I. CURRICULUM VITAE

CAROLYN PENSTEIN ROSE

EDUCATION

- Ph.D., Language and Information Technologies, Carnegie Mellon University, December 1997. Thesis advisor: Lori S. Levin
- M.S., Computational Linguistics, Carnegie Mellon University, May, 1994.
- B.S., Information and Computer Science (Magna Cum Laude), University of California at Irvine, June 1992.

EMPLOYMENT

- [2011-present] *Associate Professor (Tenure Track)*, Language Technologies Institute and Human-Computer Interaction Institute, School of Computer Science, Carnegie Mellon University
- [2008-2011] *Assistant Professor (Tenure Track)*, Language Technologies Institute and Human-Computer Interaction Institute, School of Computer Science, Carnegie Mellon University
- [2003-2008] *Research Computer Scientist*, Language Technologies Institute and Human-Computer Interaction Institute, School of Computer Science, Carnegie Mellon University
- [1997- 2003] *Research Associate, Learning Research and Development Center, University of Pittsburgh*.
- Project coordinator in Natural Language Tutoring Group
- [1994-1997] *Teaching Assistant, Computational Linguistics Program, Carnegie Mellon University*.
- [Summer 1993] *Summer Research Internship, Apple Computer, San José, CA.*
- [1992-1994] *Research Assistant, Center for Machine Translation, Carnegie Mellon University*.
- [Summer 1991] *Research Internship, Minority Summer Research Internship Program, UC Irvine.*
- [1990-1992] *Honors Research, University of California at Irvine.*

PERSONAL

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II. STATEMENT OF CAREER GOALS

RESEARCH STATEMENT

Vision

My research program is focused on better understanding the social and pragmatic nature of conversation, and using this understanding to build computational systems that can improve the efficacy of conversation between people, and between people and computers. In order to pursue these goals, I invoke approaches from computational discourse analysis and text mining, conversational agents, and computer supported collaborative learning. I ground my research in the fields of language technologies and human-computer interaction, and I am fortunate to work closely with students and post-docs from the Language Technologies Institute and the Human-Computer Interaction Institute, as well as to direct a lab of my own, called TELEDIA.

The specific goals of my current research are to develop technology capable of shaping conversation and supporting effective participation in conversation to achieve a positive impact on human learning, growth, and wellbeing. My conviction is that in order for technology to be maximally successful in this mission, the technology must first be capable of processing, generating, and engaging in conversation. Second, its behavior should be designed with a deep understanding of the mechanics of what makes conversation work in different settings as well as an understanding of what properties of conversation add to or detract from its positive impact on important outcomes of conversation. Finally, its design should be based on knowledge of what external stimuli manipulate these properties of conversation and in what ways.

My aim is to see my research make an impact in the world. To this end I am actively involved in efforts that have a clear path towards impacting individuals and communities around the world and transforming how they benefit from participation in computer-mediated interactions, including partnerships with The Math Forum, a major university based math service reaching millions of students each year, and Pittsburgh Public Schools, a K-12 public school district. In order to ensure the real world impact of my work, I choose application areas with concrete benefits. My primary impact has been in the area of education, with other application areas such as health and emergency response providing the opportunity to test the generality of findings from my work in educational contexts.

The key idea behind all of my work is to draw insights from rich theoretical models from sociolinguistics and discourse analysis, and pair them down to precise operationalizations that capture the most important essence of what is happening for achieving impact. My approach is always to start with investigating how conversation works and formalizing this understanding in models that are precise enough to be reproducible and that demonstrate explanatory power in connection with outcomes that have real world value. The next step is to adapt, extend, and apply machine learning and text mining technologies in ways that leverage that deep understanding in order to build computational models that are capable of automatically applying these constructs to naturally occurring language interactions. Finally, with the technology to automatically

monitor naturalistic language communication in place, the final stage is to build interventions that lead to real world benefits.

This approach leads to three aspects included in each project:

(1) *Basic research in discourse analysis* in order to identify conversational constructs that predict important group outcomes such as learning, knowledge transfer, relationship formation, impression management, motivation and decision making.
(2) *Basic research on text classification* technology for automated analysis of conversational constructs identified under (1) as well as tools to enable other researchers to do the same in their own work.
(3) *Basic research on conversational agent technology* and summarization that eases development of interventions triggered by automatic analyses from (2) that either enable human facilitators to offer support, directly provide feedback to groups, or behave in such a way as to influence group participation in positive ways.

In an effort to arrive at generalizable models, I am pursuing this research program in multiple parallel contexts that provide opportunities to investigate how both the manifestation of the conversational constructs as well as their effects on outcomes are nuanced through mediating contextual variables. Thus, I am conducting research in eight currently funded projects, each of which provides opportunities for pursuing these three types of research, many of which fall within my primary impact area of education:

(1) Education at the middle school, high school, and college level
    a. Investigating the Social and Communicative Factors in Learning (NSF)
    b. Group Cognition: Learning in Engineering Project Teams (NSF)
    c. Networked Collaboration Modules for Integrating Mathematics and Engineering Education Using Intelligent Agents (NSF)
    d. Dynamic Support for Virtual Math Teams (NSF)
    e. ENGAGE: Learning to solve problems, Solving problems to learn (DARPA)
(2) Emergency response
    a. Towards Optimization of Macrocognitive Processes: Automating Analysis of the Emergence of Leadership in Ad Hoc Teams (ONR)
(3) Health and Wellbeing
    a. Conversational Dynamics in Online Support Groups (NSF)
    b. Extracting Social Meaning from Code Switching in English and French with Selected African Languages: Swahili, Zulu, Lingala, and Ciluba (ARL)

Below I highlight the impact my work has had resulting from three areas of basic research including discourse analysis, text classification summarization, and conversational agent technology.

Primary Directions

1. Basic Research on Discourse Analysis

One of the major cross-cutting thrusts of my work is identification of conversational constructs that predict important individual difference variables including motivational

constructs and participation goals as well as individual and group outcomes such as learning, knowledge transfer, relationship formation and trust, stress reduction, and decision making. *The theoretical contribution of my work in this area is the reinterpretation of largely qualitative frameworks from sociolinguistics and discourse analysis from a computational perspective, with a particular focus on frameworks characterizing interpersonal dynamics within the theory of Systemic Functional Linguistics (SFL).*

What distinguishes SFL from other theories in linguistics and makes it appropriate for achieving my research goals is its singular focus on the specification of *systems of strategic linguistic choices encoded as signals situated within social contexts*. This stands in contrast to generative theories of linguistics where the focus is on identification of universal language principles, which are only meant to explain aspects of linguistic structure that arise from the parameters of human cognition. It is unique as a linguistic theory that was developed by linguists working hand in hand with sociologists with the purpose of representing and explaining social processes at multiple levels, starting with the individual, and extending to pairs, small groups, communities, and even ecologies of communities acting and reacting to one another. The focus of my work is to take these rich and expansive but frequently vaguely specified constructs and pair them down to precise operationalizations that capture the most important essence. The challenge is in identifying what that most important essence is in a way that lends itself to some amount of generalization across contexts.

Computer supported collaborative learning activities have been the most frequent contexts in which my work has been situated. Foundational work reinterpreting constructs from SFL and applying them to analysis of collaborative learning interactions appears in an invited chapter on linguistic analysis of collaboration in the International Handbook of Collaborative Learning (Howley, Mayfield, & Rosé, 2012). That chapter describes a vision for a uniquely linguistic operationalization of collaborative discussion processes called Souflé that is designed to be agnostic to specific theoretical frameworks in the learning sciences. That chapter motivates the computational reinterpretation of two specific constructs from SFL that have played a prominent role in my work, namely Martin and Rose's Negotiation framework (Martin & Rose, 2003), which captures the ways in which participants in interactions involving the flow of knowledge and action position themselves either as sources or as recipients, and Martin & White's Engagement framework (Martin & White, 2005), in which assertions are positioned in relation to projected speaker and audience perspectives, as well as those of third parties. A third construct included in Souflé, but which does not have its roots in SFL, is Transactivity (Berkowitz & Gibbs, 1987), which is a form of collaborative knowledge integration widely regarded as valuable across alternative theories of collaborative learning.

The three primary component constructs of Souflé fit together as an integrated characterization of social positioning in interaction as described in a related invited chapter, this time for the Handbook of Educational Technology (Rosé, 2012), where the framework is motivated from the perspective of assessment of the social impact of educational technology. The Negotiation dimension can be seen as describing positioning in the vertical dimension where authoritativeness is seen as related to making assertions without seeking external validation, and taking agency in action. The Heteroglossia dimension, which is derived from Martin and White's Engagement framework, can be seen as describing positioning in the horizontal dimension where positioning an assertion in relation to the perspectives of multiple stakeholders within an

interaction has implications for solidarity between participants. Transactivity relates to a third dimension of forward motion within a conversation, where contributions may introduce new directions, and therefore push the conversation forward into new territory, or build on earlier contributions, and therefore enrich the representation of an existing focus of the conversation.

Martin & Rose's Negotiation framework has a prior history in analysis of interaction in learning contexts beginning with work on classroom facilitation (Veel, 1999) where it was used to highlight systematic differences in style between teachers that maintain a position as the sole source of information in class discussions and teachers who productively engage students with one another in discussions that center on student reasoning. Our operationalization allows us to systematically identify meaningful threads within complex interactions (Mayfield et al., 2012a) and to assign a rating to each participant that we refer to as an Authoritativeness score for a participant (Mayfield et al., 2011; Howley et al., 2011), which refers to the percentage of threads in which the participant played the role of source. In reducing the pattern of codes to a scale, we are then able to examine the extent to which positioning on the vertical dimension correlates with extra-linguistic variables. We expect to see positive correlations between Authoritativeness and extra-linguistic variables that are associated with a value placed on capability in connection with the specific knowledge and action associated with the threads used in the computation. Application of the same coding scheme to data in strikingly different contexts challenges an overly simplistic interpretation of the significance of the Authoritativeness rating.

For example, Authoritativeness correlates both with domain related academic self-efficacy and learning in collaborative problem solving settings (Howley et al., 2011; Howley et al., 2012), which makes sense since the ability to provide knowledge and act in task relevant ways is what is academic self-efficacy measures in these contexts, and the tasks are designed in such a way that meaningful task engagement is meant to produce learning. *What is even more interesting is that it also sheds light on the interplay between social and cognitive factors in learning*, and points to opportunities for impacting engagement in important learning behaviors by addressing social problems such as bullying (Cui et al., 2008; Howley et al., 2012).

It is consistent with this interpretation to expect different correlations in contexts where the expectations associated with task roles are different, such as in doctor-patient interactions where the doctor is expected to have special knowledge not possessed by the patient. As an evaluation of the predictive validity of our Authoritativeness metric in a health context, in the past year we have applied the Authoritativeness metric to analysis of doctor-patient communication (Mayfield et al., Under Review). We measured the predictive validity of this metric in connection with validated measures related to trust in doctor-patient communication. In particular, we tested 5 specific trust related constructs selected by colleagues at Brown university who specialize in trust in doctor-patient communication. We determined that over a corpus of 450 doctor-patient interactions paired with questionnaire data, 4 out of 5 constructs were significantly correlated with Authoritativeness, with R values ranging from .25 to .35 using Authoritativeness scores that were computed from hand coded Negotiation codes. A construct related to patient health efficacy from the same questionnaire data did not correlate with patient Authoritativeness, which is expected in this context since the role of patient comes with different expectations with respect to expertise than a collaborative problem solving session.

In addition to providing the basis for the Authoritativeness scale, the Negotiation codes more generally have been valuable for structuring multi-threaded conversational interactions in preparation for subsequent analysis, for example, analysis of task relevant differences in information sharing practices between military and civilian pairs performing the same task in a lab study (Mayfield et al., 2012b) as well as conversational strategies associated with stress reduction in online cancer support chats (Mayfield et al., 2012a; Mayfield et al., 2012c).

Martin & White's expansive Engagement framework (Martin and White, 2005) is based in qualitative work from the field of rhetoric, where clues about projected attitudes about speaker perspective, hearer perspective, and the relationship between the two are analyzed in terms of signals included in the framing of assertions. While the assumed significance of the framing within their work was related to the idea of projecting expectations about horizontal social positions, the effects of the associated signals were never tested empirically. As with the work on Negotiation, our approach has been to pair down the original formulation, which suffered from the same issues as the original Negotiation framework, into a simple set of contrasts that could be precisely defined as a set of exhaustive codes and reliably coded. Empirical work using our operationalization confirms the effect of signals hypothesized from within the theory. In correlational analyses of collaborative learning groups, we find that students contribute significantly more reasoning oriented contributions in groups where partners adopt a style indicating openness to alternative perspectives (Dyke et al., in press). In an experimental study we find that student groups contribute significantly more design ideas in a collaborative power plant design task when a supportive conversational agent presents directions in that style rather than a style that does not project openness (Kumar et al., 2011). My work examining the impact on learning in collaborative inquiry settings where a productive learning activity is making reasoning and ideas explicit demonstrates the positive impact of increasing idea contribution in those contexts (Wang et al., 2011).

The Souflé operationalization of Transactivity, which has been applied in multiple collaborative problem solving and collaborative design settings, breaks the construct down into two simpler constructs, one that specifies whether a contribution to a conversation makes reasoning explicit through the use of some indicator of causality, and another that indicates whether that reasoning relates back to an earlier articulation of reasoning or begins a new direction of ideation within an interaction (Gweon et al., 2011a; Gweon et al., 2011b; Gweon et al., 2012). Our work on analysis of Transactivity in connection with learning is consistent with prior work (Joshi & Rosé, 2007). Beyond its usual role as a mediating variable related to socio-cognitive conflict and learning, in a lab study representing an assembly line task we have confirmed that it is also associated with effective knowledge sharing when newcomers join a new working group (Gweon et al., 2011).

