CURRICULUM VITAE

James C. Lester

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Professional Experience

2023-present **Goodnight Distinguished University Professor in Artificial Intelligence and Machine Learning**, North Carolina State University.

2019-2023 **Distinguished University Professor**, Computer Science, North Carolina State University.

2012-present **Founding Director**, Center for Educational Informatics, North Carolina State University.

2012-2019 **Distinguished Professor**, Computer Science, North Carolina State University.

2009-present **Professor**, Computer Science, North Carolina State University.

2000-2006 **Chief Scientist**, LiveWire Logic, Inc.

1999-2009 **Associate Professor**, Computer Science, North Carolina State University.

1994-1999 **Assistant Professor**, Computer Science, North Carolina State University.

Education

1994 **Ph.D.**, Computer Science, University of Texas at Austin.

1988 **M.S.C.S.**, Computer Science, University of Texas at Austin.

1986 **B.A.**, Computer Science, University of Texas at Austin.
Highest Honors, Phi Beta Kappa.

1983 **B.A.**, History, Baylor University.
Honors Program with Distinction.

Research Interests

- ARTIFICIAL INTELLIGENCE: AI & education, AI & digital games, computational models of narrative, multimodal interaction, affective computing, user modeling, intelligent virtual agents, natural language processing.
- EDUCATION: Adaptive learning environments, multimodal learning analytics, game-based learning, K-12 science education, computer science education, informal science education, affect in learning, collaborative learning, self-regulated learning.

Honors and Awards

- Alexander Quarles Holladay Medal for Excellence, North Carolina State University, 2022.
- Research Leadership Academy, North Carolina State University, 2022.
- Alumni Association Outstanding Research Award, North Carolina State University, 2022.

- Distinguished Dozen Article, *Journal of Adolescent Health*, 2020.
- Best Student Paper Award, Thirteenth International Conference on Educational Data Mining, 2020.
- Outstanding Practice Award, Association for Educational Communications and Technology, 2020.
- Best Education Paper Award, Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC), 2019.
- IFAAMAS Influential Paper Award, International Foundation for Autonomous Agents and Multiagent Systems, 2017.

  IFAAMAS Award Citation: "This paper was instrumental in beginning a field, it influenced other areas and disciplines (AI in Education, Virtual Agents), and it continues to be relevant many years later."
- TICL Outstanding International Research Collaboration Award, American Educational Research Association, Technology, Instruction, Cognition, & Learning SIG, 2017.
- Best Paper Award, Twenty-Third Conference on User Modeling, Adaptation, and Personalization, 2015.
- AAAI Fellow, Association for the Advancement of Artificial Intelligence, 2014.

  AAAI Fellow Citation: "For significant and sustained contributions to artificial intelligence technologies for education."
- James Chen Best Student Paper Award, Twenty-First Conference on User Modeling, Adaptation and Personalization, 2013.
- Best Paper Award, Seventh AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment, 2011.
- Best Student Paper Award, International Conference on Affective Computing & Intelligent Interaction, 2009.
- Best Student Paper Award, Thirteenth International Conference on Artificial Intelligence in Education, 2007.
- Outstanding Paper Award, Twelfth World Conference on Educational Multimedia, Hypermedia, and Telecommunications, 2000.
- Best Paper Award, ACM International Conference on Intelligent User Interfaces, 1999.
- ACM Recognition of Service Award, Association for Computing Machinery, 1999.
- North Carolina State University Academy of Outstanding Teachers, 1998-present.
- North Carolina State University Outstanding Teacher Award, 1998.
- Best Paper Award, Eighth World Conference on Artificial Intelligence in Education, 1997.
- NSF CAREER Award, National Science Foundation, 1997.
- Outstanding New Teacher Award, Dept. of Computer Science, North Carolina State University, 1995.
- Artificial Intelligence Laboratory Doctoral Fellowship, University of Texas at Austin, 1986.

Professional Societies

- Association for Advancement of Artificial Intelligence (AAAI).
- Association for Computing Machinery (ACM).
- International Artificial Intelligence in Education Society (IAIED).
- Institute of Electrical and Electronics Engineers (IEEE).

Sponsored Research Activity

- National Science Foundation (Improving Undergraduate STEM Education Program)
  Project: *Transforming Introductory Computer Science Instruction with an AI-Driven Classroom Assistant*, 2023-2027.
  Role: Co-principal Investigator (PI: B. Akram; Co-PIs: B. Mott, J. Vandenberg.)
  Multi-PI Collaborative Project:
  Collaborating Institution: University of California – Santa Cruz.
  Collaborating PI: N. Norouzi.
  Total Award: $1,999,637
  Award: $1,723,467

- National Science Foundation (Improving Undergraduate STEM Education Program)
  Project: *ExplainIt: Improving Student Learning with Explanation-based Classroom Response Systems*, 2021-2025.
  Role: Principal Investigator. (Co-PI: W. Min.)
  Multi-PI Collaborative Project:
  Collaborating Institution: Indiana University.
  Collaborating PI: G. Ozgul.
  Total Award: $1,856,521.
  Award: $1,456,521.

- National Science Foundation (AI Research Institutes Program)
  Project: *AI Institute for Engaged Learning*, 2021-2026.
  Role: Principal Investigator. (Co-PIs: M. Bansal, G. Biswas, C. Hmelo-Silver, J. Roschelle.)
  Award: $19,996,290.

- US Department of Education, Institute of Education Sciences (Cognition and Student Learning Program)
  Project*: Improving Conceptual Knowledge in Upper Elementary Science with Scaffolded Sketch-Based Modeling*, 2021-2025.
  Role: Principal Investigator. (Co-PIs: B. Mott, M. Feng, C. Ringstaff.)
  Award: $1,993,601.

- National Institutes of Health (National Cancer Institute)
  Project: *Change Gradients: Promoting Adolescent Health Behavior Change with Clinically Integrated Sample-Efficient Policy Gradient Methods*, 2019-2023.
  Role: Co-principal Investigator & Subcontractor (Co-PI: Jonathan Rowe.)
  Prime Institution: University of California – San Francisco.
  PI: E. Ozer.
  Total Award: $973,252.
  Award: $473,443.

- U.S. Army Futures Command
  Project: *TCAT and TeamCoach: Tools for Natural Language-Based Team Communication Assessment and Team Feedback in Collective Synthetic Training Environments*, 2019-2022.
  Role: Principal Investigator (Co-PIs: B. Mott, J. Rowe, R. Spain.)
  Award: $2,018,810.

- National Science Foundation (STEM + Computing Partnerships Program)
  Project: *PrimaryAI: Integrating Artificial Intelligence into Upper Elementary Science with Immersive Problem-based Learning*, 2019-2022.
  Role: Principal Investigator. (Co-PI: B. Mott.)
  Multi-PI Collaborative Project:
  Collaborating Institution: Indiana University.
  Collaborating PI: K. Glazewski.
  Total Award: $1,655,585.
  Award: $985,585.

- National Science Foundation (STEM + Computing Partnerships Program)
  Project: *Building Capacity for K-12 Artificial Intelligence Education Research*, 2019-2021.
  Role: Principal Investigator.
  Multi-PI Collaborative Project:
  Collaborating Institution: University of Southern California.
  Collaborating PI: N. Wang.
  Total Award: $299,976.
  Award: $99,976.

- National Science Foundation (Future of Work at the Human-Technology Frontier: Advancing Cognitive and Physical Capabilities Program)
  Project: *Augmented Cognition for Teaching: Transforming Teacher Work with Intelligent Cognitive Assistants*, 2018-2022.
  Role: Principal Investigator. (Co-PI: B. Mott.)
  Multi-PI Collaborative Project:
  Collaborating Institution: Indiana University.
  Collaborating PI: K. Glazewski.
  Total Award: $2,999,721.
  Award: $1,499,736.

- National Science Foundation (EHR Core Research Program)
  Project: *Supporting Student Planning with Open Learner Models in Middle Grades Science*, 2018-2021.
  Role: Principal Investigator. (Co-PI: R. Azevedo.)
  Award: $1,499,183.

- National Institute of Standards and Technology (Public Safety Innovation Accelerator Program)
  Project: *Investigating Emergency Response Performance with VR-Based Intelligent User Interfaces*, 2018-2020.
  Role: Principal Investigator. (Co-PIs: B. Mott, R. Spain.)
  Award: $1,112,175.

