

Kristy Elizabeth Boyer

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RESEARCH INTERESTS

Tutoring Systems, Natural Language Dialogue, Adaptive Learning Environments, Collaborative Problem Solving, Computer Science Education

EDUCATION

Ph.D., **Computer Science**, July 2010
Department of Computer Science
North Carolina State University
Dissertation: *Structural and Dialogue Act Modeling in Task-Oriented Tutorial Dialogue*

M.S., **Applied Statistics**, December 2000
School of Industrial and Systems Engineering
Georgia Institute of Technology, Atlanta, Georgia

B.S., **Mathematics and Computer Science**, May 1999
Department of Mathematics and Computer Science
Valdosta State University, Valdosta, Georgia

PUBLICATIONS

Peer-Reviewed Journal Articles

1. Learner Characteristics and Dialogue: Recognizing Effective and Student-Adaptive Tutorial Strategies. C. Mitchell, E.Y. Ha, K.E. Boyer, J. Lester. *International Journal of Learning Technology (IJLT)*, Vol. 8 No. 4, 2013. 382-403.
2. Investigating the Relationship Between Dialogue Structure and Tutoring Effectiveness: A Hidden Markov Modeling Approach. K.E. Boyer, R. Phillips, A. Ingram, E.Y. Ha, M. Wallis, M. Vouk, and J. Lester. *International Journal of Artificial Intelligence in Education (IJAIED)*, Vol. 21 Issue 1, 2011. 65-81.
3. Investigating the Role of Motivation in Computer Science Education through One-on-One Tutoring. K.E. Boyer, R. Phillips, M. Wallis, M. Vouk, and J. Lester. *Computer Science Education*, Vol. 19 No. 2, 2009. 111-136.

Refereed Conference Publications

1. Classifying Student Dialogue Acts with Multimodal Learning Analytics. A. Ezen-Can, J. Grafsgaard, J. Lester, and K.E. Boyer. To appear in *Proceedings of the 5th International Learning Analytics and Knowledge (LAK) Conference*, 2015.