The vision for cross-theory discussion enabled in part by Souflé was realized in a series of workshops and a symposium co-organized by myself, Daniel Suthers (University of Hawai'i at Manoa), Kristine Lund (Ecole Normale Supérieure de Lyon), Christopher Teplovs (Problemshift, Inc), and Nancy Law (University of Hong Kong), and resulting in an edited volume (Suthers, Lund, Rosé, Teplovs, & Law, in press) under contract with Springer in which we have worked along with about forty other colleagues internationally who represent a variety of theoretical perspectives in the learning sciences to develop a new paradigm for analysis of collaborative learning interactions we refer to as multi-

vocal analysis. Multi-vocal analysis is an iterative analytic process in which representatives of multiple theoretical and methodological perspectives have the opportunity to speak to one another and challenge one another while examining data that are of common interest. It is a step beyond a multi-methods approach because it involves analysts of opposing viewpoints working together rather than individual analysts or teams applying multiple methodologies from a common perspective. The paradigm is for at least three teams from diverse theoretical and/or methodological perspectives to independently analyze a data set from their own perspective. After the individual analyses are presented, a discussant identifies common themes and points of divergence. Group discussion then follows, after which the analysts revisit their analyses. The edited volume includes multi-vocal analyses of five data sets, which is just a subset of the data examined over the series of workshops. Out of the five data sets examined at length in the book, two of them include Souflé analyses. Even more important than the ways in which this multi-vocal process sharpened and enriched the analyses of each data set, as well documented within the volume, the community of researchers participating in the process benefitted from the intensive exchange between subcommunities that are frequently more isolated from one another in practice.

2. Text Mining and Automatic Conversation Analysis

The core technical contribution of my research is in the area of automated analysis of conversational interactions (especially automation of the Souflé framework described in the previous section) as well as analysis of the social aspects of text (i.e., perspective modeling, sentiment analysis, and opinion mining). I refer to work on these problems as social interpretation of language. Basic research contributions to the field of language technologies from my group's work on these problems have been published in full and short papers at the field's top conferences including ACL, EACL, EMNLP, and SIGDIAL. Applications of this work to the field of education have been published in the top conferences in learning sciences including ICLS and CSCL as well as top conferences in educational technology including AIED and ITS as well as the top journal in Computer Supported Collaborative Learning, namely ijCSCL.

The key idea behind my recent computational work enabling social interpretation of language has been using insights from theories in sociolinguistics and discourse analysis to motivate the design of novel representations of language in order to make these problems learnable. One such example is computational work on analysis of Authoritativeness (Mayfield & Rosé, 2011). In this work, we draw insights from the theoretical foundation for the coding scheme that imposes sequencing constraints on patterns of codes within an interaction. While the codes are assigned to individual contributions in a conversation, we are able to encode the sequencing constraints within an Integer Linear Programming framework. The best performing model included these constraints imported directly from the theory foundation for the coding scheme, and significantly outperformed an otherwise equivalent model without the constraints. The model achieved high correlation with Authoritativeness ratings from human assigned codes in a corpus of direction giving dialogues (R = .97) as well as a corpus of doctor-patient interactions (R = .96).

Another example is modeling speech style accommodation in speech using unsupervised Dynamic Bayesian Networks (Jain et al., 2012), work that was done collaboratively with Bhiksha Raj. When stylistic shifts are focused on specific linguistic features, then measuring the extent of the stylistic accommodation is simple since a speaker's style may

be represented on a one or two dimensional space, and movement can then be measured precisely within this space using simple linear functions. However, the rich sociolinguistic literature on speech style accommodation highlights a much greater variety of speech style characteristics that may be associated with social status within an interaction and may thus be beneficial to monitor for stylistic shifts. Unfortunately, within any given context, the linguistic features that have these status associations are only a small subset of the linguistic features that are being used in some way. Furthermore, which features carry this status related indexicality are specific to a context. Thus, separating the socially meaningful variation from variation in linguistic features occurring for other reasons is difficult to do using a discriminative approach. In this case, the theory is agnostic to the features that should be used but instead informs the structure of the model itself that is then able to identify the important structure in the speech data without further supervision. The hypothesis that drives this technical work is that stylistic shifts that occur as a result of social processes are likely to display some consistency over time, and if we leverage this insight in the structure of the model, we will achieve the capability of measuring this important social process using an unsupervised approach. We do this by including the concept of an accommodation state in the model, that embodies the idea that the effect of one speaker's style on another speaker's style is regulated by the extent to which accommodation is happening throughout the interaction. In this work, including the novel accommodation states within the model had a significant positive effect on the ability of the model to detect accommodation.

The work on speech style accommodation contributes to a series of papers on computationally modeling Transactivity in chat (Joshi & Rosé, 2007), newsgroup style interactions (Rosé et al., 2008), transcribed whole classroom discussions (Ai et al., 2010), and face to face conversations using raw speech (Gweon et al., 2012). The concept of Transactivity originally grows out of a Piagetian theory of learning where this conversational behavior is said to reflect a balance of perceived power within an interaction. Earlier research in the area of speech style accommodation suggests that it should be possible to find evidence of power differentials as well as adjustments in these differentials through shifts in language usage patterns. It can be expected, then, that linguistic accommodation would predict the occurrence of Transactivity, and therefore a representation for language that represents evidence of such language usage shifts should be useful for predicting occurrence of Transactivity. This hypothesis has been confirmed through a demonstration that speech style accommodation as measured by Jain et al. unsupervised model has a significant positive correlation with prevalence of Transactive contributions in debates between undergraduate students discussing reasons for the fall of the Ottoman empire (R = .4) (Gweon et al., 2012). Consistent with this work, what we have also found is that in a variety of efforts to automatically identify Transactive conversational contributions in various forms of conversational data, those in which we have included a feature that represents language similarity have been the most successful (Rosé et al., 2008; Ai et al., 2010).

Lexical accommodation is an important language process to consider in computational modeling of perspective-based lexical selection in text (Nguyen, Mayfield, & Rosé, 2010). In this work analyzing contributions to a politics discussion forum where participants self-identify as left affiliated or right affiliated, we construct a measure of political polarization of word usage. In an analysis of language usage patterns in replies and how they shift depending upon the affiliation of the poster of the initiating post, we are able to identify strategies within accommodation behavior that show intentional

avoidance of appearing to concede to the alternate viewpoint while maintaining coherence within the interaction.

Not all of my work on design of effective text representations for classification has been so closely tied to theories from sociolinguistics. Earlier work was motivated from specific problems with over-fitting that occur due to the inherently non-IID nature of social interaction data, which can also be addressed using multi-domain learning techniques (Joshi et al., 2012). The principle motivating this earlier work was to strike a balance between informativity and generalizability. Part-of-Speech ngrams, for example, are able to estimate syntactic structure and style without modeling it directly. In an attempt to capture syntactic structure more faithfully, some of my earlier experimentation within the area of sentiment analysis on using syntactic dependency features showed promise (Joshi & Rosé, 2009; Arora, Joshi, & Rosé, 2009). One direction that has proven successful at exceeding the representational power and performance of POS bigrams with only a very modest increase in feature space size has been a genetic programming based approach to learning to build a strategic set of rich features so that the benefits of rich features can be obtained without the expense in terms of feature space expansion. Successful experiments with this technique have been conducted in the area of sentiment analysis, with terminal symbols including unigrams in one case (Mayfield & Rosé, 2010) and graph features extracted from dependency parses in another (Arora et al., 2010). What has been even more successful in practice is a final direction, which has been to construct template based features called stretchy patterns (Gianfortoni, Adamson, & Rosé, 2011) that combine some aspects of POS ngrams in that they are a flat representation, and the backoff version of dependency features, in that the symbols represent sets of words, which may be POS tags, learned word classes, distribution based word classes (such as high frequency words or low frequency words), or words. Stretchy patterns have yielded significant improvements for gender recognition in blog data. Even greater success has been achieved with stretchy patterns in more recent work using them to learn extraction patterns for cancer events in discussion forum data (Wen et al., 2012).

In addition to basic research in machine learning applied to problems in conversation analysis, we have produced two publically available tool kits that are in wide use, namely TagHelper tools (Rosé et al., 2008) and LightSIDE (Mayfield & Rosé, in press), both of which have been downloaded thousands of times. Both tool kits provide a convenient GUI environment for new users of text classification technology to extract a wide variety of typically used feature types from text, combine them with other meta data features, and run experiments with the full range of machine learning algorithms made available through the Weka toolkit. What LightSIDE offers in addition is a variety of more advanced feature extraction capabilities and an interface for supporting error analysis. Currently under development is the inclusion of a model specification panel that will enable easy use of a wide variety of multi-level and longitudinal modeling techniques from applied statistics as well as a spectrum of domain adaptation and multi-domain learning approaches. In the past year, because of its good performance in a recent nationwide evaluation of automated essay scoring technology as well as its successful performance in smaller evaluations by leaders in educational assessment for science education, LightSIDE has been featured on NPR, Education Week, and other news sources as well as being singled out in an Editor's Choice column in Science. As a result of this coverage, we have been contacted by dozens of researchers nationwide who were interested in using LightSIDE for assessment of open ended items on tests.

From a practical perspective, my long term involvement in development of technology for processing conversation has grown into work on automatic collaborative learning process analysis (Ai et al., 2010; Stahl & Rosé, 2010; Gweon et al., 2009; Rosé et al., 2008; Rosé et al., 2007; Joshi, & Rosé, 2007; Wang et al., 2007b; McLaren et al., 2007; Donmez et al., 2005). The goal here is to be able to construct a model of the collaborative processes that are visible in a conversation between collaborative learners. Its value to the field of Computer Supported Collaborative Learning comes from its ability to enable real time analysis of collaborative learning interactions and therefore offer the possibility of dynamic support for collaborative learning, with interventions triggered in a context sensitive way, which was not within the scope of the state-of-the-art prior to the publication of the first TagHelper paper (Donmez et al., 2005), which was nominated for a best paper award at CSCL 2005. The Rosé et al article on TagHelper was announced at the 2012 annual board meeting of the International Journal of Computer Supported Collaborative Learning editorial board as tying for second place as the most cited article in the journal for all time according to Web of Science citations.

The recognized value of this work in the field of Computer Supported Collaborative Learning and the broader field of education has resulted over twenty keynotes and other smaller invited talks related to this work specifically (in addition to numerous invited talks focusing on other aspects of my work) over the past six years. In addition to its use for supporting research in text mining, it has been used as a classroom tool both at Carnegie Mellon and at other universities, such as the University of Maryland. It is also used yearly in the Computer Supported Collaborative Learning tracks of the Pittsburgh Science of Learning Summer School and the Internship in Technology Supported Education's Winter School and will be featured at the 2013 Academy of the German Institute for International Education Research. Finally, it was used in the context of an outreach hosted by Carnegie Mellon University's School of Computer Science called Our CS, which is a program designed to broaden participation in computing related fields.

3. *Online Interventions: Summarization and Conversational Agent Technology Triggered through Automatic Discourse Analysis*

In collaborative online learning environments, when two or more students are working together, a core part of learning takes place through conversation. While the online environment may exist solely as a way to bring geographically separated students together, it may also have a more important and active supporting role; for example, actually participating in student conversations, assessing the quality of student conversations, or making suggestions to the students about their conversations. Many of my current funded projects are actively making progress towards the goal of effective, dynamic support for collaborative learning. This effort builds on the linguistic analysis of collaboration work by enabling conversational support to be triggered based on an awareness of the state of the collaboration. A major aspect of this research began with my former PhD student Rohit Kumar's development of the Basilica architecture, which facilitates rapid development of multi-party collaboration environments. A recently published journal article (Kumar & Rosé, 2011) describes a series of collaborative environments developed through this architecture using reusable components.

Until recently, the state-of-the-art in computer supported collaborative learning has consisted of static forms of support, such as structured interfaces, prompts, and assignment of students to scripted roles, all of which typically treat students in a one-size-fits-all fashion. In contrast, dynamic forms of collaboration support "listen in" on student

conversations in search of important events that present opportunities for discouraging negative behavior or encouraging positive behavior using a form of text classification I refer to as automatic collaborative learning process analysis. My group is widely recognized as playing a major role in enabling this paradigm shift, as has been recognized through plenary keynote talk invitations such as at the 2008 CSCL Alpine Rendez-Vous, symposium talk invitations such as at the International Conference of the Learning Sciences in 2008, and award and award nominations at conferences such as ACM SIGCHI, AI in Education, the International Conference of the Learning Sciences, and Computer Supported Collaborative Learning. As evidence that this shift is spreading beyond my research group, workshops on the topic of dynamic support for collaborative learning were held at the Intelligent Tutoring Systems conference in Summer 2010, AI in Education in Summer of 2011, and the Intelligent Tutoring Systems conference in Summer of 2012. Subsequent to the 2012 workshop, the International Journal of AI in Education approved a special issue, co-edited by my former PhD student Rohit Kumar and another colleague, Jihie Kim, on the topic of Intelligent Support for Group Learning.