- National Science Foundation (Advancing Informal STEM Learning Program)
  Project: *Multimodal Visitor Analytics: Investigating Naturalistic Engagement with Interactive Tabletop Science Exhibits*, 2018-2021.
  Role: Principal Investigator. (Co-PIs: J. Minogue, J. Rowe.)
  Award: $1,951,956.

- U.S. Army Research Laboratory
  Project: *DeepGen: Dynamic Generation of Training Simulation Scenarios with Deep Reinforcement Learning*, 2017-2021.
  Role: Principal Investigator. (Co-PIs: B. Mott, J. Rowe.)
  Award: $340,857.

- National Institutes of Health (National Institute of General Medical Sciences, Science Education Partnership Award)
  Project: *Health Quest: Engaging Adolescents in Health Careers with Technology-Rich Personalized Learning*, 2017-2022.
  Role: Principal Investigator. (Co-PI: E. Ozer.)
  Award: $1,378,755.

- National Science Foundation (EHR Core Research Program)
  Project: *REFLECT: Improving Science Problem Solving with Adaptive Game-Based Reflection Tools*, 2017-2020.
  Role: Principal Investigator. (Co-PI: R. Azevedo.)
  Award: $1,300,000.

- National Science Foundation (EHR Core Research Program)
  Project: *Big Data from Small Groups: Learning Analytics and Adaptive Support in Game-based*

Collaborative Learning, 2016-2021.
Role: Principal Investigator.
Multi-PI Collaborative Project:
Collaborating Institution: Indiana University.
Collaborating PI: C. Hmelo-Silver.
Total Award: $2,484,146.
Award: $1,249,611.

- National Science Foundation (Improving Undergraduate STEM Education Program)
  Project: *PRIME: Engaging STEM Undergraduate Students in Computer Science with Intelligent Tutoring Systems*, 2016-2020.
  Role: Principal Investigator. (Co-PIs: B. Mott, E. Wiebe.)
  Multi-PI Collaborative Project:
  Collaborating Institution: University of Florida.
  Collaborating PI: K. Boyer.
  Total Award: $1,999,707.
  Award: $1,499,828.

- National Science Foundation (STEM + Computing Partnerships Program)
  Project: *ENGAGE: A Game-based Curricular Strategy for Infusing Computational Thinking into Middle School Science*, 2016-2019.
  Role: Principal Investigator. (Co-PIs: D. Blackburn, K. Boyer, B. Mott, E. Wiebe.)
  Award: $2,498,862.

- National Science Foundation (Discovery Research K-12 Program)
  Project: *Guiding Understanding via Information from Digital Environments (GUIDE)*, 2015-2019.
  Role: Co-principal Investigator & Subcontractor (Co-PIs: F. Reichsman, E. Wiebe.)
  Prime Institution: The Concord Consortium.
  PI: C. Dorsey.
  Total Award: $2,983,810.
  Award: $1,238,549.

- U.S. Army Research Laboratory
  Project: *Tutorial Planning with Markov Decision Processes for Counterinsurgency Training Environments*, 2015-2018.
  Role: Principal Investigator. (Co-PIs: B. Mott, J. Rowe.)
  Award: $1,072,056.

- National Science Foundation (Cyber-Human Systems Program)
  Project: *Adapting to Affect in Multimodal Dialogue-Rich Interaction with Middle School Students*, 2014-2017.
  Role: Principal Investigator. (Co-PIs: K. Boyer, B. Mott, E. Wiebe.)
  Award: $1,200,073.

- SAS Institute, Inc.
  Project: *Using Deep Learning to Build Context-Sensitive Language Models*, 2014-2015.
  Role: Principal Investigator. (Co-PI: B. Mott.)
  Award: $272,839.

- National Science Foundation (EHR Core Research Program)
  Project: *The Effectiveness of Intelligent Virtual Humans in Facilitating Self-Regulated Learning in STEM with MetaTutor*, 2014-2017.
  Role: Co-principal Investigator. (PI: R. Azevedo.)
  Award: $1,365,603.

- National Science Foundation (Smart and Connected Health Program)
  Project: *A Self-Adaptive Personalized Behavior Change System for Adolescent Preventive Healthcare*, 2013-2017.
  Role: Principal Investigator.

Multi-PI Collaborative Project:
Collaborating Institution: University of California – San Francisco.
Collaborating PI: E. Ozer.
Total Award: $2,011,991.
Award: $968,818.

- Social Sciences and Humanities Research Council of Canada
  Project: *Learning Environments Across Disciplines (LEADS): Supporting Technology Rich Learning Across Disciplines*, 2012-2014.
  Role: Subcontractor
  Prime Institution: McGill University.
  PI: S. Lajoie.
  Award: $46,970.

- U.S. Army Research Laboratory
  Project: *Detection and Transition Analysis of Engagement and Affect in a Simulation-Based Combat Medic Training Environment*, 2012-2015.
  Role: Subcontractor
  Prime Institution: Columbia University.
  PI: R. Baker.
  Award: $478,592.

- National Science Foundation (Computing Education for the 21st Century Program)
  Project: *ENGAGE: Immersive Game-Based Learning for Middle Grade Computational Fluency*, 2012-2014.
  Role: Principal Investigator. (Co-PIs: K. Boyer, B. Mott, E. Wiebe.)
  Award: $1,047,996.

- National Science Foundation (Informal Science Education Program)
  Project: *Investigating an Intelligent Cyberlearning System for Interactive Museum-based Sustainability Modeling*, 2011-2013.
  Role: Principal Investigator. (Co-PIs: P. FitzGerald, J. Minogue, B. Mott.)
  Award: $713,384.

- Bill & Melinda Gates Foundation, William and Flora Hewlett Foundation, and EDUCAUSE
  Project: *Promoting Literacy Education in Rural Schools with Intelligent Game-Based Learning Environments*, 2011-2012.
  Role: Principal Investigator. (Co-PIs: C. Brown, R. Conner, E. Hodge, B. Mott, M. Wirth.)
  Award: $498,783.

- National Science Foundation (Research & Evaluation on Education in Science & Engineering Program)
  Project: *An Integrated Model of Cognitive and Affective Scaffolding for Intelligent Tutoring Systems*, 2010-2013.
  Role: Principal Investigator. (Co-PIs: K. Boyer, E. Wiebe.)
  Award: $1,542,275.

- National Science Foundation (Discovery Research K-12 Program)
  Project: *The LEONARDO Project: An Intelligent Cyberlearning System for Interactive Scientific Modeling in Elementary Science Education*, 2010-2014.
  Role: Principal Investigator. (Co-PIs: M. Carter, B. Mott, E. Wiebe.)
  Award: $3,499,410.

- DARPA
  Project: *JOUST: Justification for Objectives Using Spoken Text*, 2009-2010.
  Role: Subcontractor
  Prime Institution: University of Rochester.
  PI: J. Allen.
  Award: $60,000.

- National Science Foundation (CreativeIT Program)
  Project: *The Narrative Theatre: A Creativity Enhancing Environment*, 2008-2011.
  Role: Principal Investigator. (Co-PI: H. Spires.)
  Award: $828,868.

- National Science Foundation (Human-Centered Computing Program)
  Project: *Modeling Student Affect in Game-Based Learning Environments*, 2008-2011.
  Role: Principal Investigator.
  Award: $480,422.

- National Science Foundation (Discovery Research K-12 Program)
  Project: *Developing Science Problem-Solving Skills and Engagement Through Intelligent Game-Based Learning Environments*, 2008-2012.
  Role: Principal Investigator. (Co-PIs: J. Minogue, J. Nietfeld, H. Spires.)
  Award: $2,523,297.

- National Science Foundation (Advanced Learning Technologies Program)
  Project: *Bayesian Pedagogical Agents for Dynamic High-Performance Inquiry-Based Learning Environments*, 2007-2009.
  Role: Principal Investigator. (Co-PIs: J. Nietfeld, H. Spires.)
  Award: $605,436.

- National Science Foundation (Research on Education, Policy, and Practice Program)
  Project: *Self-Explaining Learning Environments*, 1999-2002.
  Role: Principal Investigator. (Co-PI: P. FitzGerald.)
  Award: $645,750.

- National Science Foundation (Learning & Intelligent Systems Program)
  Project: *Animated Pedagogical Agents for Constructivist Learning Environments*, 1997-2000.
  Role: Principal Investigator. (Co-PIs: S. Converse, P. FitzGerald, R. Mayer, H. Spires.)
  Award: $600,472.