2. Unsupervised Modeling for Understanding MOOC Discussion Forums: A Learning Analytics Approach. A. Ezen-Can, K.E. Boyer, S. Kellogg and S. Booth. To appear *eedings of the 5th International Learning Analytics and Knowledge (LAK) Conference*, 2015.
3. A Practical Guide to Developing and Validating Computer Science Knowledge Assessments with Application to Middle School. P.S. Buffum, E. Lobeni, M. Hardy Frankosky, K.E. Boyer, E. Wiebe, and J. Lester. To appear in *Proceedings of the 46th ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2015.
4. Predicting Learning and Engagement in Tutorial Dialogue: A Personality-Based Model. A. Vail, J.F. Grafsgaard, J. Wiggins, J. Lester, K.E. Boyer. *Proceedings of the 16th International Conference on Multimodal Interaction (ICMI)*, Istanbul, Turkey, 2014, 255-262.
5. The Additive Value of Multimodal Features for Predicting Engagement, Frustration, and Learning During Tutoring. J.F. Grafsgaard, J. Wiggins, A. Vail, K.E. Boyer, E.N. Wiebe, J. Lester. *Proceedings of the 16th International Conference on Multimodal Interaction (ICMI)*, Istanbul, Turkey, 2014, 42-49.
6. Adapting to Personality Over Time: Examining the Effectiveness of Dialogue Policy Progressions in Task-Oriented Interaction. A. Vail and K.E. Boyer. *Proceedings of the 15th Annual SIGDIAL Meeting on Discourse and Dialogue*, 2014. 41–50.
7. Combining Task and Dialogue Streams in Unsupervised Dialogue Act Models. A. Ezen-Can and K.E. Boyer. *Proceedings of the 15th Annual SIGDIAL Meeting on Discourse and Dialogue (SIGDIAL)*, 2014. 113–122.
8. Identifying Effective Moves in Tutoring: On the Refinement of Dialogue Act Annotation Schemes. A. Vail and K.E. Boyer. *Proceedings of the 12th International Conference on Intelligent Tutoring Systems (ITS '14)*, Honolulu, Hawaii, 2014. 109-209. (acceptance rate 17.5%)
9. CS Principles Goes to Middle School: Learning to Teach “Big Data.” P. Buffum, R.M. Hardy, A. Martinez-Arocho, F. Rodriguez, E. Wiebe, K.E. Boyer. *Proceedings of the 45th SIGCSE Technical Symposium on Computer Science Education (SIGCSE '14)*, Atlanta, Georgia, 2014. 151-156. (acceptance rate 39%)
10. Physiological Responses to Events during Training Use of Skin Conductance to Inform Future Adaptive Learning Systems. M. Hardy, E. Wiebe, J. Grafsgaard, K.E. Boyer, J. Lester. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 2013. 2101-2105.
11. In-Context Evaluation of Unsupervised Dialogue Act Models for Tutorial Dialogue. A. Ezen-Can and K.E. Boyer. *Proceedings of the 14th Annual SIGDIAL Meeting on Discourse and Dialogue*, Metz, France, 2013. 324-328.
12. Evaluating State Representations for Reinforcement Learning of Turn-Taking Policies in Tutorial Dialogue. C. Mitchell, K.E. Boyer and J. Lester. *Proceedings of the 14th Annual SIGDIAL Meeting on Discourse and Dialogue*, Metz, France, 2013. 339-343.
13. Learning Dialogue Management Models for Task-Oriented Dialogue with Multiple Communicative Channels. Eun Young Ha, Christopher Mitchell, Kristy Elizabeth Boyer and James C. Lester. *Proceedings of the 14th Annual SIGDIAL Meeting on Discourse and Dialogue*, Metz, France, 2013. 204-213.
14. Automatically Recognizing Facial Indicators of Frustration: A Learning-Centric Analysis. J. Grafsgaard, J. Wiggins, K.E. Boyer, E. Wiebe and J. Lester. *Proceedings of the International Conference on Affective Computing and Intelligent Interaction*, Geneva, Switzerland, 2013. 159-165. (acceptance rate 31%)