Within the Basilica architecture, interactive support agents that can participate with students in the collaborative discussion are triggered as a way of interactively offering support. A series of large scale classroom studies conducted since Fall of 2006 demonstrates the pedagogical effectiveness of this approach (Kumar et al., 2007; Wang et al., 2007; Kumar et al., 2007b; Chaudhuri et al., 2008; Chaudhuri et al., 2009; Kumar et al., 2010; Ai et al., 2010; Kumar & Rosé, 2011; Howley et al., 2011; Howley et al., 2012; Dyke et al., Under Review). In one study, students who worked with a partner with the dynamic collaborative learning support learned 1.24 standard deviations more than control condition students (Kumar et al., 2007). Students in all conditions worked in the same on-line environment. Control condition students worked alone without support. Students who either worked with a partner but without support or with support but without a partner learned 1 standard deviation more than Control condition students. Subsequent evaluations of refined versions of this automatic support have led to further improvements in effectiveness.

In a partnership with Lauren Resnick at the Learning Research and Development Center, I have been investigating the role online collaborative activities can play in preparing high school students for whole class teacher lead discussions, as part of a two year professional development program in which Lauren Resnick's team has been working directly with teachers to train them to use a classroom facilitation technique referred to as Academically Productive Talk (APT). Using technology supported analysis of classroom discussions collected over the two years, we have determined that preparing students prior to teacher lead discussions by means of online collaborative learning activities has a facilitating effect on teacher uptake of APT, increasing its prevalence by over a standard deviation in discussion sessions occurring in the class period immediately following an online activity (effect size 1.7 standard deviations).

Through a new NSF-funded collaborative grant with Gerry Stahl at Drexel university, I am taking advantage of the opportunity to increase the potential impact of this technology by integrating it with his virtual math teams on-line learning environment, which is housed in the Math Forum service that reaches about a million students each month with challenging Problems-of-the-Week as well as other smaller-scale services such as on-line mentoring. Up until now that mentoring has always been by means of human facilitators, but our vision is to greatly expand the potential reach of that service by using our technology to automate the support. In this project we are running a series of design

experiments to adapt the conversational agents we have evaluated in more controlled settings in this much less controlled setting, where indeed we see different issues coming up that we did not have to deal with in the past, such as guiding students through a socialization process in which the conversational agents establish an appropriate set of expectations about their role in the conversation and how the interaction with the student groups should go. Currently we are partnering on introducing recently developed Revoicing Agents in a teacher professional development effort with over 30 teachers in an effort to disseminate the technology in their classrooms beginning in the Spring of 2013.

Going Forward

In summary, my research thus far has benefited from intense involvement both in the language technologies community and in the human-computer interaction community. Because what drives my research is the goal of developing technology capable of both shaping conversation and supporting conversation to achieve a positive impact on human learning, my long term plan is to remain active in both of these communities. Only through an intense integration of these two disciplines is it possible for technology work to be guided by a deep understanding of what is needed for impact. Furthermore, only with a deep understanding of what is and is not possible with technology can experimental work be focused on questions that are most likely to lead to an important technological advance. Thus, only through a continued synergy between fields can my vision be fully realized.

Looking to the future building on my pre-tenure research, one major goal is to greatly expand the impact my team is having in the area of online learning through broader dissemination. One current limitation to the impact my team's work in dynamic support for collaborative learning is able to achieve is that a separate content development effort must be dedicated for each new collaborative unit we can offer to students. Even as our recent work on Revoicing Agents (Dyke et al., under review) allows us to develop supportive agents for new units with minimal technical work, these agents must be situated within carefully designed activities in order to achieve a positive effect. A major theme for my post-tenure work in this area will be achieving sustainability through adaptations of the technology that will offer students beneficial collaborative experiences on demand, such as in supported online homework sessions, a direction we're beginning to work towards collaboratively with Jack Beuth in CMU's Mechanical Engineering Department. Greater availability of supported collaborative learning experiences can also be offered as more instructors are interested in using them in their courses. In order to form new partnerships with CMU faculty, I am collaborating with CMU's Eberly Center for Teaching Excellence to offer a workshop to CMU faculty interested in exploring this as an opportunity. I am also building a partnership with Marcela Borge at Penn State who is responsible for introducing online activities into courses throughout their Information Sciences Department.

The primary focus of my pre-tenure work on interaction analysis has been interactions within pairs and small groups. However, as I look forward to supporting collaborative interactions within thriving online learning communities, I am becoming aware of the need to understand how local interactions within pairs or small groups may lead to emergent behavior at the community level, which may then exert downward causality on behavior at the individual and small group level, a phenomenon known in sociology as the macro-micro link. The most recent computational work modeling such patterns is in

the multi-agent community. The limitation of this work is that it is based on simulation experiments rather than analysis of data. As large longitudinal datasets from online behavior are becoming easier to obtain, a new wave of work modeling social emergence has the potential to yield new insights, grounded in analysis of data from real communities as they grow and change over time. I am already beginning to engage in this work in a new partnership with Eric Xing where we are exploring how insights from sociolinguistics and techniques from graphical models can be integrated to address questions in this exciting area for inquiry.

TEACHING STATEMENT

Just as conversation is the cornerstone of my research, it is also a center piece in my teaching. As a notable example, many of the ideas that form the foundation for the collaborative research on classroom discourse I am leading with Lauren Resnick in the context of the Pittsburgh Science of Learning Center as part of the Social and Communicative Factors in Learning thrust are at the heart of my own classroom teaching. While leading class discussions was a challenge for me when I first began my teaching career, I have continued to work to put into practice the methodologies that research has proven effective, and now the classroom discussions that come out in my own courses are what I most look forward to as an instructor. I believe it is this emphasis on lively class discussion that is largely responsible for the steady increase in teaching scores I have earned over my years of teaching.

What fascinates me most about studying the role of conversation in learning is that new ideas may be created when exchanging alternative viewpoints. The new ideas that emerge through conversation may draw from the differing perspectives of the participants but nevertheless be distinct from the ideas that existed in any of their minds prior to the interaction. The research literature on group learning provides strong evidence that the success of such interactions between students depends upon the ability of the instructor to facilitate this process. The instructor creates opportunities for learning by meeting the students on their own path and offering the support necessary to draw out the students' differing perspectives and ideas. In the midst of this conversation, the instructor is well situated to present the content of the course in a way that is seen by students as relevant to meeting their own goals. In creating an environment where students see their involvement in a course as a means to move forward on their own path, the instructor has the opportunity to play the role of a mentor who comes along side students to offer experience and wisdom and to help them navigate the maze that is before them. That investment of the instructor in individual students yields the greatest increase when it is internalized by the students and then brought back into small group activities and the whole group discussion. Thus, my philosophy of teaching is to strive for a personal connection through conversation with and between students.

An essential ingredient in this learning conversation is the differing perspectives of the participants who are involved. The School of Computer Science at Carnegie Mellon is made up of distinct, tight knit communities of specialization that are situated in such a way as to provide many opportunities for exchanging views. This is an ideal environment in which this philosophy of teaching can flourish. Thus, in my position with appointments in both the Language Technologies Institute and the Human-Computer Interaction Institute, I have taken advantage of the opportunity to create four several courses designed to promote understanding and strengthen interactions between

departments and to keep the conversation active. This list includes Machine Learning in Practice, Conversational Interfaces, Summarization and Personal Information Management, and Computer Supported Collaborative Learning, which I developed before my last promotion review, and Computational Models of Discourse Analysis, which has been developed since and taught twice.

One thing I greatly appreciate about teaching in the School of Computer Science at Carnegie Mellon University is the tremendous freedom we have here as faculty to design and teach courses according to our interests, and I immensely enjoy teaching a wide variety of courses, which nevertheless synergize and build on one another. In addition to the four bridge courses mentioned above, I have designed and taught a cross-cutting course called Research Design and Writing, which emphasized the connection between research design and scientific writing. While the course touched upon basic issues in research methodology, the focus was on writing, evaluating writing, and revision.

Contributing to the broader university community is important to me. Thus, in addition to curriculum development and teaching I have done for the two departments I am directly affiliated with, I have made an effort to invest in resources that meet the educational needs of students in the broad campus community, including outside the School of Computer Science. For example, the Machine Learning in Practice course taught each semester regularly has more than 40 students from outside of SCS who are either enrolled or waitlisted. Beyond this, I have developed a unit on Verbal Protocol Analysis for the PIER course on Research Methods in the Learning Sciences and collaborated on the development of the Information Literacy unit for the online Computing@Carnegie Mellon course, which all Carnegie Mellon students take in their Freshman year. I also serve on the Computing@Carnegie Mellon steering committee. In the past I also developed a unit on architectures for robust language understanding that I taught in the Spring 2004 offering of Grammar Formalisms, a unit on Human-Computer Interaction as part of the Software Engineering for Information Systems course in Fall of 2007. I also added a computational track to the Meaning in Language course, with primary instructor Mandy Simons in H&SS, which was a precursor to the current Computational Models of Discourse Analysis class.

Since my last promotion review, a big focus in my continued development as a faculty member has been revitalizing my approach to mentoring. In conversations with senior faculty and during my own reflections while reading books on mentoring, I identified as an opportunity for growth the skill of building confidence in my mentees. In particular, I have learned to make conscious choices to value opportunities for building confidence over a singular focus on productivity, especially at early stages in a student's development. Drawing from the motivation literature, I considered how important it is for students to feel a sense of autonomy, an appropriate level of challenge, and to experience some success early on. Part of this has been learning to take a step back to allow students to make their own mistakes, particularly when there are important lessons to be learned from them.

In conclusion, just as my research interests in supporting and shaping learning through collaborative conversation informs my teaching, my teaching also informs my research. My conversations with students and observations of their interactions with each other in my courses and in my lab give me insight into their learning processes, which I can then apply in my research.

III. **PUBLICATION LIST**

- Google Scholar h-index: 29

- The Rosé et al. 2008 ijCSCL article was noted in the Summer 2012 Editorial Board report to tie for second place as most cited article in the journal for all time, based on ISI Web of Science citations.

- Most cited co-authored paper (Graesser, VanLehn, Rosé, Jordan, & Harter, 2001) has 261 citations according to Google Scholar. This was an invited article for AI Magazine's Winter 2001 issue, and is thus not listed as a refereed publication below.

- Most cited first authored paper (Rosé, Jordan, Ringenberg, Siler, VanLehn & Weinstein, 2001), which was nominated for a Best Paper Award at AI in Education, has 117 citations.

- Most frequently downloaded paper on the ACM Digital library (Gweon, Carey, Zais, & Rosé, 2006), which was awarded an Honorable Mention Award at ACM SIG-CHI 2006, has gotten 730 downloads.

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CHAPTERS IN BOOKS

2. Resnick, L. & Rosé, C. P. (in preparation). Classroom Language. Invited chapter in the Handbook of Educational Psychology on Classroom Teaching.
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67. Kang, M., Chaudhuri, S., Kumar, R., Wang, Y., Rosé, E., Cui, Y., Rosé, C. P. (2008). Supporting the Guide on the SIDE, in **Proceedings of Intelligent Tutoring Systems (ITS '08)** (poster).
68. Chaudhuri, S., Kumar, R., Joshi, M., Terrell, E., Higgs, F., Aleven, V., Rosé, C. P. (2008). It's Not Easy Being Green: Supporting Collaborative "Green Design" Learning, in **Proceedings of Intelligent Tutoring Systems (ITS '08)** (poster)
69. Kumar, R., Rosé, C. P., Wang, Y. C., Joshi, M., Robinson, A. (2007). Tutorial Dialogue as Adaptive Collaborative Learning Support, **Proceedings of Artificial Intelligence in Education** (nominated for Best Student Paper)
70. Kumar, R., Gangadhara, R., Rao, Sharath, Prahallad, K., Rosé, C. P., Black, A. W., (2007). Building a Better Indian English Voice Using More Data, **6th ISCA Workshop on Speech Synthesis**, Bonn, Germany
71. Wang, H. C., Rosé, C.P., Cui, Y., Chang, C. Y, Huang, C. C., Li, T. Y. (2007). Thinking Hard Together: The Long and Short of Collaborative Idea Generation for Scientific Inquiry, **Proceedings of Computer Supported Collaborative Learning**
72. Wang, Y. C., Joshi, M., & Rosé, C. P. (2007b). A Feature Based Approach for Leveraging Context for Classifying Newsgroup Style Discussion Segments, **Proceedings of the Association for Computational Linguistics (poster).**
73. Wang, Y., Rosé, C. P., Joshi, M., Fischer, F., Weinberger, A., Stegmann, K. (2007c). Context Based Classification for Automatic Collaborative Learning Process Analysis, **Proceedings of Artificial Intelligence in Education** (poster).
74. Wang, H. C., Kumar, R., Rosé, C. P., Li, T., Chang, C. (2007d). A Hybrid Ontology Directed Feedback Generation Algorithm for Supporting Creative Problem Solving Dialogues, **Proceedings of the International Joint Conference on Artificial Intelligence**
75. Wang, H. & Rosé, C. P. (2007). A Process Analysis of Idea Generation and Failure. **Proceeding of the Annual Meeting of the Cognitive Science Society**
76. Wang, H. C. & Rosé, C. P. (2007). Supporting Collaborative Idea Generation: A Closer Look Using Statistical Process Analysis Techniques, **Proceedings of Artificial Intelligence in Education** (poster).
77. Gergle, D., Rosé, C. P., Kraut, R. E. (2007). Modeling the Impact of Shared Visual Information on Collaborative Reference, **Proceedings of ACM SIG-CHI 2007** (Nominated for a Best Paper Award)
78. Wong, J., Fussell, S., Ou, J. Z., Yang, J., Rosé, C. P., Oh, K. (2007). Sharing a Single Expert Among Multiple Partners, **Proceedings of ACM SIG-CHI 2007**

