neuroimaging Research* C Pliatsikas and V. Chondrogianni. Lausanne. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes

Gor, K. (2015). Phonology and morphology in lexical processing. *The Cambridge Handbook of Bilingual Processing* J. W. Schwieter. Cambridge, UK. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes

Lasnik, H. & Lidz, J. (2016). The argument from the poverty of the stimulus. *Oxford Handbook of Universal Grammar* I. Roberts. Oxford. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes

Lasnik, H. (2015). Aspects of the theory of phrase structure. *50 Years Later: Reflections on Chomsky's Aspects* Á. J. Gallego and Dennis Ott. Cambridge. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes

Monahan, P. J. & Idsardi, W. J. (2015). Phonology.. *Neurobiology of Language* S. Small & G. Hickok. Amsterdam. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes

Snedeker, J. & Huang, Y. (2015). Sentence processing. *The Handbook of Child Language 2.* L. Naigles & E. L. Bavi. Cambridge, UK. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes

Inventions

Journals or Juried Conference Papers

Bail, A., Morini, G., & Newman, R.S. (2014). Look at the gato! Code-switching in speech to toddlers. *Journal of Child Language*. 42 (05), 1073--1101. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1017/s0305000914000695

Beygelzimer, A., Daume, H., Langford, J., Mineiro, P. (2016). Learning Reductions That Really Work. *Proceedings of the IEEE*. 104 (1), 136--147. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1109/jproc.2015.2494118

Chow, W. Y., Momma, S., Smith, C., Lau, E., & Phillips, C. (2016). Prediction as memory retrieval: Timing and mechanisms. *Language, Cognition, and Neuroscience*. 31 617. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1080/23273798.2016.1160135

Chow, W.Y., Smith, C., & Lau, E., & Phillips, C. (2016). A 'bag-of-arguments' mechanism for initial verb predictions. *Language, Cognition, and Neuroscience*. 31 577. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1080/23273798.2015.1066832

Clemens, L.E., Coon, J., Mateo~Pedro, P., Morgan, A.M., & Polinsky, M., Tandet, G., & Wagers, M. (2014). Ergativity and the complexity of extraction: a view from Mayan. *Natural Language {\&} Linguistic Theory*. 33 (2), 417--467. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1007/s11049-014-9260-x

Cook, S.V. & Gor, K. (2015). Lexical access in L2: Representational deficit or processing constraint?. *ML*. 10 (2), 247--270. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1075/ml.10.2.04coo

Dekeyser, R. & Botana, G.P. (2014). The Effectiveness of Processing Instruction in L2 Grammar Acquisition: A Narrative

Review. *Applied Linguistics*. 36 (3), 290--305. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1093/applin/amu071

DeKeyser, R.M. (2015). Why less is eventually more in second language acquisition. *LAB*. 5 (4), 454--458. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1075/lab.5.4.02dek

Eaton, C.T., Newman, R.S., Ratner, N.B. & Rowe, M.L. (2015). Non-word repetition in 2-year-olds: Replication of an adapted paradigm and a useful methodological extension. *Clinical Linguistics {\&} Phonetics*. 29 (7), 523--535. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.3109/02699206.2015.1029594

Han, C., Musolino, J., & Lidz, J. (2016). Endogenous sources of variation in language acquisition. *Proceedings of the National Academy of Sciences*. 113 (4), 942--947. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1073/pnas.1517094113

Heffner, C.C., Newman, R.S., Dilley, L.C., & Idsardi, W.J. (2015). Age-Related Differences in Speech Rate Perception Do Not Necessarily Entail Age-Related Differences in Speech Rate Use. *J Speech Lang Hear Res*. 58 (4), 1341. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1044/2015_jslhr-h-14-0239

Hsu, N. S. & Novick, J. M. (2016). Dynamic Engagement of Cognitive Control Modulates Recovery From Misinterpretation During Real-Time Language Processing. *Psychological Science*. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1177/0956797615625223

Kush, D., Lidz, J., & Phillips, C. (2015). Relation-sensitive retrieval: Evidence from bound variable pronouns. *Journal of Memory and Language*. 82 18--40. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1016/j.jml.2015.02.003

Lago, S., Scharinger, M., Kronrod, Y., Idsardi, W.J. (2015). Categorical effects in fricative perception are reflected in cortical source information. *Brain and Language*. 143 52--58. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1016/j.bandl.2015.02.003

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Li, C., Wang, M., & Idsardi, W. (2014). The effect of orthographic form-cuing on the phonological preparation unit in spoken word production. *Mem Cogn*. 43 (4), 563--578. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.3758/s13421-014-0484-0

Li, M., Jiang, N., & Gor, K. (2015). L1 and L2 processing of compound words: Evidence from masked priming experiments in English. *Bilingualism*. 1--19. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1017/s1366728915000681

McCourt, M., Green, J.J., Lau, E., & Williams, A. (2015). Processing implicit control: evidence from reading times. *Frontiers in Psychology*. 6 . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.3389/fpsyg.2015.01629

Newman, R.S., Chatterjee, M., Morini, G., & Remez, R.E. (2015). Toddlers' comprehension of degraded signals: Noise-vocoded versus sine-wave analogs. *The Journal of the Acoustical Society of America*. 138 (3), EL311--EL317. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1121/1.4929731

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Omaki, A., Lau, E. F., Davidson White, I., Dakan, M. L., Apple, A., & Phillips, C. (2015). Hyper-active gap filling. *Frontiers in Psychology*. 06 . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI:

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Parker, D., Lago, S., & Phillips, C. (2015). Interference in the processing of adjunct control. *Frontiers in Psychology*. 6 . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.3389/fpsyg.2015.01346

Phillips, C. & Ehrenhofer, L. (2015). Learning obscure and obvious properties of language. *LAB*. 5 (4), 545--555. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1075/lab.5.4.19phi

Phillips, C. & Ehrenhofer, L. (2015). The role of language processing in language acquisition. *LAB*. 5 (4), 409--453. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1075/lab.5.4.01phi

Polinsky, M. (2015). Embedded finite complements, indexical shift, and bidning in Tsez. *Languages of the Caucasus*. 1 (1), 1-37. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; ISSN: 2375-2068

Potsdam, E., & Polinsky, M. (2015). Information Questions in Malagasy Dialects: Official Malagasy and Antakarana. *Western Papers in Linguistics / Cahiers linguistiques de Western*. 1 (1), . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

Romanova, N. & Gor, K. (2016). Processing gender and number agreement in Russian as a second language: the devil is in the details. *Studies in Second Language Acquisition*. 1--32. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1017/s0272263116000012

Ross-Sheehy, S. & Newman, R.S. (2015). Infant auditory short-term memory for non-linguistic sounds. *Journal of Experimental Child Psychology*. 132 51--64. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1016/j.jecp.2014.12.001

Scharinger, M., Monahan, P.J., & Idsardi, W.J. (2016). Linguistic category structure influences early auditory processing: Converging evidence from mismatch responses and cortical oscillations. *{NeuroImage}*. 128 293--301. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1016/j.neuroimage.2016.01.003

Schwartz, M., Minkov, M., Dieser, E., Protassova, E., Moin, V., & Polinsky, M. (2014). Acquisition of Russian gender agreement by monolingual and bilingual children. *International Journal of Bilingualism*. 19 (6), 726--752. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1177/1367006914544989