15. Unsupervised Classification of Student Dialogue Acts with Query-Likelihood Clustering. A. Ezen-Can and K.E. Boyer. *Proceedings of the 6th International Conference on Educational Data Mining*, Memphis, Tennessee, 2013. 20-27. (acceptance rate 25%)
16. Automatically Recognizing Facial Expression: Predicting Engagement and Frustration. J. Grafsgaard, J. Wiggins, K.E. Boyer, E. Wiebe and J. Lester. *Proceedings of the 6th International Conference on Educational Data Mining*, Memphis, Tennessee, 2013. 43-50. (Acceptance rate 25%)
17. Repairing Disengagement in Collaborative Dialogue for Game-Based Learning. F. Rodríguez, N. Kerby, and K.E. Boyer. *Proceedings of the 16th International Conference on Artificial Intelligence in Education*, Memphis, Tennessee, 2013. 807-810.
18. A Markov Decision Process Model of Tutorial Intervention in Task-Oriented Dialogue. C. Mitchell, K.E. Boyer, and J. Lester. *Proceedings of the 16th International Conference on Artificial Intelligence in Education*, Memphis, Tennessee, 2013. 828-831.
19. Embodied Affect in Tutorial Dialogue: Student Gesture and Posture. J. Grafsgaard, J. Wiggins, K.E. Boyer, E. Wiebe, and J. Lester. *Proceedings of the 16th International Conference on Artificial Intelligence in Education*, Memphis, Tennessee, 2013. 1-10. (32% acceptance rate)
20. Multimodal Analysis of the Implicit Affective Channel in Computer-Mediated Textual Communication. J. Grafsgaard, R. Fulton, K.E. Boyer, E. Wiebe, and J. Lester. *Proceedings of the 14th ACM International Conference on Multimodal Interaction*, Santa Monica, California, 2012, 145-152. (38% acceptance rate)
21. From Strangers to Partners: Examining Convergence within a Longitudinal Study of Task-Oriented Dialogue. C. M. Mitchell, K.E. Boyer, and J. Lester. *Proceedings of the 13th Annual SIGDIAL Meeting on Discourse and Dialogue*, Seoul, Republic of Korea, 2012, 94-98.
22. Combining Verbal and Nonverbal Features to Overcome the 'Information Gap' in Task-Oriented Dialogue. Eun Young Ha, Joseph F. Grafsgaard, C. M. Mitchell, K.E. Boyer, J. Lester. *Proceedings of the 13th Annual SIGDIAL Meeting on Discourse and Dialogue*, Seoul, Republic of Korea, 2012, 247-256.
23. Toward a Machine Learning Framework for Understanding Affective Tutorial Interaction. J. Grafsgaard, K.E. Boyer, and J. Lester. *Proceedings of the 11th International Conference on Intelligent Tutoring Systems*, Chania, Greece, 2012, 52-58.
24. Analyzing Posture and Affect in Task-Oriented Tutoring. J. Grafsgaard, K.E. Boyer, E. Wiebe, and J. Lester. *Proceedings of the Intelligent Tutoring Systems Track of the 25th Florida Artificial Intelligence Research Society Conference*, Marco Island, Florida, 2012, 438-443.
25. Recognizing Effective and Student-Adaptive Tutor Moves in Task-Oriented Tutorial Dialogue. C. Mitchell, E.Y. Ha, K.E. Boyer, J. Lester. *Proceedings of the Intelligent Tutoring Systems Track of the 25th Florida Artificial Intelligence Research Society Conference*, Marco Island, Florida, 2012, 450-455.
26. Predicting Facial Indicators of Confusion with Hidden Markov Models. J. Grafsgaard, K.E. Boyer, and J. Lester. *Proceedings of the 4th International Conference on Affective Computing and Intelligent Interaction*, Memphis, Tennessee, 2011, 97-106. (35% acceptance rate)
27. The Impact of Task-Oriented Feature Sets on HMMs for Dialogue Modeling. K.E. Boyer, E.Y. Ha, R. Phillips, and J. Lester. *Proceedings of the 12th Annual SIGdial meeting on Discourse and Dialogue*, Portland, Oregon, 2011, 49-58. (35% acceptance rate)