- National Science Foundation (Interactive Systems Program – NSF CAREER Award)
  Project: *Multimedia Explanation Generators for Knowledge-Based Learning Environments*, 1997-2001.
  Role: Principal Investigator.
  Award: $390,373.

- Novell, Inc.
  Project: *Intelligent Agent Technologies*, 1996.
  Role: Principal Investigator.
  Award: $25,000.

- National Science Foundation (Division of Undergraduate Education)
  Project: *A Laboratory for Teaching Multimedia Technology for Computer Science Majors*, 1995-1997.
  Role: Co-principal Investigator. (PI: D. Reeves.)
  Award: $52,100.

Research Supervision

Post-Doctoral Scholars Supervised

- Michael Geden, 2019-2020.
- Wookhee Min, 2016-2018.
- Joseph Grafsgaard (Co-supervisor: K. Boyer), 2014-2015.
- Eun Ha, 2011-2014.

- Kristy Boyer, 2010-2011.
- Lisong Xu, 2002-2003.
- Charles Callaway, 2000-2001.

Doctoral Students Supervised

- Kyungjin Park, *Automated Detection of Disruptive Talk in Collaborative Game-Based Learning Environments*, 2022.
- Nathan Henderson, *Deep Learning-Based Multimodal Affect Detection for Adaptive Learning Environments*, 2022.
- Andrew Emerson, *Multimodal Learning Analytics for Predictive Student Modeling in Game-Based Learning*, 2022.
- Andrew Smith, *Automated Assessment and Predictive Student Modeling for Drawing in Science Education with Deep Learning*, 2020.
- Bita Akram (Co-advisor: Eric Wiebe), *Assessment of Students' Computer Science Focal Knowledge, Skills, and Abilities in Game-Based Learning Environments*, 2019.
- Pengcheng Wang, *Deep Reinforcement Learning for Interactive Narrative Planning*, 2018.
- Wookhee Min, *Generalized Goal Recognition Framework for Open-World Digital Games*, 2016.
- Samuel Leeman-Munk, *Morphosyntactic Neural Analysis for Generalized Lexical Normalization*, 2016.
- Joseph Grafsgaard (Co-advisor: Kristy Boyer), *Multimodal Affect Modeling in Task-Oriented Tutorial Dialogue*, 2014.
- Alok Baikadi, *Discovery-based Goal Recognition in Interactive Narrative Environments*, 2014.
- Jennifer Sabourin, *Stealth Assessment of Self-Regulated Learning in Game-Based Learning Environments*, 2013.
- Jonathan Rowe, *Narrative-Centered Tutorial Planning with Concurrent Markov Decision Processes*, 2013.
- Julius Goth, *Intrasentential Grammatical Correction with Weighted Finite State Transducers*, 2013.
- Seung Lee, *Modeling Director Agents' Decision-Making Strategies in Guided Discovery Learning Environments*, 2012.
- Eun Ha, *Modeling Discourse Structure and Temporal Event Relations with Markov Logic Networks*, 2011.
- Kristy Boyer (Co-advisor: Mladen Vouk), *Structural and Dialogue Act Modeling in Task-Oriented Tutorial Dialogue*, 2010.
- Scott McQuiggan, *An Inductive Framework for Affect Recognition and Expression in Interactive Learning Environments*, 2008.
- Sunyoung Lee (Co-advisor: Carla Savage), *Early Prediction of Student Goals and Affect in Narrative-Centered Learning Environments*, 2008.
- Bradford Mott (Co-advisor: Michael Young), *Decision-Theoretic Narrative Planning for Guided Exploratory Learning Environments*, 2006.
- Wei Zhang (Co-advisor: Michael Young), *Multimodal Pedagogical Planning for 3D Learning Environments*, 2004.
- Charles Callaway, *Narrative Prose Generation*, 2000.

- William Bares (Co-advisor: Woodrow Robbins), *Realtime Generation of User- and Context-Sensitive Three-Dimensional Animations*, 1998.

Masters Students Supervised

- Michael Wallis (Co-advisor: Kristy Boyer), *JavaTutor – A Remotely Collaborative, Real-Time Distributed Intelligent Tutoring System for Introductory Java Computer Programming – A Qualitative Analysis*, 2011.
- Robert Phillips, *Code Understanding for an Intelligent Tutoring System*, 2011.
- Lucy Shores, *The Role of Cognitive and Metacognitive Tool Use in Narrative-Centered Learning Environments*, 2010.
- Rachel Dwight (Co-advisor: Nancy Green, UNC-Greensboro), *Microplanning and Linguistic Realization for Natural Language Generation in a Biomedical Domain*, 2009.
- Kanyamas "Jenny" Navoraphan (Co-advisor: Nancy Green, UNC-Greensboro), *Argument Generation for a Biomedical Domain*, 2008.
- Scott McQuiggan, *An Inductive Approach to Modeling Affective Reasoning in Interactive Synthetic Agents*, 2005.
- Seung Lee, *A Framework for Real-Time Synchronization in Intelligent Media Generators*, 2004.
- Randy Casstevens, *Explorations in Three-Dimensional User Interfaces for Learning Environments*, 2003.
- Gary Stelling, *Affective Behavior Control for Lifelike Pedagogical Agents*, 2002.
- Brent Daniel, *Student-Sensitive Multimodal Explanation Generation*, 1999.
- Dennis Rodriguez, *Synchronizing Speech, Locomotion, Gestures, and Virtual Cinematography in 3D Learning Environments with Lifelike Pedagogical Agents*, 1999.
- Stuart Towns, *Multimodal Explanation Generation for 3D Learning Environments*, 1999.
- Joel Grégoire, *Interactive Demonstration of Procedural Tasks in 3D Learning Environments with Lifelike Pedagogical Agents*, 1998.
- Colin Leonard, *Interface Architecture for Multi-Dimensional User Support of Information Rich Tasks*, 1997.
- Jennifer Voerman, *Deictic Behavior Control for Believable Animated Pedagogical Agents*, 1997.
- Matthew Dailey, *Intelligent Interfaces and Complex Analysis Tasks: A Knowledge-Based Interface for Biological Sequence Analysis*, 1995.

Publications

Journal Articles

1. A. Emerson, W. Min, R. Azevedo, and J. Lester. Early Prediction of Student Knowledge in Game-Based Learning with Distributed Representations of Assessment Questions. *British Journal of Educational Technology*, 54(1), 40-57, 2023.
2. K. Park, B. Mott, S. Lee, A. Gupta, K. Jantaraweragul, K. Glazewski, A. Scribner, A. Ottenbreit-Leftwich, C. Hmelo-Silver, and J. Lester. Investigating a Visual Interface for Elementary Students to Formulate AI Planning Tasks. *Journal of Computer Languages*, 73, 2022.

3. E. Cloude, D. Dever, D. Hahs-Vaughn, A. Emerson, R. Azevedo, and J. Lester. Affective Dynamics and Cognition During Game-Based Learning. *IEEE Transactions on Affective Computing*, 13(4), 1705-1717, 2022.

4. A. Saleh, T. Phillips, C. Hmelo-Silver, K. Glazewski, B. Mott, and J. Lester. A Learning Analytics Approach Towards Understanding Collaborative Inquiry in a Problem-Based Learning Environment. *British Journal of Educational Technology*, 53(5), 1321-1342, 2022.

5. R. Spain, J. Rowe, A. Smith, B. Goldberg, R. Pokorny, B. Mott and J. Lester. A Reinforcement Learning Approach to Adaptive Remediation in Online Training. *Journal of Defense Modeling and Simulation*, 19(2), 173-193, 2022.

6. D. Dever, M. Wiedbusch, E. Cloude, J. Lester, and R. Azevedo. Emotions and the Comprehension of Single versus Multiple Texts during Game-based Learning. *Discourse Processes*, 59(1-2), 94-115, 2022.

7. J. Houchins, D. Boulden, J. Lester, B. Mott, K. Boyer, and E. Wiebe. How Use-Modify-Create Brings Middle Grades Students to Computational Thinking. *International Journal of Designs for Learning*, 12(3), 1-20, 2021.