Scontras, G., Fuchs, Z., & Polinsky, M. (2015). Heritage language and linguistic theory. *Frontiers in Psychology*. 6 . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.3389/fpsyg.2015.01545

Segal, J. & Newman, R.S. (2015). Infant Preferences for Structural and Prosodic Properties of Infant-Directed Speech in the Second Year of Life. *Infancy*. 20 (3), 339--351. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1111/infa.12077

Silverman, R.D., Coker, D., Proctor, C.P., Harring, J., Piantedosi, K.W., & Hartranft, A.M. (2015). The Relationship between Language Skills and Writing Outcomes for Linguistically Diverse Students in Upper Elementary School. *The Elementary School Journal*. 116 (1), 103--125. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1086/683135

Suzuki, Y. & DeKeyser, R. (2015). Comparing Elicited Imitation and Word Monitoring as Measures of Implicit Knowledge. *Language Learning*. 65 (4), 860--895. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1111/lang.12138

Teubner-Rhodes, S.E., Mishler, A., Corbett, R., Andreu, L., Sanz-Torrent, M., Trueswell, J.C. & Novick, J.M. (2016). The effects of bilingualism on conflict monitoring, cognitive control, and garden-path recovery. *Cognition*. 150 213--231. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1016/j.cognition.2016.02.011

Wellwood, A., Gagliardi, A., Lidz, J. (2016). Syntactic and Lexical Inference in the Acquisition of Novel Superlatives. *Language Learning and Development*. 1--18. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1080/15475441.2015.1052878

Zuhurudeen, F.M. & Huang, Y.T. (2016). Effects of statistical learning on the acquisition of grammatical categories through Qur'anic memorization: A natural experiment. *Cognition*. 148 79--84. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: 10.1016/j.cognition.2015.12.014

Licenses

Other Conference Presentations / Papers

Huang, Z.N. (2015). *On syntactic tense in Mandarin Chinese*. Proceedings of the 27th North American Conference on Chinese Linguistics. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

de Carvalho, A., He, A.X , Lidz, J. & Christophe, A. (2015). *18-month-olds use the relationship between prosodic and syntactic structures to constrain the meaning of novel words*. Talk presented at the 40th Boston Unviersity Conference on Language Development. Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Matchin, W., Hammerly, C., Lau, E. (2015). *A parametric study of hierarchical structure building in fMRI and MEG*. Poster presented at 7th Annual Meeting of Society for the Neurobiology of Language. Chicago, IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Daumé, H, & Lanford, J. (2015). *Advances in Structured Prediction*. Invited tutorial at the International Conference on Machine Learning. Lille, France. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

DeKeyser, R. (2015). *Age effects in second language learning and what they imply for the classroom*. Invited talk at CELEA conference. Shanghai, China. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Daumé, H. (2015). *Algorithms that learn to think of their own feet*. Invited talk at the International Conference on Learning Representations. San Diego, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Daumé, H. (2015). *Algorithms that learn to think of their own feet*. Invited talk at the University of California, Santa Cruz. Santa Cruz, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lidz, J. (2016). *Bridge Building*. Invited Talk at the Symposium on Making Connections between Language Contact and Language Acquisition, Linguistic Society of America Annual Meeting. Washington,D.C.. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Perkins, L., He, A.X., Williams, A., Dudley, R., Björnsdóttir, S., & Lidz, J. (2016). *Can intransitive clauses name 2-participant events? A new test of Participant-to-Argument Matching in verb learning*. Talk at the Pre-CUNY Workshop on Events in Language & Cognition 2016. Gainesville,FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Huang, Y, Gerard, J., Hsu, N., Kowalski, A., & Novick., J.M. (2016). *Cognitive-control effects on the kindergarten-path: Separating correlation from causation*. Poster presented at the 29th Annual CUNY Conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Freynik, S., O'Rourke, P., & Gor, K. (2015). *Comparing L2 Sensitivity to Arabic Derivational and Inflectional Morphology at Lexical and Sentential Levels*. Poster presented at The 9th International Morphological Processing Conference. Potsdam University, Germany. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Comprehension, production, and prediction*. Invited Talk at the University of Wroclaw. Wroclaw, Poland. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2016). *Comprehension, production, and prediction*. Invited talk at the Linguistics colloquium, University of California, Santa Cruz. Santa Cruz, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Axelrod, A., He, X., Resnik, P., & Ostendorf, M. (2015). *Data Selection With Fewer Words*. Talk at the Conference on Empirical Methods in Natural Language Processing. Lisbon, Portugal. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lapinskaya, N., Uzomah, U., Bedny, M., Lau, E. (2015). *Dissociating neural effects of semantic and syntactic category on*

lexical processing. Poster presented at 7th Annual Meeting of Society for the Neurobiology of Language. Chicago, IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Cook, S., & Gor, K. (2015). *Does lexicon play a role in the development of nonnative phonological categories? Talk presented at the EuroSLA Conference*. Aix-en-Provence. France,. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Hsu, N., & Novick, J.M. (2016). *Does visual cognitive control engagement help listeners tidy up the garden-path? Poster presented at the 29th Annual CUNY Conference on Human Sentence Processing*. Gainesville. FL,. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Gerhold, K., Ratner, N., & Newman, R. (2015). *Early phonological predictors of toddler language outcomes*. American Speech Language Hearing Association Annual Convention. Denver, CO. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2016). *Ergativity under the lens: experimental and theoretical syntax*. Invited Speaker at the 38th Annual Conference of the German Linguistic Society. Konstanz, Germany. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Newman, R. S., (2016). *Finding the words in the blooming, buzzing confusion: Noise impacts on toddlers*. Talk at the American Association for the Advancement of Science. Washington,D.C.. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Momma, S., Slevc, R., Buffinton, J., & Phillips, C. (2016). *Grammatical category limits lexical selection in language production*. Talk at the Linguistic Society of America Annual Meeting. Washington,D.C.. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Gor, K. (2015). *Half empty or half full? Nonnative lexical access*. Invited talk at Night Whites: The Third St. Petersburg Winter Workshop on Experimental Studies of Speech and Language. St. Petersburg State University, Russia. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Daumé, H. (2015). *Hands-on Learning to Search for Joint Prediction*. Invited tutorial at the Conference of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies. Denver, CO. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Harrigan, K., Hacquard, V. & Lidz, J. (2015). *Hope for Syntactic Bootstrapping*. Talk presented at the 40th Boston Unviersity Conference on Language Development. Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lidz, J. (2016). *How Syntax Solves Children's Attitude Problems*. Invited Talk at the Stanford University Department of Linguistics. Stanford, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Anderson, L. C., Newman, R. S. & Redcay, E. (2015). *How multitalker environments affect speech understanding in autism*. International Meeting for Autism Research. Salt Lake City,UT. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Green, J. J., McCourt, M., Lau, E., & Williams, A. (2015). *Implicit control: semantics or pragmatics?*. Poster presented at XPRAG. Chicago,IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Eaves Jr., B., Feldman, N., Griffiths, T., & Shafto, P. (2015). *Infant-directed speech is consistent with teaching*. Poster presented at the 40th Boston University Conference on Language Development. Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lasnik, H. (2015). *Islands and Ellipsis: A Reexamination*. Invited talk at Workshop on GRASPING ELLIPSIS: its syntax, semantics, acquisition, and processing. University of Campinas, Campinas, Brazil. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lidz, J. (2016). *Language and Number, Mostly. Tightening the Articulation Between Language and Number*. Invited talk at