28. Modeling Confusion: Facial Expression, Task, and Discourse in Task-Oriented Tutorial Dialogue. J. Grafsgaard, K.E. Boyer, R. Phillips, and J. Lester. *Proceedings of the 15th International Conference on Artificial Intelligence in Education*, Auckland, New Zealand, 2011.
29. An Affect-Enriched Dialogue Act Classification Model for Task-Oriented Tutorial Dialogue. K.E. Boyer, J. Grafsgaard, E.Y. Ha, R. Phillips, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the 49th Annual Meeting of the Association of Computational Linguistics Human Language Technologies Conference*, Portland, Oregon, 2011. (26% acceptance rate)
30. Learning a Tutorial Dialogue Policy for Delayed Feedback. K.E. Boyer, E.Y. Ha, R. Phillips, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the Intelligent Tutoring Systems Track of the 24th International Conference of the Florida Artificial Intelligence Research Society*, Palm Beach, Florida, 2011.
31. Dialogue Act Modeling in a Complex Task-Oriented Domain. K.E. Boyer, E.Y. Ha, R. Phillips, M. Wallis, M. Vouk and J. Lester. *Proceedings of the 11th Annual SIGDIAL Meeting on Discourse and Dialogue*, Tokyo, Japan, 2010, 297-305. (33% acceptance rate)
32. Characterizing the Effectiveness of Tutorial Dialogue with Hidden Markov Models. K.E. Boyer, R. Phillips, A. Ingram, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the 14th International Conference on Intelligent Tutoring Systems (ITS '10)*, Pittsburgh, Pennsylvania, 2010, 55-64. (38% acceptance rate; Best Paper Award Nominee)
33. A Preliminary Investigation of Hierarchical Hidden Markov Models for Tutorial Planning. K.E. Boyer, R. Phillips, E.Y. Ha, M. Wallis, M. Vouk and J. Lester. *Proceedings of the 3rd International Conference on Educational Data Mining*, Pittsburgh, Pennsylvania, 2010, 285-286.
34. Principles of Asking Effective Questions to Improve Student Problem Solving. K.E. Boyer, W. Lahti, R. Phillips, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the 41st SIGCSE Technical Symposium on Computer Science Education (SIGCSE '10)*, Milwaukee, Wisconsin, 2010, 460-464. (34% acceptance rate)
35. Increasing Technical Excellence, Leadership and Commitment of Computing Students through Identity-Based Mentoring. K.E. Boyer, E. Thomas, A. Rorrer, D. Cooper, and M. Vouk. *Proceedings of the 41st SIGCSE Technical Symposium on Computer Science Education (SIGCSE '10)*, Milwaukee, Wisconsin, 2010, 167-171. (34% acceptance rate)
36. Discovering Tutorial Dialogue Strategies with Hidden Markov Models. K.E. Boyer, E.Y. Ha, M. Wallis, R. Phillips, M. Vouk, and J. Lester. *Proceedings of the Fourteenth International Conference on Artificial Intelligence in Education (AIED '09)*, Brighton, U.K., 2009, 141-148. (30% acceptance rate)
37. Modeling Dialogue Structure with Adjacency Pair Analysis and Hidden Markov Models. K.E. Boyer, R. Phillips, E.Y. Ha, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies Conference (NAACL-HLT '09) Companion Volume*, Boulder, Colorado, 2009, 49-52. (20% acceptance rate)
38. The Impact of Instructor Initiative on Student Learning: A Tutoring Study. K.E. Boyer, R. Phillips, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the 40th SIGCSE Technical Symposium on Computer Science Education (SIGCSE '09)*, Chattanooga, Tennessee, 2009, 14-18. (33% acceptance rate)

39. A Development Environment for Distributed Synchronous Collaborative Programming. K.E. Boyer, A. Dwight, R.T. Fondren, M. Vouk, and J. Lester. *Proceedings of the 13th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE '08)*, Madrid, Spain, 2008, 158-162. (39% acceptance rate)
40. Balancing Cognitive and Motivational Scaffolding in Tutorial Dialogue. K.E. Boyer, R. Phillips, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the Ninth International Conference on Intelligent Tutoring Systems (ITS '08)*, Montreal, Canada, 2008, 239-249. (33% acceptance rate)
41. The Influence of Learner Characteristics on Task-Oriented Tutorial Dialogue. K.E. Boyer, M. Vouk, and J. Lester. *Proceedings of the Thirteenth International Conference on Artificial Intelligence in Education (AIED '07)*, Marina Del Rey, California, 2007, 365-372. (30% acceptance rate; **Best Paper by a Student First Author**)
42. A Case for Smaller Class Size with Integrated Lab in Introductory Computer Science. K.E. Boyer, R. Dwight, C. Miller, C.D. Raubenheimer, M. Stallmann, and M. Vouk. *Proceedings of the 38th SIGCSE Technical Symposium on Computer Science Education (SIGCSE '07)*, Covington, Kentucky, 2007, 341-345. (34% acceptance rate)