79. Kumar, R., Gweon, G., Joshi, M., Cui, Y., Rosé, C. P. (2007). Supporting Students Working Together on Math with Social Dialogue. **Proceedings of the SLaTE Workshop on Speech and Language Technology in Education**
80. Rosé, C. P., Gweon, G., Arguello, J., Finger, S., Smailagic, A., Siewiorek, D. (2007). Towards an Interactive Assessment Framework for Engineering Design Learning, **Proceedings of ASME 2007 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference**
81. Joshi, M. & Rosé, C. P. (2007). Using Transactivity in Conversation Summarization in Educational Dialog. **Proceedings of the SLaTE Workshop on Speech and Language Technology in Education**
82. Gweon, G., Rosé,C. P., Albright, E., Cui, Y. (2007). Evaluating the Effect of Feedback from a CSCL Problem Solving Environment on Learning, Interaction, and Perceived Interdependence, **Proceedings of Computer Supported Collaborative Learning**
83. McLaren, B., Scheuer, O., De Laat, M., Hever, R., de Groot, R. & Rosé, C. P. (2007). Using Machine Learning Techniques to Analyze and Support Mediation of Student E-Discussions, **Proceedings of Artificial Intelligence in Education**
84. Jordan, P., Hall, B., Ringenberg, M., Cui, Y., Rosé, C. P. (2007). Tools for Authoring a Dialogue Agent that Participates in Learning Studies , **Proceedings of Artificial Intelligence in Education**
85. Kumar, R., Rosé, C. P., Litman, D. (2006). Identification of Confusion and Surprise in Spoken Dialogusing Prosodic Features, **Proceedings of Interspeech 2006.**
86. Arguello, J. & Rosé, C. P. (2006). Museli: A Multi-source Evidence Integration Approach to Topic Segmentation of Spontaneous Dialogue, **Proceedings of the North American Chapter of the Association for Computational Linguistics** (short paper)
87. Kumar, R., Rosé, C. P., Aleven, V., Iglesias, A., Robinson, A. (2006). Evaluating the Effectiveness of Tutorial Dialogue Instruction in an Exploratory Learning Context, **Proceedings of the Intelligent Tutoring Systems Conference**. (nominated for a Best Student Paper Award)
88. Wang, H., Li, T., Huang, C., Chang, C., Rosé, C. P. (2006). VIBRANT: A Brainstorming Agent for Computer Supported Creative Problem Solving, **Proceedings of the Intelligent Tutoring Systems Conference** (Winner of Best Poster Award).
89. Arguello, J., Buttler, B., Joyce, E., Kraut, R., Ling, K., Wang, X., Rosé, C. (2006). Talk to Me: Foundations for Successful Individual-Group Interactions in Online Communities, **Proceedings of CHI 06: ACM conference on human factors in computer systems.** New York: ACM Press.
90. Gweon, G., Rosé, C. P., Zaiss, Z., & Carey, R. (2006). Providing Support for Adaptive Scripting in an On-Line Collaborative Learning Environment, **Proceedings of CHI 06: ACM conference on human factors in computer systems.** New York: ACM Press.
91. Arguello, J. & Rosé, C. P. (2006). Topic Segmentation of Dialogue, **Proceedings of the NAACL Workshop on Analyzing Conversations in Text and Speech.**
92. Wang, H. C., Rosé, C. P., Li, T. S., Chang, C. Y. (2006). Providing Support for Creative Group Brainstorming: Taxonomy and Technologies, **Proceedings of the ITS Workshop on Ill-Defined Problem Solving Domains**
93. Dzikovska, M. & Rosé, C. P. (2006). Backbone Extraction and Pruning for Speeding Up a Deep Parser for Dialogue Systems, **Proceedings of the 3rd International Worksop on Scalable Natural Language Processing (ScaNaLU).**
94. Arguello, J. & Rosé, C. P. (2006). InfoMagnets: Making Sense of Corpus Data, **Companion Proceedings for the North American Chapter of the Association for Computational Linguistics (NAACL '06)**. (one of three demos selected for presentation in a plenary session)
95. VanLehn, K., Graesser, A., Tanner, J., Jordan, P., Olney, A. & Rosé, C. P. (2005). When is reading just as effective as one-on-one interactive tutoring? **Proceedings of the Annual Meeting of the Cognitive Science Society**
96. Banerjee, S., Rosé, C. P. & Rudnicky, A. (2005). The Necessity of a Meeting Recording and Playback System, and the Benefit of Topic-Level Annotations to Meeting Browsing, **Proceedings of Interact '05**.

97. Rosé, C. P., & Torrey, C. (2005). Interactivity versus Expectation: Eliciting Learning Oriented Behavior with Tutorial Dialogue Systems, **Proceedings of Interact '05**
98. Gweon, G., Rosé, C. P., Wittwer, J., Nueckles, M. (2005). An Adaptive Interface that Facilitates Reliable Content Analysis of Corpus Data, **Proceedings of Interact '05** (short paper)
99. Gweon, G., Rosé, C. P., Carey, R., Zaiss, Z. (2005). Towards Data Driven Design of a Peer Collaborative Agent, **Proceedings of AI in Education '05** (poster)
100. Rosé, C. P., Aleven, V., Carey, R., Robinson, A., Wu, C. (2005). A First Evaluation of the Instructional Value of Negotiatble Problem Solving Goals on the Exploratory Learning Continuum, **Proceedings of AI in Eduction '05**
101. Rosé, C., Donmez, P., Gweon, G., Knight, A., Junker, B., Cohen, W., Koedinger, K., & Heffernan, N (2005). Automatic and Semi-Automatic Skill Coding with a View Towards Supporting On-Line Assessment, **Proceedings of AI in Education '05**.
102. Aleven, V, & Rosé, C. P. (2005). Authoring plug-in tutor agents by demonstration: Rapid rapid tutor development, **Proceedings of AI in Education '05**.
103. Donmez, P., Rose, C. P., Stegmann, K., Weinberger, A., and Fischer, F. (2005). Supporting CSCL with Automatic Corpus Analysis Technology, **Proceedings of Computer Supported Collaborative Learning.** (nominated for best paper award)
104. Rosé, C. P., Pai, C., Arguello, J. (2005). Enabling Non-linguists to Author Conversational Interfaces Easily, **Proceedings of FLAIRS 05.**
105. Gweon, G., Arguello, J., Pai, C., Carey, R., Zaiss, Z., Rosé, C. P. (2005). Towards a Prototyping Tool for Behavior Oriented Authoring of Conversational Interfaces, **Proceedings of the ACL Workshop on Educational Applications of NLP.**
106. Litman, D., Bhembe, D. Rosé, C. P., Forbes-Riley, K., Silliman, S., & VanLehn, K. (2004). Spoken Versus Typed Human and Computer Dialogue Tutoring, **Proceedings of the Intelligent Tutoring Systems Conference.**
107. Rosé, C. P., Torrey, C., Aleven, V., Robinson, A., Wu, C. & Forbus, K. (2004). CycleTalk: Towards a Dialogue Agent that Guides Design with an Articulate Simulator, **Proceedings of the Intelligent Tutoring Systems Conference***,* 16, pp 195-223.
108. Rosé, C. P. & Torrey, C. (2004). DReSDeN: Towards a Trainable Tutorial Dialogue Manager to Support Negotiation Dialogues for Learning and Reflection, **Proceedings of the Intelligent Tutoring Systems Conference.**
109. Rosé, C. P. & Hall, B. S. (2004). A Little Goes a Long Way: Quick Authoring of Semantic Knowledge Sources for Interpretation. **Proceedings of the Second International Workshop on Scalable Natural Language Understanding.**
110. Rosé, C. P., Gaydos, A., Hall, B., Roque, A., VanLehn, K. (2003a), Overcoming the Knowledge Engineering Bottleneck for Understanding Student Language Input, ***Proceedings of AI in Education***
111. Rosé, C. P., Roque, A., Bhembe, D., Vanlehn, K. (2003). A Hybrid Text Classification Approach for Analysis of Student Essays, **Proceedings of the ACL Workshop on Educational Applications of NLP.**
112. Rosé, C. P., Bhembe, D., Siler, S., Srivastava, R., VanLehn, K., (2003b). The Role of Why Questions in Effective Human Tutoring, **Proceedings of AI in Education**.
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114. Rosé, C. P., Roque, A., Bhembe, D., VanLehn, K. (2002). An Efficient Incremental Architecture for Robust Interpretation, **Proceedings of Human Languages Technologies Conference**, San Diego, California
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117. Rosé, C. P., Moore, J. D., VanLehn, K., Allbritton, D. (2001b). A Comparative Evaluation of Socratic versus Didactic Tutoring, **Proceedings of Cognitive Sciences Society**
118. Jordan, P., Rosé, C. P., and Vanlehn, K. (2001). Tools for Authoring Tutorial Dialogue Knowledge, **Proceedings of AI in Education.**
119. Rosé, C. P. (2000). A Framework for Robust Semantic Interpretation, **Proceedings of 1st Meeting of the North American Chapter of the Association for Computational Linguistics**
120. Freedman, R. K., Rosé, C. P., Ringenberg, M. A., VanLehn, K. (2000). ITS Tools for Natural Language Dialogue: A Domain Independent Parser and Planner, **Procedings of the Intelligent Tutoring Systems Conference.**
121. VanLehn, K., Freedman, R., Jordan, P., Murray, C., Osan, R., Ringenberg, M., Rose, C., Schulze, K., Shelby, R., Treacy, D., Weinstein, A., and Wintersgill, M. (2000). Fading and Deepening: The Next Steps for Andes and Other Model-Tracing Tutors, **Procedings of the Intelligent Tutoring Systems Conference.**
122. Rosé, C. P., Di Eugenio, B., Moore, J. D. (1999). A Dailogue Based Tutoring System for Basic Electricity and Electronics, **Proceedings of AI in Education** (poster).
123. Rosé, C. P. and Levin, L. S. (1998). An Interactive Domain Independent Approach to Robust Dialogue Interpretation, **Proceedings of COLING-ACL**.
124. Rosé, C. P. and Lavie, A. (1997). An Efficient Distribution of Labor in a Two Stage Robust Interpretation Process, **Proceedings of the Second Conference on Empirical Methods in Natural Language Processing.**
125. Rosé, C. P. (1997). The Role of Natural Language Interaction in Electronics Troubleshooting, **Proceedings of the Eighth Annual International Energy Week Conference and Exhibition.**
126. Qu, Y., Rosé, C. P., and Di Eugenio, M., (1996). Using Discourse Predictions for ambiguity Resolution, **Proceedings of COLING**.
127. Levin, L., Glickman, O., Qu, Y., Gates, D., Lavie, A., Rosé, C. P., Van Ess-Dykema, C., Waibel, A. (1995). Using Context in Machine Translation of Spoken Language, **Proceedings of the Theoretical and Methodological Issues in Machine Translation Conference**
128. Rosé, C. P., Di Eugenio, B., Levin, L. S., Van Ess-Dykema, C. (1995). Discourse Processing of Dialogues with Multiple Threads , **Proceedings of the Association for Computational Linguistics**
129. Woszczyna, M., Aoki-Waibel, N., Buo, F. D., Coccaro, N., Horiguchi, K., Kemp, T., Lavie, A., McNair, A., Polzin, T., Rogina, I., Rosé, C. P., Schultz, T., Suhm, B., Tomita, M., Waibel, A. (1994). JANUS 93: Towards Spontaneous Speech Translation, **Proceedings of the International Conference on Acoustics, Speech, and Signal Processing.**

UNREFEREED CONFERENCE/WORKSHOP PAPERS

130. Towne, B., Rosé, C. P., & Herbsleb, J. (2012). Position Statement. **NSF Science of Interaction for Data and Visual Analytics Workshop.**
131. Beuth, J., Rosé, C. P., Kumar, R., Adamson, D. (2012). Agent-Monitored Tutorials to Enable On-Line Collaborative Learning in Computer-Aided Design and Analysis, **NSF EEC Awardees Conference.**
132. Mayfield, E., Garbus, M., Adamson, D., & Rosé, C. P. (2011). Data Driven Interaction Patterns: Authority and Information Sharing in Dialogue, **Proceedings of the AAAI Symposium on Building Representations of Common Ground with Intelligent Agents.**
133. Kumar, R. & Rosé, C. P. (2010). Conversational Tutors with Rich Interactive Behaviors that support Collaborative Learning, **Proceedings of the Workshop on Opportunities for Intelligent and Adaptive Behavior in Collaborative Learning Systems,** ITS 2010, Pittsburgh, PA