Lorentz Center. Leiden, The Netherlands. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Gor, K., & Cook, S. (2015). *Late second language learners but not early starters rely on fuzzy phonological representations of words in speech processing: Facilitation instead of inhibition in phonological priming*. Talk presented at the International symposium on monolingual and bilingual speech. Chania,Greece. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2015). *Learning from Heritage Languages*. Invited Speaker at 12th Generative Approaches to Language Acquisition. Nantes, France. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lidz, J. (2015). *Learning in Generative Grammar*. Invited Talk at the University of Delaware Department of Linguistics. Newark, DE. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Chang, K.-W., Krisnamurthy, A., Agarwal, A., Daumé, H., Langford, J. (2015). *Learning to Search Better than Your Teacher*. Proceedings of the 32nd International Conference on Machine Learning. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Levels, components, and tasks*. Invited Talk at the University of Wroclaw. Wroclaw, Poland. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Gor, K., Chrabaszcz, A., & Cook, S. (2015). *Lexical access of nonnative inflected nouns: The role of proficiency and early/late start*. Talk presented at SLRF 2015. Atlanta, GA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Momma, S., Luo, Y., Sakai, H., Lau, E., & Phillips, C. (2016). *Lexical predictions and the structure of semantic memory: EEG evidence from case changes*. Talk at the 29th annual CUNY Conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Linguistic computation: The psycholinguistics of grammar*. Talk at Konkuk University Distinguished Lecture Series. Seoul, Korea. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Cook, S.V., Sweet, S. J., Gor, K., Jackson, S., Doughty, C., Lancaster, A., Pandza, N., Pelzl, E., Aghajanian-Stewart, K., & Howell, T. (2016). *Linguistic correlates of proficiency (LCP): Methodology, features, & capabilities*. Talk presented at Georgetown Round Table on Language and Linguistics. Washington,D.C.. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Linguistic illusions: Recent surprises*. Talk at Konkuk University Distinguished Lecture Series. Seoul, Korea. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Pearson, B., Lidz, J., McKee, C., McCullough, E., Moore, L., Phillips, C., Speer, S., Wagner, L., & Zimmer, E. (2015). *Linguistics for everyone: Engaging a broader public for the scientific study of language*. Proceedings of the 39th Boston University Conference on Language Development . . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Daumé, H. (2015). *Locally optimal learning to search and distant supervision*. Invited talk at the University of Maryland Computer Science Research Seminar. College Park, MD. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Prieto Botana, G., & DeKeyser, R. (2015). *Long-term effects of asynchronous blended delivery modes*. Talk at Annual meeting of the American Council on the Teaching of Foreign Languages. San Diego, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2015). *Look before you leap*. Invited Speaker at LSA Summer Institute. Chicago, IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Ettinger, A., & Malamud, S.A. (2015). *Mandarin utterance-final particle ba (?) in the conversational scoreboard*. Proceedigns of Sinn und Bedeuting 19. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Hitczenko, K. & Feldman, N. (2015). *Modeling adaptation to a novel accent*. Paper presented at the Northeast Computational Phonology Workshop. Newark,DE. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2016). *Modeling the rise and fall of gender*. Invited Talk at Workshop on Gender and Classifiers in Natural Language. University of Surrey, Guildford, UK. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Longenbaugh, N. & Polinsky, M. (2016). *Niuean subject/object symmetry*. Poster presented at 42nd Annual Berkeley Linguistics Society. Berkeley, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Gor, K., Chrabaszcz, A., and Cook, S. (2015). *Nonnative decomposition of inflected nouns: The role of proficiency and early/late start*. Talk presented at the EuroSLA Conference. Aix-en-Provence, France. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Huang, Y., Abadie, L., Arnold, A., & Hollister, E. (2015). *Novelty of discourse referents promotes heuristics in children's syntactic processing*. Poster presented at the 40th Boston University Conference on Language Development. Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Huang, Y., Abadie, L., Arnold, A., & Hollister, E. (2016). *Novelty of discourse referents promotes heuristics in children's syntactic processing*. Paper presented at the 29th annual CUNY conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Mallikarjun, A., Newman, R.S., & Novick, J. (2015). *Online Processing of Tone by Second Language Learners of Mandarin*. Poster presented at the Annual Meeting of the Psychonomic Society. Chicago,IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Mallikarjun, A., Novick, J.M., & Newman, R. (2015). *Online processing of lexical tone by second language learners of Mandarin*. Poster to be presented at the 56th Annual Meeting of the Psychonomics Society. Chicago, Il. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2016). *Parametrizing subject transparency*. Invited speaker at Formal Approaches to Japanese Linguistics. Mie,Japan. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Ehrenhofer, L. (2015). *Prediction Across Categories*. Talk at the Cognitive Neuroscience of Language Lab. University of Maryland, College Park,MD. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Psycholinguistics of anaphora: challenges for memory access models*. Invited Talk at the Workshop on Pronouns, Syntax, Semantics, and Processing. Higher School of Economics, Moscow, Russia. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Psycholinguistics of anaphora: child-adult parallels in the (mis-)interpretation of anaphora*. Invited Talk at the Workshop on Pronouns. Higher School of Economics, Moscow, Russia. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Psycholinguistics of anaphora: from grammatical constraints to memory mechanisms*. Workshop on Pronouns, Syntax, Semantics, and Processing. Higher School of Economics, Moscow, Russia. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Psycholinguistics of anaphora: what and when?*. Invited Talk at the Workshop on Pronouns, Syntax, Semantics, and Processing. Higher School of Economics, Moscow, Russia. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Hsu, N. & Novick, J.M. (2015). *Real-time engagement of cognitive control modulates recovery from misinterpretation during spoken language comprehension*. Paper presented at the 56th Annual Meeting of the Psychonomics Society. Chicago, IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2015). *Silence is golden: Remarks on silent categories in Russian*. Invited Speaker at 24th Formal Approaches to Slavic Linguistics. New York, NY. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Momma, S., Buffinton, J., Slevc, R., & Phillips, C. (2016). *Similar words compete, but only when they're from the same category*. Poster at the 29th annual CUNY Conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Raneri, D., Ratner, N., & Newman, R. (2015). *Slow down, Mommy, I'm learning: Speech rate & language outcomes*. American Speech Language Hearing Association Annual Convention. Denver, CO. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jaekel, B. N., Newman, R. S., & Goupell, M. J. (2015). *Speaking rate effects on phoneme perception in adult CI users with early- and late-onset deafness*. Poster presented at the Conference on Implantable Auditory Prostheses. Lake Tahoe, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Momma, S., Slevc, R., & Phillips, C. (2016). *Split intransitivity modulates look-ahead effects in sentence planning*. Poster at the 29th annual CUNY Conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Newman, R. S., (2015). *Statistical learning and native-language learning are linked throughout development*. Discussant atn Society for Research in Child Development. Philadelphia, PA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Cook, S., & Gor, K. (2015). *Statistical probabilities aid in the development of L2 phonological representations*. Talk presented at the International symposium on monolingual and bilingual speech. Chania,Greece. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