Refereed Conference Posters

1. Toward a Tutorial Dialogue System for Urban Navigation. C. Fox, K. Boyer. *Proceedings of the 17th Workshop on the Semantics and Pragmatics of Dialogue*, Amsterdam, 2014. 185-187.
2. The Relationship Between Task Difficulty and Emotion in Online Computer Programming Tutoring. J. Wiggins, J. Grafsgaard, K. Boyer, E. Wiebe, J. Lester. *Proceedings of the 45th ACM Technical Symposium on Computer Science Education (SIGCSE '14)*, Atlanta, Georgia, 2014. 721.
3. Developing a Game-Based Learning Curriculum for “Big Data” in Middle School. A. Martinez-Arocho, P. Buffum, K. Boyer. *Proceedings of the 45th ACM Technical Symposium on Computer Science Education (SIGCSE '14)*, Atlanta, Georgia, 2014. 712.
4. Modeling Student Programming with Multimodal Learning Analytics. J. Grafsgaard, J. Wiggins, K.E. Boyer, E. Wiebe, J. Lester. *Proceeding of the 44th ACM Technical Symposium on Computer Science Education (SIGCSE '13)*, Denver, Colorado, 2013. 736.
5. Toward a Hidden Markov Modeling Framework for Real-time Assessment in Tutorial Dialogue. J. Lester, K.E. Boyer, E. Wiebe. *Proceedings of the AERA Annual Meeting*, Vancouver, Canada, 2012.

Refereed Workshop Publications

1. Informing the Design of a Game-Based Learning Environment for Computer Science: A Pilot Study on Engagement and Collaborative Dialogue. F. Rodríguez, N. Kerby, K.E. Boyer. *Proceedings of the First Workshop on AI-Supported Computer Science Education*, Memphis, Tennessee, 2013, 30-39.
2. When to Intervene: Toward a Markov Decision Process Dialogue Policy for Computer Science Tutoring. C. Mitchell, K.E. Boyer, and J. Lester. *Proceedings of the First Workshop on AI-Supported Computer Science Education*, Memphis, Tennessee, 2013, 40-49.
3. Leveraging Hidden Dialogue State to Select Tutorial Moves. K.E. Boyer, R. Phillips, E.Y. Ha, M. Wallis, M. Vouk, J. Lester. *Proceedings of the Fifth NAACL HLT Workshop on Innovative Use of NLP for Building Educational Applications*, Los Angeles, California, 2010, 66-73.

4. An Empirically Derived Question Taxonomy for Task-Oriented Tutorial Dialogue. K.E. Boyer, W. Lahti, R. Phillips, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the Second Workshop on Question Generation*, Brighton, U.K., 2009, 9-16.
5. Inferring Tutorial Dialogue Structure with Hidden Markov Models. K.E. Boyer, E.Y. Ha, R. Phillips, M. Wallis, M. Vouk, and J. Lester. *Proceedings of the Fourth NAACL-HLT Workshop on Innovative Use of NLP for Building Educational Applications*, Boulder, Colorado, 2009, 19-26.
6. Learner Characteristics and Feedback in Tutorial Dialogue. K.E. Boyer, R. Phillips, M. Wallis, M. Vouk, and J. Lester. Learner Characteristics and Feedback in Tutorial Dialogue. *Proceedings of the Third ACL Workshop on Innovative Use of NLP for Building Educational Applications*, Columbus, Ohio, 2008, 53-61.

Technical Reports

1. Machine Learning Methods. M. Timms, J. Lester, K.E. Boyer, E. Wiebe. In *New Measurement Paradigms*, M. Timms, D.H. Clements, J. Gobert, D.J. Ketelhut, J. Lester, D.D. Reese, and E. Wiebe, eds., 2012.
2. Methods and Metrics in Evaluation of Question Generation. R. Nielsen, K.E. Boyer, M. Heilman, C.Y. Lin, J. Pino, and A. Stent. In *The Question Generation Shared Task and Evaluation Challenge*, V. Rus and A. Graesser, eds., 2009.

GRADUATE STUDENTS MENTORED

Current Ph.D. Students.