8. R. Spain, C. Penilla, E. Ozer, R. Taylor, C. Ringstaff, and J. Lester. Leveraging Game-Based Learning Technologies to Introduce Adolescents to Health Science Careers During the COVID-19 Pandemic. *Journal of STEM Outreach*, 4(4), 1-11, 2021.

9. E. Cloude, D. Carpenter, R. Azevedo, and J. Lester. Game-based Learning Analytics for Supporting Adolescents' Reflection. *Journal of Learning Analytics*, 8(2), 51-72, 2021.

10. M. Geden, A. Emerson, D. Carpenter, J. Rowe, R. Azevedo, and J. Lester. Predictive Student Modeling in Game-Based Learning Environments with Word Embedding Representations of Reflection. *International Journal of Artificial Intelligence in Education*, 31(1), 1-23, 2021.

11. A. Rachmatullah, F. Reichsman, T. Lord, C. Dorsey, B. Mott, J. Lester, and E. Wiebe. Modeling Secondary Students' Genetics Learning in a Game-Based Environment: Integrating the Expectancy-Value Theory of Achievement Motivation and Flow Theory. *Journal of Science Education and Technology*, 30(4), 511-528, 2021.

12. A. Saleh, Y. Chen, C. Hmelo-Silver, K. Glazewski, B. Mott, and J. Lester. Coordinating Scaffolds for Collaborative Inquiry in a Game-Based Learning Environment. *Journal of Research in Science Teaching*, 57(9), 1490-1518, 2020.

13. K. Loderer, R. Pekrun, and J. Lester. Beyond Cold Technology: A Systematic Review and Meta-analysis on Emotions in Technology-based Learning Environments. *Learning and Instruction*, 70, 2020.

14. A. Rachmatullah, E. Wiebe, D. Boulden, B. Mott, K. Boyer, and J. Lester. Development and Validation of the Computer Science Attitudes Scale for Middle School Students (MG-CS Attitudes). *Computers in Human Behavior Reports*, 2, 2020.

15. E. Ozer, J. Rowe, K. Tebb, M. Berna, C. Penilla, A. Giovanelli, C. Jasik, and J. Lester. Fostering Engagement in Health Behavior Change: Iterative Development of an Interactive Narrative Environment to Enhance Adolescent Preventive Health Services. *Journal of Adolescent Health*, 67(2), Supplement, S34-S44, 2020.

16. J. Rowe and J. Lester. Artificial Intelligence for Personalized Preventative Healthcare. *Journal of Adolescent Health*, 67(2), Supplement, S52-S58, 2020.
    Award: **Journal of Adolescent Health – Distinguished Dozen Article** (2020).

17. A. Emerson, E. Cloude, R. Azevedo, and J. Lester. Multimodal Learning Analytics for Game-based Learning. *British Journal of Educational Technology*, 51(5), 1505-1526, 2020.

18. M. Taub, R. Sawyer, A. Smith, J. Rowe, R. Azevedo, and J. Lester. The Agency Effect: The Impact of Student Agency on Learning, Emotions, and Problem-Solving Behaviors in a Game-Based Learning Environment. *Computers & Education*, 147, 2020.

19. W. Min, M. Frankosky, B. Mott, J. Rowe, A. Smith, E. Wiebe, K. Boyer, and J. Lester. DeepStealth: Game-Based Learning Stealth Assessment with Deep Neural Networks. *IEEE Transactions on Learning Technologies*, 13(2), 312-325, 2020.

20. M. Taub, R. Sawyer, J. Lester, and R. Azevedo. The Impact of Contextualized Emotions on Self-Regulated Learning and Scientific Reasoning during Learning with a Game-Based Learning Environment. *International Journal of Artificial Intelligence in Education*, 30(1), 97-120, 2020.

21. A. Rachmatullah, B. Akram, D. Boulden, B. Mott, K. Boyer, J. Lester, and E. Wiebe. Development and Validation of the Middle Grades Computer Science Concept Inventory (MG-CSCI) Assessment. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(5), 2020.

22. A. Saleh, C. Hmelo-Silver, K. Glazewski, B. Mott, Y. Chen, J. Rowe, & J. Lester. Collaborative Inquiry Play: A Design Case to Frame Integration of Collaborative Problem Solving with Story-Centric Games. *Information and Learning Sciences*, 10(9/10), 547-566, 2019.

23. A. Smith, S. Leeman-Munk, A. Shelton, B. Mott, E. Wiebe, and J. Lester. A Multimodal Assessment Framework for Integrating Student Writing and Drawing in Elementary Science Learning. *IEEE Transactions on Learning Technologies*, 12(1), 3-15, 2019.

24. J. DeFalco, J. Rowe, L. Paquette, V. Georgoulas-Sherry, K. Brawner, B. Mott, R. Baker, and J. Lester. Detecting and Addressing Frustration in a Serious Game for Military Training. *International Journal of Artificial Intelligence in Education*, 28(2), 152-193, 2018.

25. M. Taub, R. Azevedo, A. Bradbury, G. Millar, and J. Lester. Using Sequence Mining to Reveal the Efficiency in Scientific Reasoning during STEM Learning with a Game-Based Learning Environment. *Learning and Instruction*, 54, 93-103, 2018.

26. M. Taub, N. Mudrick, R. Azevedo, G. Miller, J. Rowe, and J. Lester. Using Multi-Channel Data with Multi-Level Modeling to Assess In-Game Performance During Gameplay with Crystal Island. *Computers in Human Behavior*, 76, 641-655, 2017.

27. J. Rowe, E. Lobene, B. Mott, and J. Lester. Play in the Museum: Design and Development of a Game-based Learning Exhibit for Informal Science Education. *International Journal of Gaming and Computer-Mediated Simulations*, 9(3), 96-113, 2017.

28. M. Pruden, S. Kerkhoff, H. Spires, and J. Lester. Enhancing Writing Achievement Through a Digital Learning Environment: Case Studies of Three Struggling Adolescent Male Writers. *Reading & Writing Quarterly: Overcoming Learning Difficulties*, 33(1), 1-19, 2017.

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34. S. Leeman-Munk, A. Shelton, E. Wiebe, and J. Lester. Towards Domain-Independent Assessment of Elementary Students' Science Competency using Soft Cardinality. *Proceedings of the Ninth Workshop on Innovative Use of NLP for Building Educational Applications (BEA-2014)*, pp. 61-67, Baltimore, 2014.

35. J. Wiggins, J. Grafsgaard, C. Mitchell, K. Boyer, E. Wiebe, and J. Lester. Exploring the Relationship between Self-Efficacy and the Effectiveness of Tutorial Interactions. *Proceedings of the ITS-2014 Workshop on AI-supported Education for Computer Science*, pp. 31-40, Honolulu, Hawaii, 2014.

36. W. Min, B. Mott, and J. Lester. Adaptive Scaffolding in an Intelligent Game-Based Learning Environment for Computer Science. *Proceedings of the ITS-2014 Workshop on AI-supported Education for Computer Science*, pp. 41-50, Honolulu, Hawaii, 2014.

37. J. Rowe and J. Lester. A Modular Reinforcement Learning Framework for Interactive Narrative Planning. *Proceedings of the Sixth Workshop on Intelligent Narrative Technologies (INT6)*, pp. 57-63, Boston, 2013.

38. A. Baikadi, J. Rowe, B. Mott, and J. Lester. Improving Goal Recognition in Interactive Narratives with Models of Narrative Discovery Events. *Proceedings of the Sixth Workshop on Intelligent Narrative Technologies (INT6)*, pp. 2-8, Boston, 2013.

39. C. Mitchell, K. Boyer, and J. Lester. When to Intervene: Toward a Markov Decision Process Dialogue Policy for Computer Science Tutoring. *Proceedings of the AIED-2013 Workshop on AI-supported Education for Computer Science*, pp. 40-49, Memphis, Tennessee, 2013.

40. J. Rowe, E. Lobene, J. Sabourin, B. Mott, and J. Lester. Run-Time Affect Modeling in a Serious Game with the Generalized Intelligent Framework for Tutoring. *Proceedings of the AIED-2013 GIFT User Meeting*, pp. 95-104, Memphis, Tennessee, 2013.

41. J. Rowe, E. Lobene, B. Mott, and J. Lester. Embedded Scaffolding for Reading Comprehension in Open-Ended Narrative-Centered Learning Environments. *Proceedings of the AIED-2013 Workshop on Scaffolding in Open-Ended Learning Environments*, Memphis, Tennessee, 2013.