White, A.S., Hacquard, V., Resnik, P., & Lidz, J. (2016). *Subcategorization frame en- tropy in online verb-learning*. Poster presented at the 29th Annual CUNY Conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2015). *Subject preference and ergativity*. Invited Talk at Seoul National University. Seoul, Korea. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Heffner, C. C., Idsardi, W. J., & Newman, R. (2015). *Support for a dual-systems model of speech sound category learning from goodness judgments*. 56th Annual Psychonomic Society Meeting. Chicago, IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lidz, J. (2015). *Syntactic Bootstrapping and the Attitudes*. Invited Talk at the Symposium on Syntactic Bootstrapping, 40th Boston Unviersity Conference on Language Development. Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

He, H., Grissom, A., Boyd-Graber, J., Daumé, H. (2015). *Syntax-based Rewriting for Simultaneous Machine Translation*. Proceedings of the 2015 Conference on Empirical Methods in Natural Language Processing. . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2016). *Systematic change in heritage grammars*. Invited talk at University of Mannheim. Mannheim, Germany. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

DeKeyser, R. (2015). *Task repetition for language learning: A perspective from skill acquisition theory*. Colloquium Presentation at the Task-Based Language Teaching conference. Leuven, Belgium. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Nguyen, V.-A., Boyd-Graber, J., Resnik, P., & Miler, K. (2015). *Tea Party in the House: A Hierarchical Ideal Point Topic Model and Its Application to Republican Legislators in the 112th Congress*. Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (Volume 1: Long Papers). . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Cook, S. V., & Gor, K. (2015). *Testing grammatical knowledge at different proficiency levels*. Invited participants in SEELRC

Summer Institute 2015. Duke University, Durham, NC. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Pelzl, E., DeKeyser, R., Lau, E., Phillips, C. (2015). *The Acquisition of Lexical Tone by Advanced Second Language Learners*. Second Language Research Forum. Atlanta, GA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Card, D., Boydstun, A. E., Gross, J. H., Resnik, P., & Smith, N. A. (2015). *The Media Frames Corpus: Annotations of Frames Across Issues*. Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (Volume 2: Short Papers). . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *The Mind of a Child*. Invited roundtable participant at The Helix Center. New York, NY. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lau, E., O'Rourke, P., Namyst, A., Darwish, S., Dawson, T. (2015). *The impact of timing on lexical-semantic prediction in L1 and L2*. Poster presented at 7th Annual Meeting of Society for the Neurobiology of Language. Chicago, IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *The nature of linguistic constraints: Explanation and reductionism*. Talk at Konkuk University Distinguished Lecture Series. Seoul, Korea. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Li, M., Jiang, N. & Gor, K. (2015). *The processing of compound words in native and nonnative speakers: Evidence from masked priming experiments in English*. Paper presented at the Pre-conference Workshop: Bilingual Morphology at the Crossroads for The 10th International Symposium on Bilingualism. Rutgers University, New Jersey. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *The relation between language processing and language learning*. Talk at Konkuk University Distinguished Lecture Series. Seoul, Korea. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Gor, K. (2015). *The role of early and late start and nonnative proficiency in phonological and morphological aspects of lexical access*. Invited participant in the Grammar in the Mental Lexicon Workshop. University of Potsdam, Germany. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adler, R.M., Novick, J.M., & Huang, Y. (2016). *The time course of verbal irony comprehension and context integration*. Proceedings of Trends in Experimental Pragmatics . . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adler, R., Novick, J.M., & Huang, Y (2016). *The time course of verbal irony comprehension and context integration*. Trends in Experimental. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adler, R., Novick, J.M., & Huang, Y. (2016). *The time course of verbal irony comprehension and context integration*. Talk presented at Trends in Experimental Pragmatics. Berlin, Germany. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Hermansky, H., Burget, L., Cohen, J., Dupoux, E., Feldman, N., Godfrey, J., Khudanpur, S., Maciejewski, M., Mallidi, H., Menon, A., Ogawa, T., Peddinti, V., Rose, R., Stern, R., Wiesner, M., & Vesel�, K. (2015). *Towards machines that know when they do not know: Summary of work done at 2014 Frederick Jelinek memorial workshop in Prague*. Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing . . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Pelzl, E., Guo, T., & Lau, E. (2016). *Tuning in: adaptation to mispronunciation in foreign-accented language comprehension*. Poster presented at the 29th Annual CUNY Conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adler, R., Novick, J.M., & Huang, Y. (2016). *Understanding contextual effects during the real-time comprehension of verbal irony*. Poster presented at the 29th Annual CUNY Conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *Web presence for linguists*. Invited Talk at the Linguistic Society of America Summer Institute. Chicago, IL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

He, A.X., & Lidz, J. (2016). *What Infants Learn about a Verb Depends on its Subject*. Talk presented at the Linguistic Society of America Annual Meeting. Washington,D.C.. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Richardson, R. R., Feldman, N. H., & Idsardi, W. (2015). *What defines a category? Evidence that listeners? perception is governed by generalizations*. Proceedings of the 37th Annual Conference of the Cognitive Science Society . . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Phillips, C. (2015). *What do you expect? Prediction and memory in speaking and understanding.* Talk at Konkuk University Distinguished Lecture Series. Seoul, Korea. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Polinsky, M. (2016). *What does it take to be a native speaker?*. Invited speaker at 29th Annual CUNY Conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Orita, N., Vornov, E., Feldman, N. H., & Daumé III, H. (2015). *Why discourse affects speakers? choice of referring expressions*. Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (Volume 1: Long Papers). . Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Arnold, A. & Huang, Y. (2015). *Word learning in linguistic context: Processing and memory effects*. Poster presented at the 40th Boston University Conference on Language Development. Boston, MA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Huang, Y. & Arnold, A. (2016). *Word learning in linguistic context: Processing and memory effects*. Poster presented at the 29th annual CUNY conference on Human Sentence Processing. Gainesville, FL. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Other Products

Other Publications

Patents

Technologies or Techniques

Thesis/Dissertations

Websites
Future STEM Leaders
http://futurestemleaders.com

Website for the 2016 NRT Teams Meeting (U of Maryland, May 2-3) and Future STEM Leaders meeting (Washington DC, May 4). Includes extensive materials related to all current NRT programs.

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
Feldman, Naomi	Faculty	0
Gor, Kira	Faculty	0
Huang, Yi Ting	Faculty	0
Lasnik, Howard	Faculty	0
Lau, Ellen	Faculty	0
Lidz, Jeffrey	Faculty	0
Mckinnon, Tim	Faculty	4
Novick, Jared	Faculty	0
O'Meara, KerryAnn	Faculty	1
Polinsky, Maria	Faculty	0
Resnik, Philip	Faculty	0
Williams, Alexander	Faculty	0
Wood, Tess	Faculty	1
Adler, Rachel	Graduate Student (research assistant)	6
Ehrenhofer, Lara	Graduate Student (research assistant)	6
Ettinger, Allyson	Graduate Student (research assistant)	6
Green, Jeffrey	Graduate Student (research assistant)	6
Hall, Stephanie	Graduate Student (research assistant)	2
Hitczenko, Kasia	Graduate Student (research assistant)	6
Huang, Nick	Graduate Student (research assistant)	6
Karatas, Nur Basak	Graduate Student (research assistant)	6

Kim, Sunhee	Graduate Student (research assistant)	6
Malko, Anton	Graduate Student (research assistant)	6
Mallikarjun, Amritha	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	1
Gorski, Judi	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, organizer of NRT Teams Meeting and Future STEM Leaders meeting