- Philip Buffum
Topic: Dialogue and Teachable Agents
- Aysu Ezen-Can
Topic: Unsupervised Dialogue Act Modeling
- Christopher Fox
Topic: Reinforcement Learning for Task-Oriented Dialogue Policies
- Xiaolong Li
Topic: Semantic Grounding in Task-Oriented Dialogue
- Christopher Mitchell
Topic: Automatically Acquiring Tutorial Dialogue Policies from Corpora
(Co-supervised with James Lester)
- Fernando Rodríguez
Topic: Multimodal Collaborative Dialogue in Game-Based Learning
Awarded the National Science Foundation Graduate Research Fellowship, 2013
- Jennifer Tsan
Topic: Collaborative Problem Solving in K-5 Computer Science Education
- Joseph Wiggins
Topic: Affect Modeling in Tutorial Dialogue

Ph.D. Student Graduated.

- Joseph Grafsgaard (2014).
Dissertation: *Multimodal Affect Modeling in Task-Oriented Tutorial Dialogue*.
(Co-supervised with James Lester)

M.S. Student Graduated.

- Christopher Fox (2012).

COURSES TAUGHT

At North Carolina State University (2011-Present)

CSC 216, Spring 2015. Programming Concepts – Java. Enrollment: 75.
CSC 495/591, Fall 2014. Spoken Dialogue Systems. Enrollment: 42.
CSC 216, Spring 2014. Programming Concepts – Java. Sections 001 & 002. Total Enrollment: 170.
CSC 495/591, Fall 2013. Spoken Dialogue Systems. Enrollment: 30.
CSC 216, Spring 2013. Programming Concepts – Java. Enrollment: 65.
CSC 522, Spring 2012. Automated Learning and Data Analysis. Enrollment: 69.
CSC 591/791, Fall 2012. Natural Language Dialogue Systems. Enrollment: 20.

At Valdosta State University (2002-2005)

CS 1301, Principles of Programming.
CS 1300, Algorithms and Computation.
MATH 2620, Statistical Methods.
MATH 1113, Precalculus.
MATH 1111, College Algebra.
MATH 1101, Mathematical Modeling.

UNDERGRADUATE RESEARCHERS MENTORED

Undergraduate Mentoring.

- NSF Research Experience for Undergraduates (REU)
 - Jacob Kausler (Summer 2014)
 - Allison Martínez-Arocho (Summer 2013—present)
 - Joseph Wiggins (Fall 2012—Spring 2014)
 - Caitlin Foster (Fall 2011—Spring 2014)
 - Robert Fulton (Fall 2011—Spring 2012)
 - Natalie Kerby (Fall 2011—Spring 2013)
 - Lura Kimbell (Summer 2012)

- CRA-W Distributed Mentoring Program
 - MacKenzie Bradley (Summer 2014)
 - Kristin Rachor (Summer 2014)
- Undergraduate Research Supervised
 - Jeffrey Kochuk (Fall 2013)
 - Anna Dubovitskaya (Fall 2013—Spring 2014)
 - Denae Ford (Spring 2013—Spring 2014)
 - Alexandria Vail (Spring 2013—present)
 - David Dearmore (2010)
 - Stuart Cartmell (2010—2011)
 - George Pittman (St. Augustine's College) (2009)
 - Amy Ingram (Meredith College) (2009—2011)
 - R. Taylor Fondren (2008—2009)
 - August Dwight (2008—2009)

GRADUATE COMMITTEES AT NORTH CAROLINA STATE UNIVERSITY

Computer Science Ph.D. Committees (Not Including Ph.D. Students Directly Supervised)

- Acey Boyce, 2014. (Advisor: Tiffany Barnes)
- Lakshmi Ramachandran, 2013. (Advisor: Ed Gehringer)
- Jennifer Sabourin, 2013. (Advisor: James Lester)
- Julius Goth, 2012. (Advisor: James Lester)