42. J. Sabourin, J. Rowe, B. Mott, and J. Lester. Exploring Affect and Inquiry in Open-Ended Game-based Learning Environments. *Proceedings of the ITS-2012 Workshop on Emotions in Games for Learning*, Chania, Crete, Greece, 2012.

43. J. Goth, E. Ha, and J. Lester. Towards a Model of Question Generation for Promoting Creativity in Novice Writers. *Working Notes of the 2011 AAAI Fall Symposium on Question Generation*, pp. 23-26, Arlington, Virginia, 2011.

44. J. Sabourin, B. Mott, and J. Lester. Generalizing Models of Student Affect in Game-Based Learning Environments. *Proceedings of the ACII-2011 Workshop on Machine Learning for Affective Computing*, pp. 588-597, Memphis, Tennessee, 2011.

45. S. Lee, B. Mott, and J. Lester. Learning Director Agent Strategies: An Inductive Framework for Modeling Director Agents. *Proceedings of the Fourth Workshop on Intelligent Narrative Technologies (INT4)*, pp. 37-40, Palo Alto, California, 2011.

46. A. Baikadi, J. Goth, C. Mitchell, E. Ha, B. Mott, and J. Lester. Towards a Computational Model of Narrative Visualization. *Proceedings of the Fourth Workshop on Intelligent Narrative Technologies (INT4)*, pp. 2-9, Palo Alto, California, 2011.

47. E. Ha, A. Baikadi, C. Licata, and J. Lester. NCSU: Modeling Temporal Relations with Markov Logic and Lexical Ontology. *Proceedings of the Fifth International Workshop on Semantic Evaluation (SemEval-2010)*, pp. 341-344, Uppsala, Sweden, 2010.

48. J. Rowe, L. Shores, B. Mott, and J. Lester. A Framework for Narrative Adaptation in Interactive Story-Based Learning Environments. *Proceedings of the Third Workshop on Intelligent Narrative Technologies (INT3)*, Monterey, California, 2010.

49. S. Lee, B. Mott, and J. Lester. Investigating Director Agents' Decision Making in Interactive Narrative: A Wizard-of-Oz Study. *Proceedings of the Third Workshop on Intelligent Narrative Technologies*, Monterey, California, 2010.

50. J. Goth, A. Baikadi, E. Ha, J. Rowe, B. Mott, and J. Lester. Exploring Individual Differences in Student Writing with a Narrative Composition Support Environment. *Proceedings of the NAACL-2010 Workshop on Computational Linguistics and Writing: Writing Processes and Authoring Aids*, pp. 56-64, Los Angeles, 2010.

51. K. Boyer, R. Phillips, E. Ha, M. Wallis, M. Vouk, and J. Lester. Leveraging Hidden Dialogue State to Select Tutorial Moves. *Proceedings of the Fifth NAACL-HLT Workshop on Innovative Use of NLP for Building Educational Applications*, pp. 66-73, Los Angeles, California, 2010.

52. L. Shores, J. Robison, J. Rowe, K. Hoffmann, and J. Lester. Narrative-Centered Learning Environments: A Self-Regulated Learning Perspective. *Working Notes of the 2009 AAAI Fall Symposium on Cognitive and Metacognitive Educational Systems*, pp. 87-92, Arlington, Virginia, 2009.

53. K. Boyer, W. Lahti, R. Phillips, M. Wallis, M. Vouk, and J. Lester. An Empirically Derived Question Taxonomy for Task-Oriented Tutorial Dialogue. *Proceedings of the Second Workshop on Question Generation*, pp. 9-16, Brighton, UK, 2009.

54. J. Rowe, B. Mott, S. McQuiggan, J. Robison, S. Lee, and J. Lester. Crystal Island: A Narrative-Centered Learning Environment for Eighth Grade Microbiology. *Proceedings of the AIED-09 Workshop on Intelligent Educational Games*, pp. 11-20, Brighton, UK, 2009.

55. K. Boyer, E. Ha, R. Phillips, M. Wallis, M. Vouk, and J. Lester. Inferring Tutorial Dialogue Structure with Hidden Markov Modeling. *Proceedings of the Fourth Workshop on Innovative Use of NLP for Building Educational Applications*, pp. 19-26, Boulder, Colorado, 2009.

56. J. Rowe, S. McQuiggan, J. Robison, D. Marcey, and J. Lester. StoryEval: An Empirical Evaluation Framework for Narrative Generation. *Working Notes of the 2009 AAAI Spring Symposium on Narrative Technologies II*, pp. 103-110, Palo Alto, California, 2009.

57. K. Boyer, R. Phillips, M. Wallis, M. Vouk and J. Lester. Learner Characteristics and Feedback in Tutorial Dialogue. *Proceedings of the Third Workshop on Innovative Use of NLP for Building Educational Applications*, pp. 53-61, Columbus, Ohio, 2008.

58. S. McQuiggan, K. Hoffman, J. Nietfeld, J. Robison, and J. Lester. Examining Self-Regulated Learning in a Narrative-Centered Learning Environment: An Inductive Approach to Modeling Meta-Cognitive Monitoring. *Proceedings of the ITS-08 Workshop on Meta-Cognition and Self-Regulated Learning in Educational Technologies*, pp. 51-60, Montreal, 2008.

59. J. Robison, S. McQuiggan, and J. Lester. Differential Affective Experiences in Narrative-Centered Learning Environments. *Proceedings of the ITS-08 Workshop on Emotional and Cognitive Issues in Intelligent Tutoring Systems*, pp. 91-98, Montreal, 2008.

60. J. Rowe, S. McQuiggan, and J. Lester. Narrative Presence in Intelligent Learning Environments. *Working Notes of the 2007 AAAI Fall Symposium on Intelligent Narrative Technologies*, pp. 126-133, Washington, DC, 2007.

61. J. Rowe, S. McQuiggan, B. Mott, and J. Lester. Motivation in Narrative-Centered Learning Environments. *Proceedings of the AIED'07 Workshop on Narrative Learning Environments*, pp. 40-49, Marina del Rey, California, 2007.

62. S. McQuiggan and J. Lester. Leveraging Affect for Narrative-Centered Guided Discovery Learning Environments. *Proceedings of the AIED-07 Workshop on Modeling and Scaffolding Affective Experiences to Impact Learning*, pp. 67-74, Marina del Rey, California, 2007.

63. B. Mott, S. McQuiggan, S. Lee, S. Y. Lee, and J. Lester. Narrative-Centered Learning Environments for Guided Discovery Learning. *AAMAS-06 Workshop on Agent-Based Systems for Human Learning*, pp. 22-28, Hakodate, Japan, 2006.

64. B. Mott, J. Lester, and K. Branting. The Role of Syntactic Analysis in Textual Case Retrieval. *ICCBR-06 Workshop on Textual Case-Based Reasoning*, pp. 120-127, Chicago, IL, 2005.

65. B. Mott, C. Callaway, L. Zettlemoyer, S. Lee, and J. Lester. Towards Narrative-Centered Learning Environments. *Symposium on Narrative Intelligence, AAAI Fall Symposium* Series, pp. 78-82, Cape Cod, MA, 1999.

66. C. Callaway, B. Daniel, J. Lester. Multilingual Natural Language Generation for 3D Learning Environments. *Proceedings of the Argentine Symposium on Artificial Intelligence*, pp. 177-190, Buenos Aires, Argentina, 1999.

67. J. Rickel, L. Johnson, and J. Lester. Why Use an Animated Pedagogical Agent? *AI-ED '99 Workshop on Instructional Uses of Animated and Personified Agents*, pp. 62-69, Le Mans, France, 1999.

68. J. Lester, S. Towns, C. Callaway, and P. FitzGerald. Deictic and Emotive Communication in Animated Pedagogical Agents. *Proceedings of the Workshop on Embodied Conversational Characters*, pp. 67-76, Lake Tahoe, California, 1998.

69. J. Lester, C. Callaway, and S. Towns. Creating Lifelike Behaviors in Animated Pedagogical Agents. *ITS-98 Workshop on Pedagogical Agents*, pp. 27-32, San Antonio, 1998.

70. J. Lester, J. Voerman, S. Towns, and C. Callaway. Cosmo: A Life-like Animated Pedagogical Agent with Deictic Believability. *IJCAI-97 Workshop on Animated Interface Agents: Making Them Intelligent*, pp. 61-69, Nagoya, Japan, 1997.