134. Stahl, G., Rosé, C. P., Goggins, S. (2010). Analyzing the discourse of GeoGebra collaborations. **Proceedings of the GeoGebra NA 2010 Conference**
135. Stahl, G., Rosé, C. P., O'Hara, K., & Powell, A. (2010). Supporting group math cognition in virtual GeoGebra teams with software conversational agents, **Proceedings of the GeoGebra NA 2010 Conference**
136. Gonzalez-Brenes, J., Sherwani, J., Rosé, C. P., Rosenfeld, R. (2009). Speech Interfaces in the Context of the HealthLine Project, **CHI Workshop on Human-centered computing in International Development**
137. Weusijana, B. A., Kumar, R., Rosé, C. P. (2008). MultiTalker: Building Conversational Agents in Second Life using Basilica, **Second Life Education Community Convention, Purple Strand: Educational Tools and Products,** 2008, Tampa, FL.
138. Wang, Y. C., Rosé, C. P., Barnett, J. (2008). Are you listenting to me? An assessment paradigm for Doctor-Patient Communication, **Proceedings of AACH**.
139. Rosé, C. P. and Fussell, S. (2008). Towards Measuring Group Affect in Computer-Mediated Communication, CHI Notes, **Working Notes of the ACM SIG-CHI Workshop on Measuring Affect in HCI: Going Beyond the Individual**
140. Kumar, R., Gweon, G., Joshi, M., Cui, Y., Nwaigwe, A., Rosé, C. P. (2007). Evaluating the Effect of Social Conversation on Learning, Interaction, and Perceived Interdependence in a Collaborative Math Problem Solving Environment, **Working notes of the CSCL Workshop on Chat Analysis in Virtual Math Teams**
141. Rosé, C. P., Fischer, F. & Chang, C. Y. (2007). Exploring the Influence of Culture on Collaborative Learning, **Working Notes of the ACM SIG-CHI Workshop on Culture and Collaborative Technologies**
142. Gweon, G., Rosé,C. P., Albright, E., Cui, Y. (2006). Help Providers and Help Receivers in a Computer Supported Collaborative Learning Environment, **Proceedings of the CSCW Workshop on Role Based Collaboration**
143. Stegmann, K., Weinberger, A., Fischer, F., & Rosé, C. P. (2006). Automatische Analyse nat¸rlich-sprachlicher Daten aus Onlinediskussionen [Automatic corpus analysis of natural language data of online discussions]. Paper presented at the **68th Tagung der Arbeitsgruppe für Empirische Pädagogische Forschung** (AEPF, Working Group for Empirical Educational Research) Munich, Germany.
144. Ai, H., Harris, T., Rosé, C. P. (2006). The Effect of Miscommunication Rate on User Response Preferences, **CHI Notes (Work in Progress Papers).**
145. Tribble, A. & Rosé, C. P. (2006). Usable Browsers for Ontological Knowledge Acquisition, **CHI Notes (Work in Progress Papers).**
146. Dzikovska, M. & Rosé, C. P. (2005). TFLEX: Making Deep Parsing Practical with Strategic Pruning, **Proceedings of the International Workshop on Parsing Technologies** (poster)
147. Rosé C. P. & Kraut, R. E. (2005). Towards Community Building for Improving Retention and Achievement in Asynchronous Distance Education, **Proceedings of the Interact 2005 Workshop on E-Learning and Human Computer Interaction**
148. Rosé C. P., Cavalli-Sforza, V., & Robinson, A. (2005). Adapting to and from student goal orientation in guided exploratory learning, invited Symposium presentation, **EARLI Symposium on Adaptation in Tutoring and Collaborative Learning**
149. Gweon, G., Rosé, C. P., Carey, R., Zaiss, Z. (2005). Exploring the Effectiveness of Mixed-Language Peer Problem Solving Interactions, **Proceedings of the AIED 2005 Workshop on Mixed Language Explanations in Learning Environments**.
150. Rosé C. P. & Donmez, P. (2005). TagHelper: An application of text classification technology to automatic and semi-automatic modeling of collaborative learning interactions, **Proceedings of the AIED 2005 Workshop on Representing and Analyzing Collaborative Interactions: What works? When does it work? To what extent? .**
151. Rosé C. P., Aleven, V. & Torrey, C. (2004). CycleTalk: Supporting Reflection in Design Scenarios with Negotiation Dialogue, **Proceedings of the CHI 2004 Workshop on Designing for Reflective Practitioners: Sharing and Assessing Progress by Diverse Communities**

152. Rosé, C. P., Torrey, C. & Aleven, V. (2004). Guided Exploratory Learning in a Simulation Environment for Thermodynamics: A Pilot Study, **Proceedings of the ITS Workshop on Tutorial Dialogue Systems**
153. Aleven, V. & Rosé, C. P. (2004). Towards Easier Creation of Tutorial Dialogue Systems: Integration of Authoring Environments for Tutoring and Dialogue Systems, **Proceedings of the ITS Workshop on Tutorial Dialogue Systems**
154. Rosé, C. P., VanLehn, K. & NLT Group (2003). Is Human Tutoring Always More Effective than Reading, **Proceedings of AIED Workshop on Tutorial Dialogue Systems: With a View Towards the Classroom.**
155. Siler, S., Rosé, C. P., Frost, T., VanLehn, K., & Koehler, P. (2002,). Evaluating Knowledge Construction Dialogues (KCDs) versus minilessons within Andes2 and alone, **Proceedings of ITS Workshop on Empirical Methods for Tutorial Dialogue Systems,** San Sebastian, Spain.
156. Rosé, C. P., VanLehn, K., Jordan, P. (2002). Can we help students with a high initial competency?, **Proceedings of ITS Workshop on Empirical Methods for Tutorial Dialogue Systems**, San Sebastian, Spain.
157. Graesser, A. C., VanLehn, K., Rosé, C. P., Jordan, P. W., & Harter, D. (2001). Intelligent Tutoring Systems with Conversational Dialogue, **AI Magazine**, Special Issue on Intelligent User Interfaces, Volume 2, Number 4.
158. Rosé, C. P. (2000). A Syntactic Framework for Semantic Interpretation, **Proceedings of the ESSLLI Workshop on Linguistic Theory and Grammar Implementation**
159. Rosé, C. P. (2000). Facilitating the Rapid Development of Language Understanding Interfaces for Tutoring Systems, **Proceedings of the AAAI Fall Symposium on Building Tutorial Dialogue Systems**
160. Mason, M. & Rosé, C. P. (1998). Learning Constraints for Plan-Based Discourse Processors With Genetic Programming, **AAAI Spring Symposium on Discourse and Machine Learning.**
161. Rosé, C. P. (1996). A Genetic Programming Approach to Robust Interactive Dialogue Interpretation, **American Association of Artificial Intelligence Workshop on Detecting, Repairing, and Preventing Human-Machine Miscommunication**, Portland, Oregon.
162. Rosé, C. P. (1995). Conversation Acts, Interactional Structure, and Conversational Outcomes, **Proceedings of the American Association of Artificial Intelligence Spring Symposium on Empirical Methods in Discourse Interpretation and Generation**
163. Suhm, B., Levin, L., Coccaro, N., Carbonell, J., Horiguchi, K., Isotani, R., Lavie, A., Mayfield, L., Rosé, C. P., Van Ess-Dykema, C., Waibel, A. (1994). Speech-Language Integration in a Multi-Lingual Speech Translation System, **Proceedings of the American Association of Artificial Intellgence Workshop on Integration of Natural Language and Speech Processing.**
164. Woszczyna, M., Coccaro, N., Eisele, A., Lavie, A., McNair, A., Polzin, T., Rogina, I., Rosé, C. P., Sloboda, T., Tsutsumi, J., Aoki-Waibel, N., Waibel, A., Ward, W. (1993). Recent Advances in JANUS: A Speech Translation System, **ARPA Proceedings of the Human Language Technologies Workshop.**

TECHNICAL REPORTS

165. Rosé, C. P. (1997). **Robust Interactive Dialogue Interpretation** , Ph.D. Dissertation, School of Computer Science, Carnegie Mellon University.

SOFTWARE ARTIFACTS

166. *The LCFLex* robust parser

167. *The CARMEL Workbench*, including technology and general purpose knowledge sources for authoring robust language understanding interfaces for English, being used or having been used in 9 universities in the US, Europe, and Asia
168. *TagHelper Tools*, a resource for supporting content analysis of corpus data *[Google Analytics counter indicates that over 3,000 new users from 79 countries have downloaded TagHelper tools since July '07 (over four thousand downloads)]*
169. *TuTalk*, an authoring environment for tutorial dialogue agents
170. *LightSIDE: the Summarization Integrated Development Environment*, a general purpose development environment for building summarization systems *[over 2,200 downloads since February, 2008. Note that 706 of these occurred when the google analytics download counter was not attached to the download link. This number of additional downloads was provided to us by the School of Computer Science Help Desk.]*

IV. **EVIDENCE OF EXTERNAL REPUTATION**

CITATIONS AND AWARDS

- Language Technologies Institute Faculty Fellowship Award (Jr. Faculty Chair), July 2007-2009
- Semifinalist for the 2008 Elsevier Grand Challenge (14% acceptance rate)
- Honorable Mention Award at ACM SIG-CHI, 2006 & 2007
- Winner of Best Student Paper Award at Computer Supported Collaborative Learning (CSCL) 2011
- Winner of Best Poster Award at the Intelligent Tutoring Systems conference (ITS), 2006
- Nominated for Best Paper Award at the International Conference of the Learning Science (ICLS) 2012
- Nominated for best technical design award, CSCL 2009
- Nominated for Best Student Paper Award at AIED 2007
- Nominated for Best Student Paper Award at the Intelligent Tutoring Systems conference (ITS), 2006
- Nominated for Best Student Paper Award at Computer Supported Collaborative Learning (CSCL), 2005, 2007
- Nominated for Best Paper Award at AI in Education Conference, 2001.
- Carnegie Scholar Award, Carnegie Mellon University, 1994-1997.
- Phi Beta Kappa, University of California at Irvine, 1991.
- Golden Key National Honor Society, University of California at Irvine, 1991.
- Simms Memorial Scholarship, University of California at Irvine, 1991-1992.

INVITED TALKS

- Invited Instructor, 2013 Academy of the German Institute for International Education Research, Salzschlirf, Germany, June 2013
- Invited Panel Talk, Invited Panel on CSCL Research Methodology, Computer Supported Collaborative Learning conference, June 2013
- Invited Panel Talk, Panel on Assessment in CSCL, Computer Supported Collaborative Learning conference, June 2013 (pending panel acceptance)
- Invited Panel Talk, Panel on Adaptation in Open Learning Arrangements, Computer Supported Collaborative Learning conference, June 2013 (pending panel acceptance)
- Invited talk, MIT Media Lab, Summarization of Behavior Trajectories in Online Support Groups, October 19, 2012
    - Gave a similar invited talk at BBN on the same day
- Invited talk, WPI, Supporting Discursive Instruction Online and In the Classroom with Intelligent Conversational Agents, October 22, 2012

- Symposium Invited Talk, Robot Facilitation as Dynamic Support for Collaborative Learning, Symposium at the International Conference of the Learning Sciences, July 2012.
- Workshop Keynote, *Institut Français de l'Education* 3rd International Learning Sciences seminar, Methodology Track, Lyon, France, June 2012
- Workshop Invited Talk, LightSIDE: Open Source Machine Learning for Text Accessible to Non-Experts, National Council on Measurements in Education Conference, Spring 2012, *talk delivered by Elijah Mayfield*
- Workshop Invited Talk, Analysis of Social Positioning in Interaction, Indo-US Workshop on Large Scale Data Analytics and Intelligent Services, IISc, Bangalore, Dec 18-20, 2011
- Invited Talk, Analysis of Social Positioning in Interaction, IBM Delhi, Spoken Web group, December 14, 2011.
- Invited Speaker and Panelist, Dialogue Systems that Support Group Work and Learning, at Young Researchers Round Table for Spoken Dialogue Systems 2011 (Academia Session)
- Invited panelist, Towards Monitoring Classroom Interactions Through Speech Processing, as part of the panel on Research on discursive teaching and learning: What have we learned and where are we heading, at the European Association for Research on Learning and Instruction 2011 conference
- Invited Discussant, Session on Dialogue in the Digital Age, Socializing Intelligence Through Academic Talk and Dialogue Conference, sponsored by the American Education Research Association, September 2011
- Invited paper presentation, What Sociolinguistics and Machine Learning Have to Say to One Another about Interaction Analysis, Socializing Intelligence Through Academic Talk and Dialogue Conference, sponsored by the American Education Research Association, September 2011
- Invited paper presentation, Modeling the Rhetoric of Human-Computer Interaction, HCI International 2011
- Conference Keynote talk, Supporting Group Work with Language Technologies, International Conference on Natural Language Processing, December 2010, IIT Kharagpur.
- Invited data analyst, CKI Communications Analysis Workshop, February 2010
- Invited panelist, Digital Library Usability Panel, 5th International Conference on Universal Digital Library, Pittsburgh, PA, November 8, 2009
- LearnLab India: Towards In Vivo International Comparative Education Research, 2009 Annual Science of Learning Centers Awardees Meeting, Washington DC
- Workshop Invited Talk, Engaging Collaborative Learners with Helping Agents, Learning companions and pedagogical agents workshop, organized by the Oxford Internet Institute, University of Oxford, Oxford, England, May 28, 2009
- Language Technologies for On-Line Learning the Developing World, Microsoft India, Bangalore, April 2009
- Similar talks given the same week at IEEE Society of Bangalore, IIIT in Hyderabad, and C-STEP in Bangalore
- GRASP: The Group learning Assessment Platform, 2009 Collaboration and Knowledge Interoperability Workshop, Orlando, FL, March 2009
- Symposium Invited Talk, Open Problems in Dynamic Collaborative Learning Support, Invited Symposium Talk (symposium organized by Nikol Rummel

and Armin Weinberger), International Conference of the Learning Science, Utrecht, the Netherlands, June 2008.