Interdisciplinary Ph.D. Committees

- Jameson Hogan (Communication, Rhetoric, & Digital Media), 2015. (Advisors: David Rieder, English; Nicholas Taylor, Communication)
- Mary Luong (Psychology), 2013. (Advisor: Brad Mehlenbacher, Human Factors & Ergonomics)
- Jeremy Cole (Electrical & Computer Engineering), 2013. (Advisor: Edgar Lobatón, Electrical & Computer Engineering)

Computer Science M.S. Committees

- Michael Wallis, 2011 (Advisor: James Lester)

Computer Science Ph.D. Written Examination Qualifier Committees

- Behrooz Mostafavi, 2014. (Advisor: Tiffany Barnes)
- Doel Gonzalez, 2012. (Advisor: Nagiza Samatova)
- HyeonSik Kim, 2012. (Advisor: Kemafor Ogan)

PROFESSIONAL HONORS

National Science Foundation Graduate Research Fellowship <i>North Carolina State University</i>	2007-2010
Best Paper by a Student First Author <i>International Conference on Artificial Intelligence in Education</i>	2007
College of Engineering Dean's Fellowship <i>North Carolina State University</i>	2005-2006
Shell Oil Fellowship for Outstanding Statisticians <i>Georgia Institute of Technology</i>	1999-2000

RESEARCH FUNDING

Funded Research Sponsorship (External)

- Co-PI, CHS: Medium: Adapting to Affect in Multimodal Dialogue-Rich Interaction with Middle School Students
National Science Foundation
\$1,184,073
PI: James Lester; Other Co-PIs: Bradford Mott, Eric Wiebe
- PI, Developing a K-5 Computer Science Curriculum
Wake County Public School System
2014
\$40,038
PI: Kristy Boyer
- Co-PI, An Integrated Model of Cognitive and Affective Scaffolding for Intelligent Tutoring Systems
National Science Foundation
2010—2013
\$1,542,275
PI: James Lester. Other Co-PIs: Eric Wiebe
- Co-PI, ENGAGE: Immersive Game-Based Learning for Middle Grade Computational Fluency
National Science Foundation
2012—2014
\$1,031,996
PI: James Lester. Other Co-PIs: Bradford Mott, Eric Wiebe (College of Education)
- National Science Foundation Graduate Research Fellowship
2008—2011
\$121,500

Funded Research Sponsorship (Internal)

- Laboratory for Analytic Sciences
Analytic Workflow Group
May 2014—December 2014
\$50,000

SERVICE TO PROFESSIONAL SOCIETIES
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Journal Special Issue Edited

- Special Issue on Question Generation 2012
Dialogue & Discourse, An International Journal
Co-Guest Editor: Paul Piwek, Open University, UK

Proceedings Edited

- Proceedings of the International Conference on Intelligent Tutoring Systems
Program Chair
Honolulu, Hawaii, 2014
Program Co-Chair: Stefan Trausan-Matu, Polytechnic University of Romania

Organizing Committees

- Program Co-Chair: RESPECT 2015
The First Conference of the IEEE Special Technical Community on Broadening Participation in Computing: Research on Equity and Sustained Participation in Engineering, Computing, and Technology
- Sponsorship Chair: SIGDIAL 2015
Conference: International Conference on Discourse and Dialogue
- Program Co-Chair: ITS 2014
Conference: 12th International Conference on Intelligent Tutoring Systems
- Co-Chair: AIEDCS 2014
Workshop: Second Workshop on AI-Supported Education for Computer Science
- Co-Chair: GAMNLP 2014
Workshop: Third International Workshop on Games and Natural Language Processing
Held in Conjunction with the AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)
- Publicity Chair: NAACL 2013
Conference: Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies
- Tutorials and Workshops Chair: EDM 2013
Conference: 5th International Conference on Educational Data Mining
- Co-Chair: AIEDCS 2013
Workshop: First Workshop on AI-Supported Education for Computer Science