71. C. Elliott, J. Rickel, and J. Lester. Integrating Affective Computing into Animated Tutoring Agents. *IJCAI-97 Workshop on Animated Interface Agents: Making Them Intelligent*, pp. 113-121, Nagoya, Japan, 1997.

72. J. Lester, C. Callaway, B. Stone, and S. Towns. Mixed Initiative Problem Solving with Animated Pedagogical Agents. *Symposium for Computational Models for Mixed Initiative Interaction, AAAI Spring Symposium Series*, pp. 98-104, Palo Alto, California, 1997.
    Workshop Publication: Also appears in *AI-ED '97 Workshop on Pedagogical Agents*, Eighth World Conference on Artificial Intelligence in Education (AI-ED 97), Kobe, Japan.

73. K. Branting and J. Lester. Justification Structures for Document Reuse. *Working Notes of the Third European Workshop on Case-Based Reasoning*, pp. 76-90, Lausanne, Switzerland, 1996.

74. J. Lester, M. O'Leary, and B. Stone. Animated Pedagogical Agents for Intelligent Edutainment. *AAAI Workshop on Entertainment & AI/A-Life*, pp. 44-49, AAAI-96, Portland, Oregon, 1996.

75. C. Callaway and J. Lester. Robust Natural Language Generation from Large-Scale Knowledge Bases. *Proceedings of the Fourth Bar-Ilan Symposium on Foundations of Artificial Intelligence*, pp. 96-105, Jerusalem, Israel, 1995.

76. J. Lester and B. Porter. The KNIGHT Experiments: Empirically Evaluating an Explanation Generation System. *Symposium for Empirical Methods in Discourse Interpretation and Generation, AAAI Spring Symposium Series*, pp. 74-80, Palo Alto, California, 1995.

77. J. Lester and B. Porter. "Interruption Handling:" Using Dynamic Replanning and Partially Refined Plans to Deal with Users' Interruptions. *AAAI Workshop on Planning for Interagent Communication*, pp. 71-77, AAAI-94, Seattle, Washington, 1994.

78. J. Lester and B. Porter. Designing Multi-Media Knowledge Delivery Systems: The Strong Representation Paradigm. *Symposium for Intelligent Multi-Media Multi-Modal Systems*, AAAI Spring Symposium Series, pp. 64-72, Palo Alto, California, 1994.

79. J. Lester and B. Porter. An Architecture for Planning Multi-Paragraph Pedagogical Explanations. *AAAI Workshop on the Comparative Analysis of Explanation Planning Architectures*, pp. 27-41, AAAI-91, Anaheim, California, 1991.

80. J. Lester and B. Porter. Generating Integrative Explanations: A Delayed-Commitment Approach. *AAAI Workshop on Explanation*, pp. 80-89, AAAI-90, Boston, 1990.

81. Souther, J. Lester, L. Acker, and B. Porter. Accessing Information from a Large-Scale Botany Knowledge Base Designed for Multiple Tasks. *Symposium for AI and Molecular Biology, AAAI Spring Symposium Series*, pp. 141-143, Palo Alto, California, 1990.

82. J. Lester, L. Acker, A. Souther, and B. Porter. Generating Presentations of Domain Knowledge. *Symposium for Knowledge-Based Environments for Learning and Teaching, AAAI Spring Symposium Series*, pp. 41-45, Palo Alto, California, 1990.

Invited Papers

1. L. Johnson and J. Lester. Pedagogical Agents: Back to the Future. *AI Magazine*, 39(2), 33-44, 2018.

2. H. Spires and J. Lester. Game-based Learning: Creating a Multidisciplinary Community of Inquiry. *On the Horizon*, 24(1), 88-93, 2016.

3. J. Lester, E. Ha, S. Lee, B. Mott, J. Rowe, and J. Sabourin. Serious Games Get Smart: Intelligent Game-Based Learning Environments. *AI Magazine*, 34(4), 31-45, 2013.

4. J. Rowe, B. Mott, and J. Lester. Narrative-Centered Learning Environments. In *Encyclopedia of the Sciences of Learning*, Seel, N. (ed.), pp. 2423-2426, Springer, 2011.

5. J. Lester. Reflections on the KVL Tutoring Framework: Past, Present, and Future. *International Journal of Artificial Intelligence in Education*, 16(3), pp. 271-276, 2006.
(Invited Commentary)

6. J. Lester, W. Bares, C. Callaway, and S. Towns. Natural Language Generation Journeys to Interactive 3D Worlds. Invited paper for keynote address, *Proceedings of the Ninth International Workshop on Natural Language Generation*, pp. 2-7, Niagara-on-the-Lake, Ontario, Canada, 1998.

7. J. Lester. Intelligent Virtual Teachers. Invited paper for invited lecture, *Proceedings of Imagina '98*, pp. 148-152, Monaco, 1998.

Additional Publications

1. N. Wang, J. Lester, and S. Basu. *Building Capacity for K-12 Artificial Intelligence Education Research: Workshop 3 Report*, 2022.

2. N. Wang, J. Lester, and S. Basu. *Building Capacity for K-12 Artificial Intelligence Education Research: Workshop 2 Report*, 2022.

3. N. Wang, J. Lester, and S. Basu. *Building Capacity for K-12 Artificial Intelligence Education Research: Workshop 1 Report*, 2021.

4. E. Ozer and J. Lester. Editorial: Innovative Technologies to Improve Adolescent and Young Adult Health. *Journal of Adolescent Health*, 67(2), S3, 2020.

5. J. Roschelle, J. Lester, and J. Fusco (eds.). AI and the Future of Learning: Expert Panel Report. Digital Promise, 2020.

6. D. Boulden, E. Wiebe, B. Akram, O. Aksit, P. Buffum, B. Mott, K. Boyer, and J. Lester. Computational Thinking Integration into Middle Grades Science Classrooms: Strategies for Meeting the Challenges. *Middle Grades Review* 4(3), 2018.

7. P. Buffum, M. Frankosky, K. Boyer, E. Wiebe, B. Mott, and J. Lester. Collaboration and Gender Equity in Game-based Learning for Middle School Computer Science. *IEEE Computing in Science and Engineering*, 18(2), 18-28, 2016.

8. H. Spires, K. Turner, and J. Lester. Twenty-first Century Skills and Game-based Learning. *Proceedings of the World Conference on Educational Multimedia, Hypermedia, and Telecommunications* (ED-MEDIA-08), pp. 5438-5443, Vienna, Austria, 2008.

9. J. Nietfeld, K. Hoffmann, S. McQuiggan, and J. Lester. Self-regulated Learning in a Narrative Centered Learning Environment. *Proceedings of the World Conference on Educational Multimedia, Hypermedia, and Telecommunications* (ED-MEDIA-08), pp. 5322-5327, Vienna, Austria, 2008.

10. R. Moreno, R. Mayer, and J. Lester. Life-Like Pedagogical Agents in Constructivist Multimedia Environments: Cognitive Consequences of Their Interaction. *Proceedings of the World Conference on Educational Multimedia, Hypermedia, and Telecommunications* (ED-MEDIA-2000), pp. 741-746, Montreal, 2000.
    Award: **Outstanding Paper Award**.

11. J. Lester and P. FitzGerald. Animated Pedagogical Agents: The Next Generation of Intelligent Educational Technology. *Design in the Information Age: A Report to the National Science Foundation*, pp. 111-117, 1997.

12. M. Vouk, A. Rindos, S. Woolet, J. Hines, and J. Lester. ATM Technology Enabling Educational Applications Across the North Carolina Information Highway. *Telecom '95*, pp. 519-522, Geneva, Switzerland, 1995.

13. B. Porter, L. Acker, J. Lester, and A. Souther. Generating Explanations in an Intelligent Tutor Designed to Teach Fundamental Knowledge. *Proceedings of the Second Intelligent Tutoring Systems Research Forum*, pp. 55-69, San Antonio, Texas, 1989.

Technical Reports

1. J. Lester. Generating Natural Language Explanations from Large-Scale Knowledge Bases. Computer Science Technical Report TR-94-11, North Carolina State University, 1994.

2. J. Lester and B. Porter. Generating Context-Sensitive Explanations in Interactive Knowledge-Based Systems. AI Laboratory Technical Report AI91-160, University of Texas at Austin, May 1991.