- Supporting Simulation Based Learning, Invited talk, Worth Publishing, Ltd., New York, June 2007
- Workshop Keynote, Language Technologies for Supporting Productive Collaborative Learning Interactions for Science and Engineering Education, Technology-integrated Science and Engineering Education Workshop (TechSEE-II), National Taiwan Normal University, May 2007
- Conference Keynote, Towards Triggering Adaptive Collaboration Support Using Automatic Interaction Analysis, Kaleidoscope CSCL Rendez Vous, January 2007
- Workshop Keynote Talk, Towards Adaptive Collaboration Support, Workshop on Computer Supported Collaboration Scripts, Kaleidoscope CSCL Rendez Vous, January 2007
- Workshop Keynote Talk, TagHelper: Computer Support for Applying Coding Schemes, Workshop on Computer Based Analysis and Visualization of Collaborative Learning Activities, Kaleidoscope CSCL Rendez Vous, January 2007
- Workshop Keynote, Towards Adaptive Support for On-line Learning, Technology-integrated Science and Engineering Education Workshop (TechSEE), National Taiwan Normal University, May 2006
- Workshop Featured Talk, Making Authoring of Conversational Interfaces Accessible, Workshop on Authoring Tools for Advanced Learning Systems with Standards (organized by Arthur Graesser, The Advanced Distributed Learning Workforce Co-Lab at the University of Memphis), November 2005
- Invited Symposium Talk, Adapting to and from student goal orientation in guided exploratory learning, the Biennial Meeting of the European Association of Research on Learning and Instruction, Cyprus, August 2005

SEMINARS & COLLOQUIA

- Souflé: A Three Dimensional Framework for Analysis of Social Positioning in Dyadic and Group Discussions, Rhetoric Colloquium, Department of English, Carnegie Mellon University, February, 2013
- Supporting Discursive Instruction Online and in the Classroom with Intelligent Conversational Agents, HCII Seminar, Carnegie Mellon University, November, 2012
- Automated Analysis of Social Positioning in Conversation, CUNY, April, 2012.
- What Sociolinguistics and Machine Learning Have to Say to One Another, MIT Media Lab Applied Machine Learning Series (delivered remotely), August 2011
- Supporting Academically Productive Talk with Computer Agents, Drexel Information School Seminar, Drexel University, February 2011
- Analysis of Perspectives in Interactive Settings, Tepper School of Business IS Seminar, November 19, 2010
- Displayed Bias as a Reflection of Both Speaker and Intended Hearer in Conversational Settings, LTI Colloquium, September 2010.

- Technologies for Automatic Analysis of On-Line Learning Discussions, Institute for Teaching & Learning – Nexus Research and Policy Center, May 2010
- Modeling Style of Conversational Interactions Using Text Mining Techniques, Seminar Talk, Worcester Polytechnic, January 2010
- Analysis of Transactivity in Group Discussions in On-Line and Face-to-Face Settings, Seminar Talk, i-school at Drexel University, January, 2010
- Engaging Collaborative Learners with Conversational Agents using Social Strategies, Seminar Talk, School of Informatics, University of California at Irvine, June 2010
- Analysis of Transactivity in Group Discussions in On-Line and Face-to-Face Settings, Seminar Talk, School of Education, University of California at Los Angeles, June 2010
- Engaging Collaborative Learners with Conversational Agents using Social Strategies, Seminar Talk, School of Education, University of California at Los Angeles, June 2010
- Language Technologies for Supporting Productive Collaborative Learning Interactions for Science and Engineering Education, Turing Seminar Talk, University of Washington, April 2007
- Evaluating the Instructional Value of Errors in Through Peer Tutoring Interactions, DeKalb University, September 2005
- Guided Exploratory Learning in a Simulation Environment for Thermodynamics, University of Muenster, July 2005
- Facilitating Reliable Content Analysis of Corpus Data with Automatic and Semi-Automatic Text Classification Technology, EPFL Switzerland, July 2005
- Cycletalk: Toward a Tutorial Dialogue Agent that Supports Negotiation Dialogues for Learning and Reflection, Karl-Franzens Universitaet in Graz, Austria, April 2004
- Overcoming the Knowledge Engineering Bottleneck for Understanding Student Language Input, University of Edinburgh, November 2003
- Tutorial Dialogue Systems: Where are we, and where are we going? DFKI, Saarbruecken Germany, November 2003

OTHER

- Advisory Board member, NSF/Cyberlearning funded SimBio/MIT project related to automated assessment
- Invited NLP Expert, National Crisis Helpline Summit, MIT Media Lab, October 18, 2012
- **Press Coverage** in The Hindu, August 25, 2011: The passion to find out?, talks about the Internship Program in Technology Supported Education, http://www.thehindu.com/todays-paper/tp-features/tp-nxg/article2394460.ece
- **Press Coverage** in Edu Tech, April 2012: A Winter of Content, talks about the Internship Program in Technology Supported Education, http://issuu.com/eduindia/docs/edu_issue-03_vol-04_april_2012
- **Press Coverage** on NPR, Education Week, and other sources about the ASAP automatic essay grading challenge, some of which specifically discuss LightSIDE's participation, April 2012:
  - http://www.edweek.org/ew/articles/2012/04/25/29essays.h31.html?tkn=MXPFNpo8fLNL7tUZgZJo9P23%2F4bGdVG%2FEJ1%2F&intc=es

    - http://stateimpact.npr.org/ohio/2012/04/12/computers-can-score-student-essays-as-well-as-humans-study-finds/
    - http://stateimpact.npr.org/ohio/2012/06/08/the-pros-and-cons-of-using-computers-to-teach-students-how-to-write/
    - http://marginalrevolution.com/marginalrevolution/2012/04/ahem-4.html http://www.insidehighered.com/news/2012/04/13/large-study-shows-little-difference-between-human-and-robot-essay-graders
    - http://www.ohio.com/news/break-news/ua-dean-instrumental-in-automated-grading-study-1.294837
    - http://www.uakron.edu/im/online-newsroom/news_details.dot?newsId=40920394-9e62-415d-b038-15fe2e72a677&pageTitle=Top%20Story%20Headline&crumbTitle=Man%20and%20%20machine:%20Better%20writers,%20better%20grades
    - http://blogs.edweek.org/edweek/edtechresearcher/2012/04/grading_automated_essay_scoring_programs-_part_iii_classrooms.html
    - http://www.cleveland.com/metro/index.ssf/2012/04/computers_as_good_as_humans_in.html
    - http://www.nytimes.com/2012/04/23/education/robo-readers-used-to-grade-test-essays.html
    - http://www.usatoday.com/news/education/story/2012-04-23/essay-scoring-computer-software/54493662/1
    - http://www.huffingtonpost.com/tom-vander-ark/better-tests-more-writing_b_1450604.html
- **Press Coverage** in Science: In an Editor's Choice column, LightSIDE was singled out as having value for educators, June 2012
- **Press Coverage** on Education Week, feature story about my work on computer supported collaborative learning as part of an article about the role of technology in education, August 2012: http://www.edweek.org/ew/articles/2012/08/08/37replace_ep.h31.html
- **Press Coverage** in a News Alert on EdNet (http://www.ednetinsight.com/news-alerts/hellerresults.html) in an article on Big Data in K-12 education, Nov 2012
- Advisory Board Member, Adaptive Teaching and Learning Systems - Adaptivity Mechanisms for Supporting Self-, Co- and Shared Regulation in Open Learning Arrangements, German Research Foundation (DFG) Priority Program (pending acceptance)
- Advisory Board Member, Computer-Supported Math Discourse Among Teachers and Students Center, Drexel University, NSF DRK-12 Program (grant started Summer 2011)
- Faculty Affiliate of the University of Pittsburgh's Sara Fine Institute (an institute devoted to the study of inter-personal behavior and technology)
- Invited expert reviewer for the Ontario Research Fund (Canada), Ontario Ministry of Research and Innovation

V. EXTERNAL PROFESSIONAL ACTIVITIES

CONFERENCE AND WORKSHOP COMMITTEES

- Senior Program Committee for AIED 2013
- Program committee for Learning Analytics and Knowledge 2013, CSCL 2013
- Associate Chair for Intelligent User Interfaces 2012
- Program Committee for HLT-NAACL 2012, ITS 2012, ICLS 2012, NAACL Student Research Workshop and Doctoral Consortium 2012, CHI 2012, Ce-Learning 2012, Sigdial 2012, EDM 2012
- Advisory Committee for the Young Researchers Round Table for Spoken Dialogue Systems (YRRSDS'11)
- Program committee for AIED2011, EDM 2011, CSCL 2011, WWW 2011 Doctoral Consortium
- Reviewer Board member for the STELLAR Computer Supported Collaborative Learning Community Alpine Rendez Vous, 2011.
- Review panel member for AERA 2011, Division C Section 11 (Learning & Instruction: Technology Research)
- Demo chair for HLT-NAACL 2010
- Panelist for HLT-NAACL 2010 Student Research Workshop
- Co-Chair for ITS 2010 Young Researcher's Track/ Doctoral Consortium
- Senior program committee for special issue of IEEE Transactions on Learning Technologies related to Intelligent and Innovative Support for CSCL 2010
- Treasurer for International Conference on Intercultural Collaboration (ICIC) 2010
- Program committee for EDM 2010, FLAIRS 2010, ITS 2010 (Winner of ITS Outstanding Reviewer Award, 2010)
- Panel reviewer for the American Association for Educational Research Division C Section 7 (Technology Research), 2010
- Faculty Advisor for the HLT-NAACL Student Research Workshop (doctoral consortium) 2009, in collaboration with Anoop Sarkar at Simon Fraser University
- Review Committee for ACL 2009, IUI 2009, CHI 2009, HRI 2009, IWIC 2009, CSCL 2009, AIED 2009, FLAIRS 2009
- Program Committee, ITS 2008, FLAIRS 2008, ICCE 2008, LREC 2008
- Program Committee, Educational Data Mining Conference, 2008
- Treasurer, International Workshop on Intercultural Collaboration (IWIC) 2008
- Senior Program Committee Member, AI in Education (AIED) 2007
    - Tutorial Co-Chair, overseeing tutorials with Roger Azevedo, AIED 2007
    - Mentor for AIED 2007 Young Researcher's Track
- Review Committee for Computer Supported Collaborative Learning (CSCL) 2007
- Review Committee for AAAI 2007
- Review Committee for Human Robot Interaction 2006
- Program Committee for FLAIRS 2006

- Program Committee for Intelligent Tutoring Systems (ITS) 2006
- Program Committee for AAAI 2006
- Scientific Committee for LREC 2006
- Program Committee for AIED 2005
- Program Committee for the Association for Computational Linguistics (ACL) 2005 Workshop on Educational Applications of NLP
- Program Committee for the ITS 2004 workshop on Tutorial Dialogue
- Program Committee for ScaNaLU: Workshop on Scalable Natural Language Understanding technology, 2004
- Co-Chair for AI in Education 2003 workshop on Tutorial Dialogue Systems: With A View Towards the Classroom
- Organizing Committee for HLT-NAACL 2003 workshop on Building Educational Applications Using Natural Language Processing
- Co-Chair for ITS Workshop on Empirical Methods for Tutorial Dialogue Systems, 2002
- Organizing Committee member for AIED 2001 workshop on Tutorial Dialogue Systems
- Co-Chair for AAAI Fall Symposium on Building Tutorial Dialogue Systems, 2000
- Thematic Session Co-Chair, 37th Annual Meeting of the Association for Computational Linguistics, 1999.
- Review Committee member, European Chapter of the Association for Computational Linguistics, 1999.
- Review Committee member, Student Session of the 35th Annual Meeting of the Association for Computational Linguistics, 1997.

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

- Secretary-Treasurer (and *ex officio* member of the Board of Directors) of The International Society of the Learning Sciences 2008-present
    - *Awarded a "medal of honor for service" at the 2010 ISLS Board Retreat*
    - *Served as committee member of the Web Publicity committee 2007-2010 (formally served as co-chair 2008-2009)*
    - *Also serving as Secretary-Treasurer of the CSCL community*
- ACM SIG-CHI
- The Association for Computational Linguistics
- The International Artificial Intelligence in Education Society
- Charter member of the International Educational Data Mining Society

EDITORIAL BOARD MEMBERSHIPS

- Founding Editorial Board Member for the Journal of Dialogue Systems 2006-
    - Became the Journal of Discourse and Dialogue Research in 2008
    - Became the Journal of Dialogue and Discourse in 2009
- Editorial Board Member of the Journal of Educational Data Mining, 2008-

- Editorial Board (Associate Editor) of the Journal of Human-Computer Studies, 2010-
  - Reviewing sabbatical from April 2012-April 2013.
- Editorial Board Member (Associate Editor since 2011) of the International Journal of Computer Supported Collaborative Learning, 2010-

OTHER

- Co-Organizer of Early Career Workshop at Computer Supported Collaborative Learning 2013 (CSCL '13)
- Co-Organizer of CSCL 2011 Tutorial on Leveraging tool support for the analysis of computer-mediated activities.
- (Lead) Co-organizer of the STELLAR Computer Supported Collaborative Learning Community Alpine Rendez-Vous workshop on Leveraging Researcher Multivocality for Insights on Collaborative Learning
- Co-organized CSCL 2011 tutorial "Leveraging Tool Support for Computer Mediated Activities" with Gregory Dyke.
- Hosted Dr. Vasudeva Varma for his short sabbatical at the Language Technologies Institute in Spring 2010
- Co-Organizer of ITS 2010 Workshop on Opportunities for intelligent and adaptive behavior in collaborative learning systems
- Co-Organizer for ICLS Workshop on Productive Multivocality in the Analysis of Collaborative Learning, June 2010
- Co-organizer for Kaleidoscope CSCL Rendez-Vous Workshop on Pivotal Moments in Collaboration, December 2009
- Co-organizer for CSCL 2009 Workshop: Common Objects for Productive Multivocality in Analysis
- Co-Organizer for the ICLS 2008 Workshop on Scaling Up Analysis of Interaction in Networked Learning Environments
- Co-Organizer for ICLS 2006 Workshop on Dynamic Support for CSCL: Conceptual Approaches and Technologies for Flexible Support of Collaborative Knowledge Construction
- Invited Expert External Reviewer for internal Call for Learning Center Project Proposals at Swiss Federal Institute of Technology in Lausanne (EPFL), Summer 2005
- Review Committee for the Journal of Natural Language Engineering Special Issue on Educational Applications
- Panel Organizer for ITS 2004 panel "Towards Encouraging a Learning Orientation Above a Performance Orientation"
- Has reviewed for the HCI Journal, the Information Retrieval Journal, the Journal of Natural Language Engineering, the Computational Linguistics journal, the Journal of Artificial Intelligence in Medicine, the Journal of AI Research, User Modeling and User-Adapted Interaction: The Journal of Personalization Research, the Discourse Processes Journal, and the Iranian Journal of Electrical and Computer Engineering