- Organizing Committee: Second Workshop on Intelligent Support for Learning in Groups, 2013
Conference: Artificial Intelligence in Education
- Local Arrangements Chair: STARS Conference 2011
Conference: STARS Annual Conference
- Workshop Co-Chair: QG 2010
Workshop: The 3rd Workshop on Question Generation

Program Committees

- SIGCSE 2015
Conference: ACM Technical Symposium on Computer Science Education
- EDM 2015
Conference: The 8th International Conference on Educational Data Mining
- EMNLP 2014
Empirical Methods in Natural Language Processing Workshop on Modeling Large Scale Social Interaction in Massively Online Open Courses
- COLING 2014
Conference: 25th International Conference on Computational Linguistics
- ICMI 2014
Conference: 16th ACM International Conference on Multimodal Interaction
- EDM 2014
Conference: 7th International Conference on Educational Data Mining
- BEA 2014
Workshop: The 9th Workshop on Innovative Use of NLP for Building Educational Applications
- SIGDIAL 2014
Conference: 15th Annual SIGdial Meeting on Discourse and Dialogue
- FDG 2014
Conference: 9th International Conference on the Foundations of Digital Games
- CogSci 2014
Conference: 36th Annual Conference of the Cognitive Science Society
- ICMI 2013
Conference: 15th ACM International Conference on Multimodal Interaction
- BEA 2013
Workshop: The 8th Workshop on Innovative Use of NLP for Building Educational Applications
- ACL 2013
Conference: 51st Annual Meeting of the Association for Computational Linguistics
- SIGDIAL 2013
Conference: 14th International Conference on Discourse and Dialogue
- SIGDIAL 2012
Conference: 13th International Conference on Discourse and Dialogue

- ACL 2012
Conference: 50th Annual Meeting of the Association for Computational Linguistics
- NAACL 2012
Conference: Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies
- QG 2012
Workshop: The 4th Workshop on Question Generation

Journal Reviewing

- *International Journal of Artificial Intelligence in Education (IJAIED)*
 - 2010, 2012, 2013, 2014
- *Journal of Educational Data Mining*
 - 2009, 2010, 2011, 2014
- *Dialogue & Discourse*
 - 2012
- *Journal of Educational Psychology*
 - 2011, 2013
- *IEEE Transactions on Learning Technologies*
 - 2011
- *International Journal of Human-Computer Studies*
 - 2011

Conference Reviewing

- ACM Technical Symposium on Computer Science Education (SIGCSE), 2013, 2014
- Intelligent Virtual Agents (IVA), 2012
- International Joint Conference on Artificial Intelligence (IJCAI), 2011
- International Conference on Artificial Intelligence in Education (AIED), 2009, 2011
- Association for Computational Linguistics Human Language Technologies Conference (ACL HLT), 2011
- AAAI Conference on Artificial Intelligence, 2010
- International Conference on User Modeling, Adaptation, and Personalization (UMAP), 2010
- Empirical Methods in Natural Language Processing (EMNLP), 2010
- International Conference on Intelligent Tutoring Systems (ITS), 2010
- North American Association for Computational Linguistics Human Language Technologies Conference (NAACL HLT), 2009, 2010
- American Educational Research Association (AERA) Annual Meeting, 2009
- International Conference on Computers in Education (ICCE), 2008

National Grant Reviewing

- Grant Reviewer & Panelist, National Science Foundation, 2014. (4 Panels)
- Grant Reviewer & Panelist, National Science Foundation, 2013. (2 Panels)
- Grant Reviewer & Panelist, National Science Foundation, 2012. (1 Panel)
- Grant Reviewer & Panelist, National Science Foundation, 2011. (1 Panel)

Professional Society Membership

- North American Association for Computational Linguistics
 - 2010 – present
- Association for Computing Machinery and Special Interest Group on Computer Science Education
 - 2009 – present
- International Educational Data Mining Society, Charter Member
 - 2011 – present
- International Artificial Intelligence in Education Society
 - 2009 – present

Student Organization Advised

- Faculty Advisor, STARS Student Leadership Corps.