3. B. Porter, J. Lester, K. Murray, K. Pittman, A. Souther, L. Acker, and T. Jones. AI Research in the Context of a Multifunctional Knowledge Base: The Botany Knowledge Base Project. AI Laboratory Technical Report AI88-88, University of Texas at Austin, September 1988.

Dissertation

1. J. Lester. *Generating Natural Language Explanations from Large-Scale Knowledge Bases*, University of Texas at Austin, Austin, Texas, 1994.

Patents

1. S. Leeman-Munk, W. Min, B. Mott, J. Lester, and J. Cox. *Normalizing Electronic Communications Using a Neural-Network Normalizer and a Neural-Network Flagger*. U.S. Patent 9,552,547. Filed: November 2015. Issued: January 2017.

2. J. Lester, L. Zettlemoyer, B. Mott, and W. Bares. *Methods, Systems, and Computer Program Products for Providing Automated Customer Service via an Intelligent Virtual Agent that is Trained Using Customer-agent Conversations*. U.S. Patent 7,305,345. Filed: February 2001. Issued: December 2007.

Lectures

Conference and Workshop Invited Speaker Presentations

1. Invited Lecture, Association of Public & Land-Grant Universities
    The National Science Foundation AI Institute for Engaged Learning

Chicago / Virtual Hybrid, July 2022.

2. Keynote Address, Empowering Learners for the Age of AI
AI-Driven Narrative-Centered Learning Environments for K-12 Education
Virtual, December 2021.

3. Keynote Address, AI in Learning – Shaping the Future
AI and the Future of Education
Virtual, November 2021.

4. Plenary Address, National Academy of Education
AI-Driven Narrative-Centered Learning Environments to Enhance STEM Learning
Virtual, November 2021.

5. Keynote Address, ACM International Conference on Multimedia
AI and the Future of Education
Chengdu, China / Virtual Hybrid, October 2021.

6. Invited Lecture, Indiana University
K-12 Education in the Age of AI
Virtual, March 2021.

7. Keynote Address, University of Florida Informatics Institute Annual Symposium
Intelligent Narrative-Centered Learning Environments
University of Florida, Gainesville, Florida, October 2019.

8. Invited Lecture, Serious Play
Narrative-Centered Learning Environments
George Mason University, Manassas, Virginia, July 2017.

9. Keynote Address, Third International Workshop on Intelligent Digital Games for Empowerment and Inclusion
Narrative-Centered Learning Environments
Held in conjunction with the Twentieth ACM Conference on Intelligent User Interfaces (IUI-2015)
Atlanta, March 2015.

10. Invited Lecture, ICT Workshop on Empirical Research with Pedagogical Agents
From Coaches to Creative Collaborators: Empathic Pedagogical Agents
University of Southern California, Institute for Creative Technologies, Playa Vista, California, October 2014.

11. Keynote Address, Third Workshop on Games and NLP (GAMNLP-2014)
Narrative-Centered Learning Environments
Raleigh, North Carolina, October 2014.

12. Keynote Address, Seventh International Conference on Natural Language Generation (INLG-2012)
Expressive NLG for Next-Generation Learning Environments: Language, Affect, and Narrative
Utica, Illinois, June 2012.

13. Keynote Address, Fourth International Conference on Affective Computing and Intelligent Interaction (ACII-2011)
Affect, Learning, and Delight
Memphis, Tennessee, October 2011.

14. Featured Speaker, Twelfth International Conference on College Teaching and Learning
Panel: *Best Practices in Online Learning*
Jacksonville, Florida, April 2001.

15. Keynote Address, Lifelike Computer Characters ’98
Out of the Lab and into the World: Lifelike Computer Characters Go to School
Snowbird, Utah, October 1998.

16. Keynote Address, Ninth International Workshop on Natural Language Generation

Natural Language Generation Journeys to Interactive 3D Worlds
Niagara-on-the-Lake, Ontario, Canada, August 1998.

17. Invited Lecture, Fifteenth Twente Workshop on Language Technology: Interactions in Virtual Worlds
Natural Language Generation in Multimodal Learning Environments: Lifelike Agents and 3D Animated Explanation Generation
University of Twente, Enschede, The Netherlands, May 1999.

18. Invited Lecture, Imagina: The European Image Technology Event
Organized by Institut National de l'Audiovisuel and the Monte-Carlo Television Festival
Intelligent Virtual Teachers
Monaco, March 1998.

Colloquia

1. Stanford University
The National Science Foundation AI Institute for Engaged Learning
Co-presenter: J. Roschelle
Virtual, May 2022.

2. Williams College
Intelligent Narrative-Centered Learning Environments
Williamstown, Massachusetts, April 2019.

3. East Carolina University
Intelligent Narrative-Centered Learning Environments
Greenville, North Carolina, February 2019.

4. RTI International
Towards Intelligent Narrative-Centered Learning Environments
Research Triangle Park, North Carolina, April 2018.

5. College of Charleston
Intelligent Game-based Learning Environments
Charleston, South Carolina, April 2016.

6. University of Florida
Narrative-Centered Learning Environments
Gainesville, Florida, October 2015.

7. Australian Council for Educational Research (ACER)
Narrative-Centered Learning Environments
Melbourne, Australia, April 2015.

8. University of Melbourne
Narrative-Centered Learning Environments
Melbourne, Australia, April 2015.

9. DePaul University
Narrative-Centered Learning Environments
Chicago, May 2014.

10. Columbia University
Recognizing Students' Goals in Game-Based Learning Environments: A Markov Logic Approach
Co-Presenter: J. Rowe
New York, September 2013.

11. Texas A&M University
Narrative-Centered Learning Environments
College Station, November 2012.

12. IT University of Copenhagen
Narrative-Centered Learning Environments
Copenhagen, Denmark, August 2012.

13. The Concord Consortium
Narrative-Centered Learning Environments
Concord, MA, July 2012.

14. Arizona State University
Narrative-Centered Learning Environments
Tempe, Arizona, January 2012.

15. University of North Carolina at Charlotte
Multimodal Intelligent Tutoring Systems
Charlotte, January 2011.

16. University of North Carolina at Charlotte
Narrative-Centered Learning Environments
Charlotte, November 2010.

17. Carnegie Mellon University
Narrative-Centered Learning Environments
Pittsburgh, April 2010.

18. Carnegie Mellon University
Interdisciplinary Research in 7 (or a Few More) Easy Steps
Pittsburgh, April 2010.

19. University of Texas at Austin
Narrative-Centered Learning Environments
Austin, Texas, March 2010.

20. University of Rochester
Characters, Explanation & Story: Intelligent Media Systems and Narrative Generation for Knowledge-Based Learning Environments
Rochester, NY, November 2002.

21. University of Toronto
Computer Science Distinguished Colloquium Series
Intelligent Multimedia Systems for Knowledge-Based Learning Environments
Toronto, November 2000.

22. MITRE
Lifelike Pedagogical Agents and 3D Animated Explanation Generation for Learning Environments
Washington, DC, September 2000.

23. Northwestern University
Animated Pedagogical Agents and 3D Animated Explanation Generators for Next-Generation Knowledge-Based Learning Environments
Evanston, IL, May 1998.

24. University of Delaware
Animated Pedagogical Agents and 3D Animated Explanation Generators for Next-Generation Knowledge-Based Learning Environments
Newark, Delaware, May 1998.

25. MIT, The Media Laboratory
Learning Environments for the 21st Century: Lifelike Pedagogical Agents, Learner-Centered Virtual Cinematography, and 3D Animated Explanation Generation
Cambridge, MA, April 1998.

26. German Center for Artificial Intelligence Research (DFKI)
Realtime Generation of User- and Task-Sensitive 3D Cinematography & Animated Explanations

Saarbrücken, Germany, March 1998.

27. Information Sciences Institute, University of Southern California
Generating Natural Language Explanations from Large-Scale Knowledge Bases
Marina del Rey, California, May 1996.

28. Southern Methodist University
Generating Natural Language Explanations from Large-Scale Knowledge Bases
Dallas, January 1994.

29. Microelectronics and Computer Technology Corporation (MCC)
Knowledge-Based Natural Language Processing Group
Context-Sensitive Multi-Paragraph Discourse Planning with Large-Scale Knowledge Bases
Austin, March 1992.

30. University of Wyoming
KNIGHT: A Student-Sensitive Discourse Generator for Intelligent Tutoring Systems
Laramie, Wyoming, September 1991.