VI. CONTRACT AND GRANT SUPPORT

CURRENT

Title: Towards Optimization of Macrocognitive Processes: Automating Analysis of the Emergence of Leadership in Ad Hoc Teams
PI: Carolyn P. Rosé
Agency: Office of Naval Research
Grant No: N000141110221
Duration: 3 years
Amount: 910K
Support: 2 months

Title: Extracting Social Meaning from Code Switching in English and French with Selected African Languages: Swahili, Zulu, Lingala, and Ciluba
PI: Lori Levin (CMU subcontract only)
Agency: Army Research Lab
Grant No: paperwork still being processed
Duration: 5 years
Amount: about 500K (CMU subcontract only)
Support: 1 month

Title: ENGAGE: Learning to solve problems, Solving problems to learn
PI: Vincent Alevent
Agency: DARPA
Grant No: paperwork in progress
Duration: 30 months
Amount: 1200K
Support: 1 month

Title: Conversational Dynamics in Online Support Groups
PI: Bob Kraut
Agency: National Science Foundation
Grant No: NSF IIS-0968485
Duration: 3 years
Amount: 523K
Support: .25 months

Title: Group Cognition: Learning in Engineering Project Teams
PI: Susan Finger
Agency: National Science Foundation
Grant No: EEC-0935127
Duration: 3 years
Amount: 400K
Support: .5 months

Title: Dynamic Support for Virtual Math Teams
PI: Carolyn P. Rosé (in collaboration with Gerry Stahl at Drexel University)

Agency: National Science Foundation
Grant No: DRL-0835426
Duration: 3 years
Amount: 306K (CMU budget only)
Support: .75 months

Title: Collaborative Research: Networked Collaboration Modules for Integrating Mathematics and Engineering Education Using Intelligent Agents
PI: Jack Beuth
Agency: National Science Foundation
Grant No: awarded
Duration: 3 years
Amount: 530K
Support: 1 month (year 1); .5 months (years 2-3)

Title: Pittsburgh Sciences of Learning Center Renewal
PI: Kenneth Koedinger
Agency: National Science Foundation
Grant No: SBE 0836012
Duration: 5 years
Note: I have one subgrant under this grant (in collaboration with Lauren Resnick at the University of Pittsburgh)

The Social and Communicative Factors in Learning Thrust, 10/1/2009-10/1/2014, 550K per year
Support: CMU side budget is 223K for year 1, renegotiable for subsequent years (tentatively approved at 300K for year 2)

PENDING

Title: Integrity: Facilitating Theory Consolidation and Refinement through Technology Supported Knowledge Integration
PI: Carolyn Rosé
Agency: National Science Foundation
Grant No:
Duration: 3 years
Amount: $1,200,000.00
Support: 1 month

Title: Dynamic Structuring for Effective, Navigable Online Deliberation
PI: Jim Herbsleb
Agency: National Science Foundation
Grant No:
Duration: 4 years
Amount: $1,200,000.00
Support: 1 month

Title: Integrity: Collaborative Learning in Presence Agnostic Environments

PI: Carolyn Rosé (subcontract to BBN)
Agency: Office of Naval Research
Grant No:
Duration: 2 years
Amount: $250.00 (CMU subcontract)
Support: .75 month

PAST

Title: Collaborative Research: Agent-Monitored Tutorials to Enable On-Line Collaborative Learning in Computer-Aided Design and Analysis
PI: Jack Beuth
Agency: National Science Foundation
Grant No: EEC-0935145
Duration: 3 years
Amount: 350K
Support: .5 months

Title: ADEPT: Assessing Design Engineering Project Classes with Multi-Disciplinary Teams
PI: Daniel P. Siewiorek
Agency: National Science Foundation
Grant No: EEC-064848
Duration: 3 years
Amount: $540,000.00 + a CI-REUSE supplement of 80K
Support: 1 month

Title: HCC Medium: Dynamic Support for Computer-Mediated Intercultural Communication
PI: Susan Fussell
Agency: National Science Foundation
Grant No: HCC-0803482
Duration: 3 years
Amount: 650K
Support: 1 month

Title: Theories and Models of Group Cognition
PI of subcontract: Carolyn P. Rosé (in collaboration with Gerry Stahl at Drexel University, which is the lead institution)
Agency: Office of Naval Research
Grant No: N00014-10-1-0277
Duration: 3 years
Amount: 337K (CMU budget only)
Support: 2 months

Title: First-Year Computer-Aided Engineering and Outreach Using Agent-Monitored, Collaborative Tutorials
PI: Jack Beuth
Agency: National Science Foundation
Grant No: DUE-0837661

Duration: 1 year
Amount: 150K

Title: Student Research Workshop in Computational Linguistics at the North American Association for Computational Linguistics and Human Language Technologies 2009 Conference
PI: Carolyn Penstein Rosé
Agency: National Science Foundation
Grant No: IIS-0907847
Duration: 1 year
Amount: $20,200

Title: Learning-Oriented Dialogue in Cognitive Tutors: Towards a Scalable Solution to Performance Orientation
PI: Vincent Aleven
Agency: National Science Foundation
Grant No: NSF/IERI REC-043779
Duration: 5 years (10/01/2004 – 09/30/2009)
Amount: $1,270,000.00
Support: 2.5 months

Title: Industrial contract with Verilogue, Inc.
PI: Carolyn Penstein Rosé
Agency: Verilogue, Inc.
Grant No: Gift to the university
Duration: 6 months
Amount: 35K

Title: Support for Young Researchers to attend the Tenth International Conference on Intelligent Tutoring Systems, 2010
PI: Jack Mostow
Agency: National Science Foundation
Grant No: IIS1014092
Duration: 1 year
Amount: 25K

Title: Industrial contract with Worth Publishing
PI: Carolyn Penstein Rosé
Agency: Worth Publishing
Grant No: Gift to the university
Duration: 6 months
Amount: 40K

Title: CycleTalk: Further Exploring the Pedagogical Value of Tutorial Dialogue in Simulation Based Learning
PI: Carolyn Penstein Rosé
Agency: Office of Naval Research
Grant No: N00014-00-1-0600
Duration: 3 years (11/01/2006 – 10/31/2009)
Amount: 513K
Support: 2 months

Title: Exploring Adaptive Support for Virtual Math Teams
PI: Carolyn Penstein Rosé
Agency: National Science Foundation
Grant No: REESE/REC 0723580
Duration: 1 year
Amount: 50K
Support: .5 months

Title: TFLex project extension: Expanding the Accessibility and Impact of Language Technologies for Supporting Education (CMU Side)
PI: Carolyn Penstein Rosé
Agency: Office of Naval Research
Grant No: N000140811033
Duration: 3 years (11/15/2007 – 11/15/2010)
Amount: 510K
Support: 2 months

Title: Calculategy: Exploring the Impact of Tutorial Dialogue Strategy in Shaping Student Behavior in Effective Tutorial Dialogue for Calculus
PI: Carolyn Penstein Rosé
Agency: National Science Foundation
Grant No: SGER REC-0411483
Duration: 1 year + 1 year no cost extension (02/01/2004 – 01/31/2006)
Amount: $96,627
Support: 1 month

Title: A Shared Resource for Robust Semantic Interpretation for Both Linguists and Non-Linguists
PI: Carolyn Penstein Rosé
Agency: Office of Naval Research
Grant No: N00014-05-1-0043
Duration: 3 years (11/08/2004 - 09/30/2007)
Amount: 300K
Support: 1.8 months

Title: CycleTalk: A Tutorial Dialogue System that Supports Negotiation in a Design Context
PI: Carolyn Penstein Rosé
Agency: Office of Naval Research
Grant No: N00014-00-1-0600
Duration: 3 years (11/17/2003 – 09/30/2006)
Amount: 450K
Support: 1.8 months

Title: Facilitating Accountability for Standards-Based Math at All Levels
PI: Kenneth Koedinger
Agency: GE Foundation
Grant No: 5003341
Duration: 3 years
Amount: 356K

Support: 2 months

Title: Pittsburgh Sciences of Learning Center
PI: Kenneth Koedinger
Agency: National Science Foundation
Grant No: SBE 0354420
Duration: 5 years
Note: I have two subgrants under this grant:

> **Tutalk: Infrastructure for authoring and experimenting with natural language dialogue in tutoring systems and learning research, 10/1/2004-10/1/2006, 160K over 2 years (extended + 25K supplement)**
> **Support: 1 month**
>
> **TagHelper 2.0: A Semi-Automatic Tool That Facilitates Reliable Content Analysis of Corpus Data, 136K over 1 year (extended for 2 more years)**
> **Support: 1 month**

Title: Tutoring Scientific Explanations Via Natural-Language Dialogue
PI: Kurt Van Lehn
Agency: National Science Foundation
Grant No: ITR EIA-0325054
Duration: 4 years (01/01/2004 – 12/31/2007)
Amount: 42K
Support: 0.8 months

Title: Developing Usable Mixed-Initiative Planning Systems
PI: Robert E Kraut
Agency: National Aeronautics & Space Administration
Grant No: NNA04CK15A
Amount: 93K

VII. **EVIDENCE OF TEACHING PERFORMANCE**

COURSES TAUGHT AT CARNEGIE MELLON

- **11-710 Computational Models of Discourse Analysis**
- **11-899 Summarization and Personal Information Management**
- **11-780 Research Design and Writing**
- **11-718 Conversational Interfaces**
- **11-791 Software Engineering for Information Systems (Co-instructor)**
- **11-344 Machine Learning in Practice (05-834, 05-434)**
- **05-899 Special Topics: Computer Supported Collaborative Learning**
- **11-722 Grammar Formalisms (Co-instructor)**
- **85-748 Research Methods for the Learning Sciences (Co-instructor)**
- **11-725 Meaning in Language (and Meaning in Language self-paced lab)**

VIII. CONTRIBUTIONS TO EDUCATION

CURRICULUM DESIGN

- **11-718 Conversational Interfaces**
- **11-344 Machine Learning in Practice (05-834, 05-434)**
- **05-899 Special Topics: Computer Supported Collaborative Learning**
- **11-899 Summarization and Personal Information Management**
- **11-780 Research Design and Writing**
- **11-719 Computational Models of Discourse Analysis**
- **11-725 Meaning in Language**
  (Computational Track, newly designed in Fall 2009
- **99-101 Computing at Carnegie Mellon**
  (Information Literacy Unit, offered to all CMU Freshman beginning in Fall 2010)
- **85-748 Research Methods for the Learning Sciences**
  (Co-developer of unit on Video and Verbal Protocol Analysis, also co-developed OLI version of that unit in Summer 2011)

OTHER

- In collaboration with the Eberly Center for Teaching Excellence, ran a workshop on using CSCL technologies for teaching at CMU, October 2012
- Ran a 2 day text mining workshop at Howard University, co-sponsored by NSF and ARO/ARL, March 12th and 13th, 2012
- Was invited to "Apple Pie with Alpha Chi", an Alpha Pi Omega Nu event that honors "professors who have made a profound impact on our academic lives"
- Working with the HCII Learning Science faculty on the development of a new professional master's program in Learning Sciences and Technology
- Organized and ran a 2 week Winter School at IIIT in December of 2009 (in Hyderabad), 2010 (in Hyderabad), and 2011 (in Delhi) as part of an effort to develop an internship program and build a LearnLab in India, as an international extension of the Pittsburgh Science of Learning Center, secured financial sponsorship from Microsoft Research India and the Pittsburgh Science of Learning Center (http://www.cs.cmu.edu/~cprose/winterschool/index.html, http://www.cs.cmu.edu/~cprose/winterschool2010/index.html). A steadily increasing number of students have applied from year to year (100 in year 1, 200 in year 2, 350 in year 3). 9 interns came to CMU for the summer of 2010, and 9 were accepted for 2011, but a couple could not get visas. The program was covered in The Hindu in Summer 2011 http://www.thehindu.com/todays-paper/tp-features/tp-nxg/article2394460.ece and Edu Tech magazine in April 2012: http://issuu.com/eduindia/docs/edu_issue-03_vol-04_april_2012
- Worked to produce an on-line version of the PSLC summerschool, including video lectures and comprehensive documentation for PSLC course development tools (http://www.cs.cmu.edu/~cprose/Summer09.html)
- Worked with Eric Nyberg and Anatole Gershman on developing a distance education program at LTI

- Worked with Eric Nyberg on the development of a series of professional development minis or full courses for LTI focused on Teaching, Writing, and Experimental Design/Data Analysis. The first of these is currently offered each fall as a 12 unit course entitled Research Design and Writing
- Designed a unit on user research for Eric Nyberg's Software Engineering for Information Systems course.
- Helped lead a research workshop on machine learning at OurCS in Fall, 2007, run through Women in CS with Bob Kraut and Moira Burke (repeated in Spring of 2011)
- Gave an invited talk on Project Management at the iSLC conference, Spring 2008
- Organizer of AIED 2007 tutorial "TagHelper Tools: Tools for Supporting the Analysis of Verbal Data"
- Organized and ran a 2 week Math Camp for under-prepared middle school students in Summer 2006 with Ariane Watson at Propel Charter School in Homestead as part of a research project on supporting math communication. As a follow up, organized an afterschool program at the same school for Spring 2007.
- Invited instructor at the PSLC/ITS summer school Ken Koedinger and Vincent Aleven organized in Summer 2004 and again in 2006, 2007, 2008, 2009, 2010, 2011, 2012
- Offered a full-day tutorial on TagHelper tools at CMU on June 19, 2007. 15 people came for the full day, including several from out of state, in addition to 12 more participants from the PSLC/ITS summer school who participated either for part of the time or the whole time, depending on their area of concentration within the summer school. Another one was conducted in 2008 resulting in a number of ongoing collaborations.