Funding Support: NSF

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
Email: rdk@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

William J Idsardi
Email: idsardi@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

Rochelle Newman
Email: rnewman@hesp.umd.edu
Most Senior Project Role: Co PD/PI
Nearest Person Month Worked: 0

Contribution to the Project: co-PI, deputy director of program

Funding Support: University

International Collaboration: No
International Travel: No

Naomi Feldman
Email: nhf@umd.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 0

Contribution to the Project: Key faculty in cognition-computation bridge

Funding Support: University

International Collaboration: No
International Travel: No

Kira Gor
Email: kiragor@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

Yi Ting Huang
Email: ythuang1@umd.edu

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
Email: lasnik@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

Ellen Lau
Email: ellenlau@umd.edu
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

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, outreach director

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: 4

Contribution to the Project: NRT program coordinator, organizer of NRT Teams Meeting and Future STEM Leaders

meeting

Funding Support: NSF

International Collaboration: No
International Travel: No

Jared Novick
Email: jnovick1@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

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: NSF

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: Yes, Guatemala - 0 years, 0 months, 15 days

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Philip Resnik
Email: resnik@umd.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 0

Contribution to the Project: Mentor, key computational faculty

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: Participated in recruitment and admissions of NRT students. Helped organize and manage NRT-related events e.g. Language Science Day, Winter Storm, outreach activities. Helped train new NRT coordinator. Provided students with guidance and feedback on application, research plans, and other NRT related activities.

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/NSF

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, PULSAR Mentor

Funding Support: University/Fulbright

International Collaboration: Yes, Germany
International Travel: Yes, Germany - 0 years, 2 months, 0 days

Allyson Ettinger
Email: aetting@umd.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 6

Contribution to the Project: Trainee, Winter Storm organizer

Funding Support: NSF GRF

International Collaboration: No
International Travel: No

Jeffrey Green
Email: jgreen88@umd.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 6

Contribution to the Project: Trainee

Funding Support: NSF

International Collaboration: No
International Travel: No

Stephanie Hall
Email: halls@umd.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 2

Contribution to the Project: Evaluation research assistant

Funding Support: NSF

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, PULSAR Mentor

Funding Support: NSF Research Grant

International Collaboration: No
International Travel: No

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: 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: No
International Travel: No

Sunhee Kim
Email: shkim@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

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: Yes, Russian Federation - 0 years, 1 months, 0 days

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Amritha Mallikarjun
Email: amritham@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

Laurel Perkins
Email: perkinsl@umd.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 6

Contribution to the Project: Trainee, PULSAR Mentor

Funding Support: University

International Collaboration: No
International Travel: No

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: 1

Contribution to the Project: Key LSC staff

Funding Support: University

International Collaboration: No
International Travel: No

Judi Gorski
Email: jcgorski@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
Expert Systems	Industrial or Commercial Firms	Rockville, MD
Wuqu Kawoq Maya Health Alliance	Other Nonprofits	Boston, MA & Guatemala
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
Prince George's County Schools	School or School Systems	Maryland
US Dept of Defense	Other Organizations (foreign or domestic)	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.

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

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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

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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

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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

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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

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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

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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

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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

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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?

(i) Many other contacts were involved in our project via the meetings supported by a supplement to our award. The NRT Teams Meeting (U of Maryland, May 2-3 2016) brought together around 120 participants from all 18 current NRT teams. The

Future STEM Leaders meeting (Washington DC, May 4 2016) brought together around 200 people, including the NRT teams and representatives from academia, industry, government, foundations, and diverse professional organizations.

(ii) A number of individuals in foreign institutions contributed to our students' research success as collaborators:

-- Natalia Slioussar, Higher School of Economics, Moscow, Russia (Anton Malko)
-- Kazuko Yatsushiro, Zentrum für Allgemeine Sprachwissenschaft, Berlin, Germany (Lara Ehrenhofer)
-- Barbara Höhle, University of Potsdam, Germany (Lara Ehrenhofer)
-- Reiko Mazuka, RIKEN Institute, Japan (Kasia Hitczenko)
-- USC Information Science Institute (Sudha Rao)
-- Center for Advanced Study of Language, Maryland (Rachel Adler)

(iii) Our leadership of the Global Research Alliance in Language (GRAIL) is a partnership with the Universitas 21 network, and groups of researchers at British Columbia, Connecticut, Ohio State, Edinburgh, Glasgow, Birmingham, Nottingham, Amsterdam, Lund, Auckland, Singapore, Hong Kong, PUC Chile, Johannesburg, Melbourne, New South Wales, Queensland, and Korea University.

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.

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.

Globally, the reach of our integrated approach has made important progress in the past year. The Global Research Alliance in Language (GRAIL) is an initiative that makes language science a signature theme of the Universitas 21 alliance of 25 research universities worldwide. This initiative was developed by the Maryland group, in conjunction with the UMD's Office of International Affairs and Vice President for Research, over the course of two years. It was officially approved by the Presidents of U21 institutions in Singapore in May 2016. But even before this, it has led to change at other institutions, such as the U of British Columbia's interdisciplinary Language Sciences Initiative, launched in April 2016, which can be directly traced back to the development of GRAIL.

What is the impact on other disciplines?

Impacts on other disciplines are harder to gauge. Graduate programs respond to changes that their peers are making, and training innovations do not easily cross disciplinary boundaries. Within the University of Maryland, Phillips has given some presentations on developing interdisciplinary programs, but the only real impacts that we have seen to date have been from programs whose most energetic and influential students have been in our IGERT/NRT programs. In particular, when those students see the benefits of student ownership of programs, they want to spread this to other programs that they are involved in.

Our team has made all of our NRT and IGERT materials available online, including all reports and assessment materials (warts and all). And we have written about strategies for building sustainable interdisciplinary programs. These create broadly available resources, but they could be made more readily discoverable.

Our greatest opportunity for cross-field impact may come from the NRT Teams Meeting and Future STEM Leaders meeting, which were held in early May 2016, after the end of the current reporting period, though much effort went into organizing them during the current reporting period.

What is the impact on the development of human resources?

Our initial group of NRT trainees includes 9 PhD students who completed the full application process during their first or second year in their home PhD program. In 2015-2016 two of those students were supported by NRT stipends. Others were supported by NSF GRF, by other research grants, and by university fellowships and assistantships. The group includes a number of international students.

Our program served a much broader population of students in diverse ways. The program engages beginning PhD students who we hope will become NRT trainees in the future. The program continues to serve students from our IGERT program who are approaching completion of their PhD. And our programs various events, initiatives, and courses serve a broader population of graduate students in language science. For example, 45 graduate students participated in Winter Storm 2016, and 70 graduate students participated in Language Science Day.

TRAINEE ACHIEVEMENTS/OUTCOMES

(i) Groups of NRT trainees are leading the development of thematically-focused research teams. These efforts were seeded during Winter Storm, a student led 2-week workshop that in 2016 was redesigned to include more focused effort on building research collaborations. They were continued during Spring 2016 by a team of students that met to discuss findings from the "science of team science". And now they are being further developed by thematically-focused groups. These efforts remain in their early stages, but we are encouraged by the student leadership in this area.

(ii) As highlighted elsewhere in this report, many trainees have taken steps to bridge cognitive and computational approaches to language science, addressing one of the key goals of our NRT program. Some students will become true hybrid scholars, while others will remain clearly more firmly grounded on one side. We see this as a good thing, because the continuum of expertise makes this combined area more inviting to other students, reducing perceived barriers to entry.

(iii) Our undergraduate PULSAR program, an interdisciplinary program inspired by IGERT/NRT, provides valuable opportunities for our trainees to gain experience in mentoring. Each semester, two graduate students serve as mentors for this diverse group of exceptionally engaged undergraduates. They guide the weekly 1-hour PULSAR seminar, which engages students in research and professional development, and they meet individually with students to guide their development as beginning researchers. Graduate students have found this to be a rewarding experience that has helped them to grow in confidence.

BROADENING PARTICIPATION

Our team seeks to broaden participation by working at multiple stages of students' development, from middle school through the PhD. We can have a greater impact by trying to engage with students at an early age, increasing the likelihood that they will consider science in college and beyond, rather than waiting to compete for the small pool of students who have already decided to apply for a PhD. Our trainees are all involved in outreach to local middle or high schools, most of which have majority minority student bodies. Some of these students become interns in our labs, and later become undergraduates. For example, one of the students in our PULSAR program, the undergraduate version of our interdisciplinary graduate program, started as a high school intern in the lab of co-PI Rochelle Newman.

We believe that our ability to recruit a diverse graduate student body is driven by the overall climate and diversity in our student body, regardless of whether the individuals check the official boxes that NSF tracks. For example, our new cohort of PhD students in 2016 will include one Hispanic student from Guatemala and one First Nations student from Canada. Neither are US citizens, so they are not captured by official statistics, but they clearly make a difference to the overall profile of the student body.

Our computational group has an unusually strong record of gender diversity, in a field that is overwhelmingly male dominated. In this case, having a group of successful and satisfied women faculty and students makes a big difference to our ability to recruit further women to that part of the program.

Our ability to recruit a diverse student population is also affected by the kinds of research that the team is pursuing. Our group's creation of a field station in Sololá, Guatemala, for research with Mayan populations, with ties to public health and poverty issues, demonstrates an interest in working with diverse groups. Similarly, our development of an initiative on language and school readiness for African American K-1 children shows similar evidence of societal engagement. Both of these projects are led by new senior faculty who were recruited to UMD thanks to significant institutional investment in our language science initiative, building on the success of our graduate training programs.

What is the impact on physical resources that form infrastructure?

In January 2017 the Language Science Center will relocate to new space in the fully renovated HJ Patterson Building, in the center of the U of Maryland campus. This facility is much larger and more attractive than our current temporary home, and it will serve as a hub for interdisciplinary research and for the NRT program at UMD. The new facility has 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 (the building is being billed as the university's 'global hub').

What is the impact on institutional resources that form infrastructure?

Our graduate training efforts have had a major impact on institutional resources that create infrastructure. They have led to new hires across multiple departments, at the junior and senior levels. They have led to new space (greatly enhanced space soon to be opened). They have led to staff who provide high level support for interdisciplinary research. And they have fostered diverse new partnerships, locally, nationally, and globally. Again, it is difficult to point to the specific impacts from individual training programs or university initiatives, as their success is so interconnected.

What is the impact on information resources that form infrastructure?

Our NRT program has created a collection of online resources on NRT programs and their needs, ideas, challenges, and solutions, through our organization of the NRT Teams Meeting and the Future STEM Leaders meeting.

Our program's outreach team, led by students, created an online resource guide for public engagement for language science. This served as the basis for a resource guide distributed by the Linguistic Society of America.

Our team leads the development of Langscape, an online portal for resources on the world's 6400 languages. The intuitive map-based interface makes Langscape potentially valuable for public and K-12 use as well as for researchers. There were around 30,000 unique users in 2015. Langscape is already used by NRT students in public engagement activities. It is not yet at a stage where it is able to serve NRT students' research needs, but our goal is to make it an ideal resource for research on massively multi-lingual problems, serving our NRT program's focus on multi-scale data, i.e., what to do when big data is not available, as is the case for 99.5% of the world's languages. Phillips serves as the PI for Langscape. The project's manager, Dr Tess Wood, is closely involved in NRT program activities.

What is the impact on technology transfer?
Nothing to report.

What is the impact on society beyond science and technology?

Our interdisciplinary graduate programs have successfully changed the mindset of our community. As one of our key faculty observed, "When I was in graduate school, we were led to believe that "applied" was a dirty word. That's not how we see things these days." Importantly, our examples of broader impacts beyond science and technology did not emerge in a single step. In all cases they have emerged via a multi-step process that started with intellectual climate change, and then allowed us to engage with people who would not have worked with us previously.

Student participation in various kinds of outreach activities has removed them from the ivory tower and has encouraged them to think more about the societal context of their research. These activities are described in more detail elsewhere in the report. Our team is also playing a key advisory role in the planning for a new downtown Washington DC language museum ('Planet Word'), led by Ann Friedman.

Our interdisciplinary seminars have also led to the growth of research projects that more directly impact society. For example,

a 2012 interdisciplinary seminar that brought together linguistics and education researchers stimulated interest in language development and socioeconomic status, which has engaged students and faculty from a number of departments. This in turn laid the groundwork for a current initiative to work on language issues affecting school readiness for African American K-1 students, in partnership with Baltimore City Public Schools. Similarly, our developing partnership with the Wuqu Kawoq Maya Health Alliance in Guatemala and with UMD's Global Public Health program can be traced back to the success of our interdisciplinary graduate training efforts. And another project that is developing a language-based concussion screening tool can be traced back to collaborations and mindsets that were cultivated by our graduate programs.

Changes/Problems

Changes in approach and reason for change

We have rethought one of our key strategies for building sustainable student-faculty research teams. In our NRT proposal we described plans for an annual month-long Summer Camp in which students and faculty would work together on a single interdisciplinary research theme. We have realized that this approach impractical, because it would lead some research groups to be developed much earlier than others, and would align poorly with student availability. In its place we now are pursuing a more integrated approach, where teams can be sustained on an ongoing basis via shorter research-intensive workshops, seminars, working groups, and other mechanisms that are more closely integrated with participants' lives.

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

We have not encountered any institutional barriers to implementing our NRT program. Our primary institutional challenge is that the broad university-wide initiative that grew out of our graduate training efforts threatens to overshadow the graduate training. Originally, our community was clearly built around interdisciplinary graduate training, but as many other projects and initiatives have been added to the mix, it has become harder to maintain the clarity of purpose that we once had. As described earlier in this report, our main strategy for addressing this is to improve program management and internal communications.

Other aspects of program implementation have been slowed to some degree by our focus on organizing the May 2016 NRT Teams Meeting and the Future STEM Leaders meeting. These meetings benefited our team and the NRT community more broadly, but they took a great deal of our time in the first half of 2016. Aside from the logistics of organizing venues, participants, etc., we were organizing events that had not happened before, and connecting with groups of people who we did not know before. This made meeting organization rather more demanding than a regular disciplinary meeting. It was exacerbated by the loss of our key staff person (to a more lucrative position) for much of the period when we were organizing the events. We do not expect to be organizing similar meetings in 2016-2017, so no special steps are needed to address this challenge. We do hope, however, that it will be possible to in some way maintain the momentum that these meetings created.