IX. **STUDENT ADVISING**

COMPLETED PHD STUDENTS

Rohit Kumar (Now Researcher at BBN)

- Year Entered: 2005
- Thesis Title: *Conversational Agents in Multi-Party Interactive Situations*, Defended Fall 2011

Gahgene Gweon (Now Assistant Professor at KAIST)

- Year Entered: 2005
- Area of Study: *Assessment and Support of the Idea Co-Construction Process in Face-to-Face Engineering Project Groups*, dissertation in progress

CURRENT PHD STUDENTS

Mahesh Joshi (Co-advised with William Cohen starting in Fall 2010)

- Year Entered: 2006
- Thesis Title: *Generalizing Classification Models Across Subpopulations in Data*, dissertation in progress

Guang Xiang (Co-advised with Jason Hong)

- Year Entered: 2007
- Thesis Title: *Fighting Phish in all Frontiers: A Holistic Anti-phishing Solution*
- Area of Study: Anti-Phishing and Analysis of Social Media

Iris Howley

- Year Entered: 2008
- Area of Study: Motivation/Computer Supported Collaborative Learning

Elijah Mayfield

- Year Entered: 2009, Siebel Scholar
- Area of Study: Computational Sociolinguistics

Miaomiao Wen

- Year Entered: 2011
- Area of Study: Computational Sociolinguistics

Ryan Carlson (Co-advised with Ken Koedinger)

- Year Entered: 2011
- Area of Study: Conversational Agents

Hye-Ju Jang

- Year Entered PhD program (formerly MLT advised by Jack Mostow): 2012
- Area of Study: Discourse Analysis. Representation of Stylistic Choices.

CURRENT MASTER OF LANGUAGE TECHNOLOGIES STUDENTS

Mahaveer Jain (Co-advised with Bhiksha Raj)
- Year Entered: 2011 (Spring Admit)
- Area of Study: Speech/Discourse Analysis

David Adamson (completed MLT Summer 2012, planning to apply to PhD in Dec 2012)
- Year Entered: 2010 (began working with me in Summer 2011)
- Area of Study: Dialogue Agents and Discourse Analysis

Phani Gadde (Co-Advised with Lori Levin)
- Year Entered: 2011
- Area of Study: Code Switching

Zeyu Zheng
- Year Entered: 2011, Siebel Scholar
- Area of Study: Social Media Analysis. Domain adaptation

Abhimanyu Kumar
- Year Entered: 2012
- Area of Study: Social Media Analysis and Graphical Models

Mario Piergallini
- Year Entered: 2012
- Area of Study: Sociolinguistics

M.S. OR PH.D. THESIS COMMITTEE SERVICE

Darren Gergle (PhD)
- *The Value of Shared Visual Information for Task Oriented Collaboration,* defended Spring 2006

Rashmi Gangadharaiah (MLT)
- *Pattern Induction and Spectral Clustering for EBM,* defended Spring 2007

Ananlada Chotimongkul (PhD)

- *Learning the Structure of Task-Oriented Conversations from the Corpus of In-Domain Dialogs,* defended Spring2008

Alicia Tribble (PhD)
- *Textual Inference for Retrieving Labeled Object Descriptions,* defended Spring 2010

Brian Langner (PhD)
- *Data-driven Natural Language Generation: Making Machines Talk Like Humans Using Natural Corpora,* defended January 2010

Satajeev Bannerjee (PhD)
- *Extracting and Using Implicit Supervision to Automatically Improve Meeting-Understanding,* defended September 2010.

Erin Walker (PhD)
- *Automated Adaptive Support for Peer Tutoring*, defended Summer 2010

Ian McCulloh (PhD)
- *Detecting Changes in a Dynamic Social Network*, defended Spring 2009

Sharad Oberoi (PhD)
- *DesignWebs to Support Engineering Design Student Projects*, defended December 2011

Jana Diesner (PhD)
- *Uncovering and Managing the Impact of Methodological Choices for the Computational Construction of Socio-Technical Networks from Texts*, defended Spring 2012

Shilpa Arora (PhD)
- *Opinion Mining and Interactive Annotation Learning*, defended August 2012

Namtarn Chaipah (PhD)
- *PURRS: A Personal Email Organization System using User Response Behaviors and Social Networks*, defended Fall 2011

Yajuan Wang (PhD)
- *Decision Guidance System for Personalized Mechanical Circulatory Assistance*, defended Dec 2011

Ruth Wilie (PhD)
- *ESL –Examining the Generality of Self-Explanation to Second Language Grammar Learning*, defended in August 2011

Xiaoqian Jiang (PhD)
- *Adaptive Learning in Temporal Structural Correlated Environments*, defended Fall 2010

Eric Daimler (PhD)

- *On the persistence of pragmatic relationships with quantitative data using Classification Trees and Regression Trees,* proposed Spring 2012

Laurie Jones (PhD)
- Proposal in progress

Natasha Loghmanpour (PhD)
- Proposal in progress

OTHER

- **Undergraduate Research through SRC-URO Program**
  - Laura Brown, discourse analysis and dialogue agents, Spring 2012-present
  - Margaret Schervish worked on sociolinguistics through speech datamining, Spring 2011-Spring 2012

- **Undergraduate Research through DRU Program (Distributed Research for Undergrads, sponsored through Texas A&M)**
  - Kristine Johnson from Wesleyan University did an internship here related to analysis of code-switching in social media in Summer 2011 (co-advised with Lori Levin)
  - Laura Willson from Barnard College did an internship here related to analysis of code-switching in social media in Summer 2011 (co-advised with Lori Levin)

- **Undergraduate Theses Supervised**
  - Benjamin Klixbull working on opinion mining from a marketing standpoint, co-advised with Kinshuk Jerath, August 2009 – May 2010

- **LTI Minor Project Advising**
  - Aditya Mukherji, working on an application related to reviewing local businesses, January 2011-May 2011

- **Post Docs Supervised**
  - Hua Ai, working on dialogue systems and CSCL, October 2009 – September 2010
    - Now a research scientist at Georgia Tech: http://www.cc.gatech.edu/~hai7/
  - Gregory Dyke, working on analysis of CSCL data, November 2010 – May 2012
    - Now a Post-doc at Institut Français de l'Education
  - Seza Drugoz, visiting post-doc at LTI from Tilburg University, Tilburg School of Humanities, Spring 2013, working on social interpretation of code switching

- **Students from Abroad Hosted and/or Advised Remotely**

- Christof Wecker from Frank Fischer's group at Ludwig-Maximillians Universiteat in Munich visited my group for 6 weeks in Spring 2007 to participate in my CSCL course and learn how to use TagHelper tools
- Vikram Chatterji did an internship with me in Summer 2009, working on infrastructure for LearnLab India, and worked with me in collaboration with Dr. Pradeep Yammiyavar from the Design department at IIT Guwahati on his B-tech project related to modeling search behavior and personalized support for information seeking. He will start as an MHCI student in Fall 2010.
- Marietta Sionti, Linguistics PhD student from the University of Athens, visited me for 6 months to work on her dissertation starting in Summer 2009
- Abhishek Anand from the Computer Science and Engineering department of IIT Guwahati invited me to be a co-advisor of his B-tech project in collaboration with Hemangee Kapoor in the area of machine learning applied to operating systems optimization. This was after he participated in my on-line machine learning class in Spring of 2009.
- Kiran GVR and Ravi Shankar Reddy, both from IIIT-Hyderabad did an internship with me through the Internship Program in Technology Supported Education (IPTSE) in summer of 2010. They worked with MLT student Nitin Agarwal on the SciSumm multi-document summarization system for Scientific Articles. That work was accepted as a demo at ACL and workshop paper at an ACL workshop about summarization for different genres. Both papers were first authored by Nitin.
- Pulkit Agarwal and Mikesh Udani from IIT Kanpur were interns co-advised by Bhiksha Raj and I through IPTSE in Summer of 2010, working on detection of transactivity in speech. They worked with PhD student Gahgene Gweon. That work was published in a full paper at CSCL 2011, with Gahegne as first author, and won a best student paper award.
- Tushar Suresh from NIT Surathkal was an intern, co-advised by me and Bob Kraut through IPTSE on analysis of social media in Summer 2011.
- Amol Verma from IIIT Delhi was an intern in my group working on SMS based collaboration in Summer 2012. Continued working with my group during the 2012/2013 school year for his B-Tech project.
- Shaik Ismail from NIT Rourkela was an intern in my group working on modeling dialect switching in Twitter in Summer 2012.

- **Outside Committee Member**
  - David N. Prata from the Federal University of Alagoas in Maceio, Brazil visited for six months in Spring/Summer 2008 to work on his dissertation in my group under my supervision. I am serving as one of his committee members with Evandro Costa from the Federal University of Alagoas as his advisor.
  - Mihai Rotaru, Computer Science Department, University of Pittsburgh
  - Praveen Garimella, Center for Educational Technology and Learning Sciences, International Institute for Information Technologies in Hyderabad

- Karthik Dinakar, Massachusetts Institute of Technology (Master's thesis related to analysis of social media/Cyber Bullying, now serving on his PhD dissertation committee)

- **Completed MLTs:**
  - Jaime Arguello (now an assistant professor at UNC), Rohit Kumar (Now a Researcher at BBN), Yi-Chia Wang (PhD student in LTI), Mahesh Joshi (PhD student at LTI), Sourish Chaudhuri (PhD student at LTI), Moonyoung Kang (PhD student at Northeastern, was a Research programmer at BBN), Naman Gupta (Engineer at Amazon), Dong Nguyen (PhD student at the University of Twente), Elijah Mayfield (PhD student at LTI), Nitin Agarwal (Research programmer at BBN), David Adamson (Research programmer at LTI), Philip Gianfortoni (Engineer at Google), Manaj Srivastava (Research programmer at BBN)

- **Outside Reader**
  - Andrew Marriott, December 2006, Curtin University of Technology, Perth, Western Australia
  - Ilda Ladeira, December 2012, University of Cape Town, South Africa

- **Qualifying Exam Committee Member**
  - Sharad Oberoi, CEE, Carnegie Mellon University
  - Zan Wang, CEE, Carnegie Mellon University

- **Independent Studies Supervised**
  - Gahgene Gweon (MHCI)
  - Satanjeev Banerjee (LTI PhD)
  - Chih-yu Chao (LTI Masters)
  - Adele Weitz (Heinz undergrad)
  - Stephanie Rosenthall (CSD undergrad)
  - Shilpa Arora (LTI Masters student)
  - José Gonzales (LTI Masters student)
  - Ranjitha Kulkarni (MSIT-VLIS student)

X. UNIVERSITY SERVICE

UNIVERSITY SERVICE AND COMMITTEE WORK

- Served on the Strategic Planning Committee for Education and the Student Experience under Indira Nair for the 2008 CMU reaccreditation
- Serving on the University Education Council for 2008-2014
  - Faculty Senate Representative for 2008-2009
  - Faculty Senate Representative for 2010-2011
- Served on the Faculty Senate Nominating Committee for 2009-2010
- Served on the University Libraries Advisory Committee for 2011-2012
- Steering Committee for C@CM (Computing at Carnegie Mellon, a course that all of the Freshman take), Fall 2010-
  - Serving as content expert on a unit on Information Literacy that was included in the revamped C@CM course starting in Fall 2010
- Organized the "Innovation with Impact" poster session as part of Graduate Student Appreciation Week with Indira Nair and others, Spring 2008. This was so successful that it has become a yearly event as part of graduate student appreciation week, although I am no longer organizing it.

SCHOOL AND DEPARTMENT SERVICE AND COMMITTEE WORK

- LTI Education Committee Member (and Chair), Fall 2009 – Present
- HCII Hiring Committee (for joint HCII-ETC position), Fall 2012/Spring 2013
- LTI Distance Education Task Force Leader, Fall 2009 - 2010
- MHCI Admissions Committee, 2005, 2006
- LTI Admissions Committee, 2004, 2006, 2008, 2009, 2010, 2011, 2012, 2013
- HCII PhD Admissions Committee, 2007, 2009, 2012, 2013
- HCII Curriculum Committee Member Fall 2006- Spring 2009
- LTI Faculty Senator 2007-2009
- HCII Faculty Senator 2009-2011
- Organizer of LTI 2007 Faculty Retreat 2007
- Organizer for the LTI 2007 New Collaborations Competition
- Organizer of 2007 and 2008 LTI Student Research Symposium
  - Offering "behind the scenes" support for the 2009, 2010, 2011 and 2012 Student Research Symposiums

OTHER

- Served as a Mentor for the 2010 Get Your Act Together Workshop organized by Nancy Klancher
- Executive Committee member of the Pittsburgh Science of Learning Center and Co-Thrust Leader for its Social and Communicative Factors in Learning Thrust 2009-Present
- Pittsburgh Science of Learning Center Seminar Series Coordinator 2005-2007

- Facilitator for Collaborative Learning Reading and Discussion Group 2005-2006
- Facilitator for a Pragmatics reading group, Fall 2007
- Facilitator of the HCI in the Developing World reading group, Fall 2007, Spring 2008, Fall 2008
- Facilitator of the LearnLab India on-line reading group, Fall 2009 – Spring 2010