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.

Table of NRT Trainees 2015-2016
University of Maryland

Trainee Name (Last, First)	Degree Program	Academic Discipline	First Enrolled in Grad Program	First Year Trainee	Began Receiving NRT Funding	Funding Source	Internship / Location	International Experience/ Country	Verify NRT-Re or Resid (NRT Funde
Rachel Adler	PhD	Neuro/CogSci, Hearing & Sp.	8/2013	2015	1/2016	NRT	Yes/CASL	Germany	
Nur Karatas (aka Bashak)	PhD	Second Lang. Acquisition	8/2013	2015	-	University	No	-	
Sunhee Kim	PhD	Second Lang. Acquisition	8/2013	n/a	-	University	No	-	
Allyson Ettinger	PhD	Linguistics	8/2013	2015	-	NSF GRF	No	-	
Anton Malko	PhD	Linguistics	8/2013	2015	-	University	No	Russia	
Lara Ehrenhofer	PhD	Linguistics	8/2013	2015	-	University/ Fulbright	No	Germany	
Jeff Green	PhD	Linguistics	8/2013	2015	8/2015	NRT	No	-	
Nick Huang	PhD	Linguistics	8/2014	2015	-	University	No	-	
Kasia Hitzcenko	PhD	Linguistics	8/2014	2015	-	NSF grant	No	-	
Laurel Perkins	PhD	Linguistics	8/2014	2015	-	University	No	Israel	
Amritha Mallikarjun	PhD	Neuro/CogSci, Hearing & Sp.	8/2014	2015	-	University	No	-	
Sudha Rao	PhD	Comp Sci	8/2013	2015	-	DoD grant	No	-	

NRT Professional Skills - 2016

University of Maryland

Category	Specific Activity	Status - new / existing
Tech skills	Programming primer (Winter Storm)	New / modified
Tech skills	R skills exchange (Winter Storm)	New
Tech skills	HESP Happy Hour toolkit (2-3 per semester)	Existing series, new topics each year
Resp. Conduct of Research	"My dog ate my data! Best practices for data management" (Winter Storm)	New
Resp. Conduct of Research	"Navigating the gray areas: ethical dilemmas in language science" (Winter Storm)	New
Teaching/Mentoring	PULSAR Fellows (advisors to undergrad interdis. program)	New since '14
Career Pathways	Careers Panel (Winter Storm)	New / modified
Career Pathways	Science Policy (2 Winter Storm sessions)	New
Career Pathways	Education Policy (Future STEM Leaders mtg)	New
Public Engagement	Outreach (many activities through year)	Expanded
Communication	Lang. Sci. Lunch Talks (w/ pre-/post-talk feedback)	Extended feedback
Communication	Engaging with collaborators (Winter Storm)	New
Communication	NRT Meeting Workshops	New
Communication	Grants - NRT application	Modified
Communication	Grants - Winter Storm workshop & panel	New

UMD NRT Goals

Student Goals

(1)   To enhance doctoral student agency as interdisciplinary researchers

(a)   to enhance student research skills
(b)   to enhance student confidence in and ability to pursue research independently
(c)   to enhance student confidence in and ability to collaborate on research with others and be an effective member of a research team
(d)   to increase the likelihood that students will take risks, and work in areas outside their comfort zone
(e)   to increase student ownership and contributions to their interdisciplinary program

(2)   To change the nature of student professional networks

(a)   to be more diverse (include more colleagues in other disciplines; and people using different methods or approaches
(b)   to be larger (more people in them)
(c)   to increase the value of the information, feedback and ideas networks provide

(3)   To enhance student understanding of particular research problems and the relationship between research problems and contexts

(a)   to have improved understanding of the ways in which the particular research problem they are studying relates to macro issues, real world applications and current policy discussions (zoom out)
(b)   to have improved understanding of the ways in which larger macro issues shape the particular micro issues they are studying (zoom in)
(c)   to have improved understanding of how the particular research problems they are studying relate to knowledge and research in other fields and disciplines and to non-academic real world problems (such as in industry, policy, clinical or educational practice)
(d)   to have improved understanding of the methodological challenges embedded in studying particular research problems

(4)   To 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

(a)   to be better able to communicate the ways in which the particular research problem they are studying relates to macro issues, real world applications, and current policy discussions (zoom out)

(b)   to be better able to communicate the ways in which larger macro issues shape the particular micro issues they are studying (zoom in)

(c)   to be better able to communicate how particular research problems relate to knowledge and research in other fields and disciplines and to non-academic real world problems (such as in industry, policy, clinical or educational practice)

(d)   to be better able to communicate methodological challenges embedded in studying particular research problems

Graduate Education Goal

(5) To share, and help other graduate programs adopt, best practices in interdisciplinary graduate education that emerge from the NRT project.

Institutional Change Goal

(6) To reduce organizational constraints to, and facilitate, faculty collaboration on interdisciplinary research.

Working Hypothesis/Logic Model

(1)   If the NRT program offers students, and students experience:

   (a) Curricular opportunities (winter storm, summer conferences, language science day)
·   (b) Co-Curricular opportunities (weekly lunch talks, internships, communication training, career lecture series)
   (c) Resources (fellowship funding)
   (d) Role models and mentors
   (e) Concrete examples and models of projects/products
   (f) Feedback
   (g) Peer dynamics of support
   (h) The opportunity to take ownership/responsibility for their own program
   (i) Team based activities
   (j) A Robust Intellectual Community (Language Science Center) that encourages a culture in which risk-taking, adaptability, collaboration, and going outside of one's own area is encouraged

Over 5 years, NRT Students will show enhanced:

(a)   Agency as interdisciplinary researchers
(b)   Networks (larger, more diverse, more valuable)
(c)   Understanding of research problems and contexts
(d)   Ability to translate and communicate research problems and contexts to others

(2)   If the NRT program, as part of the Language Science Center:

 (a)   Shares best practice models with colleagues at UM
 (b)   Shares best practice models with colleagues in their fields and among Big 10 colleagues

Other graduate programs at UMD and at peer institutions will adopt these best practices, improving the quality of graduate education.

(3)   If the NRT program, as part of the Language Science Center works with faculty to:

   (a) identify strategies that are constraining faculty collaboration on interdisciplinary research projects and reduce them and
   (b) identify organizational practices to facilitate greater collaboration on interdisciplinary research projects and increase them

Faculty at UMD will be more satisfied with organizational support for interdisciplinary research collaboration, and there will be more collaborative research projects among faculty in the language science community.

Measurement of Goals

| Goals	Data
Student Goal 1: enhanced agency as interdisciplinary researchers	Survey of students in NRT and peers (annually, each April)
Student Goal 2: larger, more diverse, and more valuable professional networks	Analysis of pre and post vita (publications, presentations, awards, grants)
Student Goal 3: improved understanding of research problems and contexts	Observations of NRT events (e.g. Language Science Day, Winter Storm)
Student Goal 4: improved research communication skills	Interviews and Focus groups with students annually each October and February Annual spring meeting with NRT, PIs, & Advisory Board: Formative feedback
Graduate Education Goal: best practices in interdisciplinary graduate education widely shared, and some adopted	Observations of NRT events (e.g. Language Science Day, Winter Storm) Reports from NRT Director of presentations, publications sharing best practices Concrete examples of adoption of key NRT models
Institutional Change Goal: fewer barriers and more facilitators of interdisciplinary research collaboration for faculty	Focus group with Language Science Faculty Year 1 and 5 10 minute survey of Language Science Faculty given in year 1, 3 and 5 Concrete examples, emerging from faculty data on organizational constraints removed, or facilitators put in place over the 5 years (e.g. change in grant rules, reward criteria, advising guidelines). Pre/Post data on nature of faculty research collaborations; PI info from office of research (Lyterati, maybe)

Public Impact Brainstorming
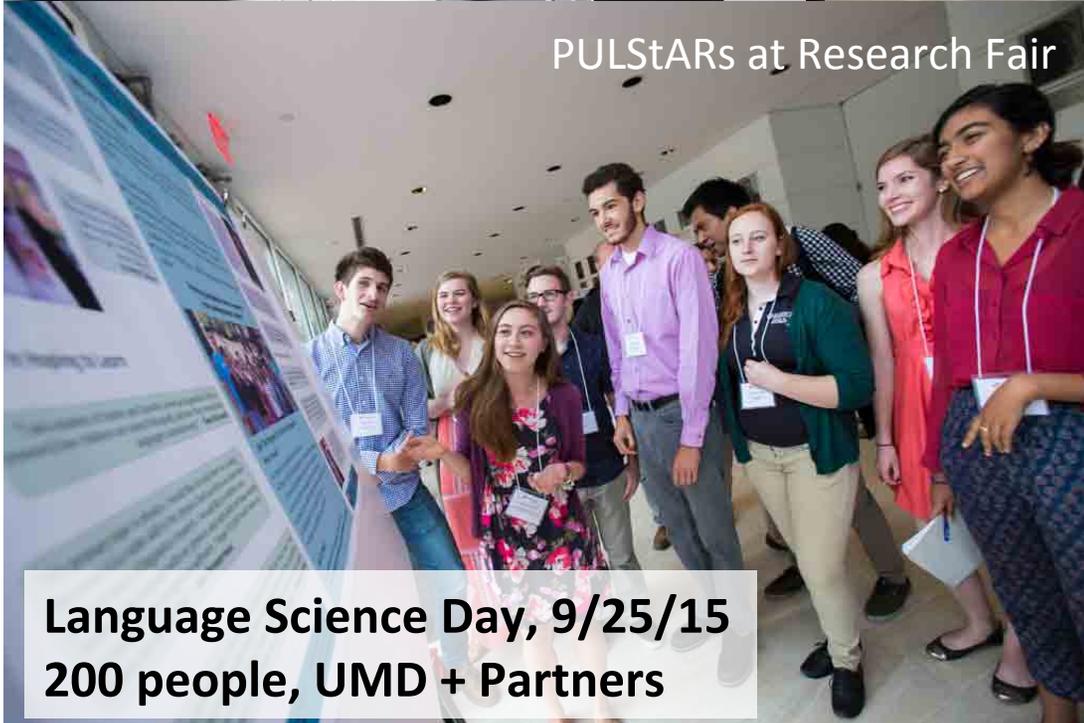
PULStARs at Research Fair

Bridging Cognition and Computation

Language Science Day, 9/25/15
200 people, UMD + Partners

Winter Storm 2016, January 11-22 (cut short by a real storm)

unscripted roundtables

building community

training from a YouTuber

science policy panel

international visitors

programming primer

faculty talks

communication is our science

skills exchange
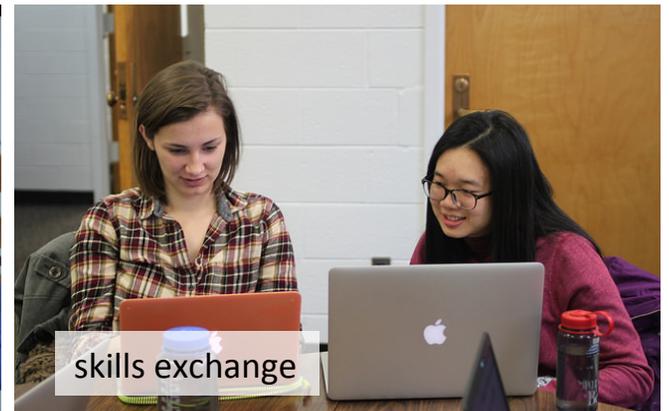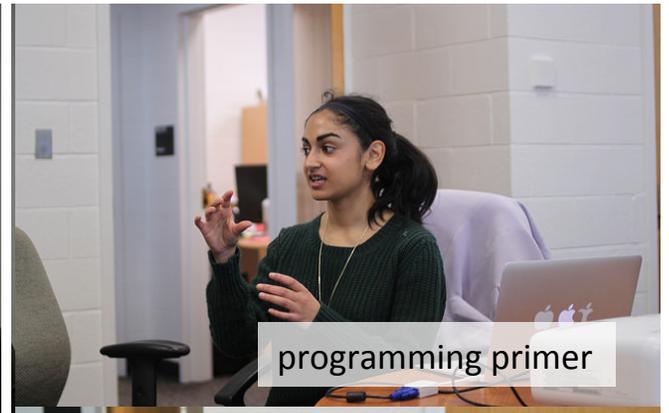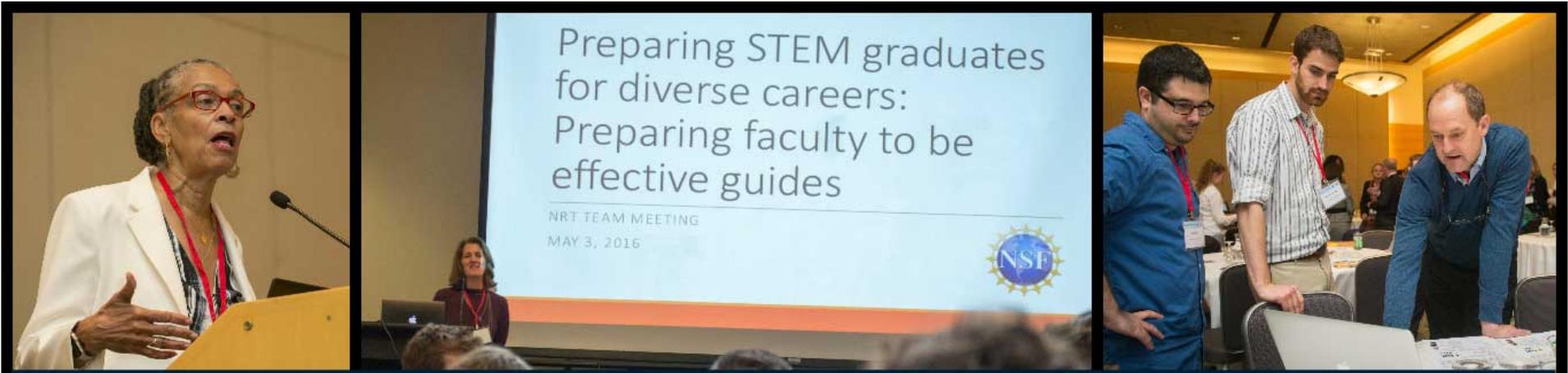
Future STEM Leaders • May 2nd - 4th, 2016 • College Park / Washington DC
national experts from academia, government and industry discuss the future of graduate STEM training