Other National and International Presentations

1. Empowering Learners for the Age of AI
J. Lester (Panel Chair)
Panel on the National Science Foundation AI Institute for Engaged Learning
Virtual, 2022.

2. Center for Integrative Research in Computing and Learning Sciences – AI in Education Panel
J. Lester (Panelist)
Panel on AI and Student Learning
Virtual, 2020.

3. Adolescent and Young Adult Research Network Strategy Convening
J. Lester
Using Innovative Technology to Promote Adolescent and Young Adult Health: Laying the Groundwork
San Francisco, 2020.

4. Technology, Mind & Society (TMS-2019)
J. Lester (Panelist).
Panel on Reflections on Cyberlearning: Exploring Tensions in the Co-Evolution of Learning Technologies with Advances in Learning Theories and Methods
Washington, DC, 2019.

5. Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC-2018)
J. Lester (Panelist).
Panel on AI Run Amok
Orlando, Florida, 2018.

6. Science of Learning Symposium
J. Lester (Panelist).
Panel on Intelligent Learning Environments
Brisbane, Australia, 2015.

7. NARST Symposium on Big Data and Learning Analytics
J. Lester, E. Wiebe, and A. Smith.
Towards Sketch-based Learning Analytics
National Association for Research in Science Teaching, Chicago, 2015.

8. NSF DRK-12 PI Meeting Session on Navigating to NGSS Success: Identifying a Research Agenda
J. Lester.
The Leonardo Project: Scalable Modeling and Adaptive Guidance in an Intelligent Cyberlearning

Environment for Upper-Elementary Science Education
DRK-12 PI Meeting, Washington, 2014.

9. AERA Symposium on Using Educational Data Mining for Science Inquiry Skill Assessment and Prediction
S. Leeman-Munk, E. Wiebe, and J. Lester.
Mining Student Science Argumentation Text to Inform an Intelligent Tutoring System
American Educational Research Association, San Francisco, 2013.

10. AERA
J. Nietfeld, J. Minogue, H. Spires, and J. Lester.
Girls and Games: Examining the Performance and Self-Regulation of Girls in a Science Gaming Environment
American Educational Research Association, San Francisco, 2013.

11. NCSA Session on So Deeply Embedded, 'Assessment" Disappears: A Report from Two Next Generation Learning Challenge Winners
N. Heffernan, J. Rowe, B. Delaney, C. Heffernan, and J. Lester.
The Crystal Island: Lost Investigation Project
National Conference on Student Assessment, Minneapolis, 2012.

12. AERA Symposium on Advances in Assessing Game-Based Learning
J. Lester, J. Minogue, J. Nietfeld, and H. Spires.
Tracing the Design and Testing of a Game-Based Learning Environment for Upper Elementary Students
American Educational Research Association, Vancouver, 2012.

13. AERA Symposium on Measuring Self-Regulated Learning With Multi-Agent Learning Environments
J. Sabourin and J. Lester.
Self-Regulated Learning in Exploratory Game-Based Learning Environment
American Educational Research Association, Vancouver, 2012.

14. AERA Symposium on Knowing What Students Know and Feel: Innovative Technology-Rich Assessments
J. Rowe, J. Sabourin, and J. Lester.
Affect and Off-Task Behavior in Narrative-Centered Learning Environments
American Educational Research Association, Vancouver, 2012.

15. Cyberlearning Research Summit
Learning and Engagement in Narrative-Centered Learning Environments
National Geographic Society, Washington, D.C., 2012.
CADRE Gaming SIG
Developing Science Problem-solving Skills and Engagement through Intelligent Game-based Learning Environments
Education Development Center, Washington, D.C., 2011.

16. AERA Symposium on Middle-Grades Student Achievement, Engagement, and Experience
H. Spires, L. Hervey, J. Rowe, B. Mott, and J. Lester.
Do Think-Aloud Protocols (TAPs) Lead to Higher Levels of Writing Self-efficacy and Achievement When Sixth Graders Use a Narrative-Centered Learning Environment?
American Educational Research Association, Denver, 2010.

17. AERA Symposium on Affect-Sensitive Learning Technologies
J. Lester, J. Robison, and J. Rowe.
Modeling and Supporting Student Affect in Game-Based Learning Environments
American Educational Research Association, Denver, 2010.

18. AERA Symposium on Recent Advances in the Design of Games That Support Learning
H. Spires, L. Hervey, J. Rowe, B. Mott, and J. Lester.
Effects of Game-Based Performance on Science Learning: A Transactional Theoretical Perspective

American Educational Research Association, Denver, 2010.

19. AERA Symposium on Understanding the Complex Nature of Self-Regulatory Processes During Learning with Computer-Based Learning Environments
J. Lester, S. McQuiggan, J. Nietfeld, K. Hoffmann, J. Robison, H. Spires.
Modeling Metacognitive Monitoring in Narrative-Centered Learning Environments
American Educational Research Association, San Diego, 2009.

20. AERA Symposium on Student Engagement in Middle Grades
H. Spires, L. Hervey, T. Watson, and J. Lester.
Middle Grades Students and Game-Based Learning: Creativity, Engagement, and Writing Achievement
American Educational Research Association, San Diego, 2009.

21. AERA Symposium on Motivation, Affect, and Engagement in Game-Based Learning Environments
J. Lester and S. McQuiggan.
Affect and Motivation in Narrative-Centered Learning Environments
American Educational Research Association, New York, 2008.

22. AERA Symposium on Intelligent Tutoring Systems: What Do We Do Next?
S. McQuiggan and J. Lester.
Motivating Students in the Frustration Window
American Educational Research Association, New York, 2008.

23. AERA Symposium on Animated Pedagogical Agents
J. Lester and P. FitzGerald.
Designing Animated Pedagogical Agents: Foundational Technologies and Theoretical Constructs
American Educational Research Association, New Orleans, 2000.

24. Plenary Session Address, AAAI 2000 Spring Symposium Smart Graphics
Stanford University, March 2000.

25. U.S. Department of Labor Joint Employment & Training Technology Conference
J. Lester and P. FitzGerald.
Animated Pedagogical Agents
Washington, DC, 1996.

26. NIST Workshop on Education and Training Technology
J. Lester and P. FitzGerald.
Animated Pedagogical Agents: The Next Generation of Intelligent Educational Technology
National Institute of Standards and Technology
Washington, DC, 1996.

Courses Taught

Undergraduate Courses

- Introduction to Programming (CSC116): Fall 2005, Spring 2006, Spring 2007, Spring 2008.
- Programming Concepts (CSC210): Fall 1996.
- Data Structures for Computer Scientists (CSC316): Fall 2004, Spring 2006.
- Introduction to Artificial Intelligence (CSC411): Spring 1997, Spring 1999, Spring 2004, Summer 2006, Summer 2007.
- Intelligent Game-Based Learning Environments (CSC495): Spring 2013, Spring 2014, Spring 2016.

Graduate Courses

- Artificial Intelligence I (CSC520): Fall 1994, Fall 1995, Fall 1997, Fall 1998, Fall 1999, Fall 2005, Fall 2006, Fall 2007, Fall 2009.
- Multimedia Interface Design (CSC591D): Fall 1995.
- Knowledge-Based Learning Environments (CSC591E): Fall 1995, Fall 1996.
- Intelligent Game-Based Learning Environments (CSC591): Fall 2010, Spring 2013, Spring 2014, Spring 2016.
- Intelligent Multimedia Systems (CSC725): Fall 1994, Spring 1998, Spring 2001, Spring 2005.
- Natural Language Processing (CSC791T): Fall 2006, Fall 2008.
- Natural Language Dialogue Systems (CSC791J): Fall 2007.

Professional Service

Editorial Leadership

- Guest Editor, *International Journal of Artificial Intelligence in Education*, 28(2), Special Issue on the Generalized Intelligent Framework for Tutoring (GIFT), with R. Sottilare, R. Baker, and A. Graesser, 2018.
- Associate Editor, *International Journal of Artificial Intelligence in Education*, 2016-present.
- Associate Editor, *IEEE Transactions on Affective Computing*, 2014-19.
- Editor-in-Chief, *International Journal of Artificial Intelligence in Education*, 2009-12.
- Guest Editor, *International Journal of Artificial Intelligence in Education*, 2006.
- Guest Editor, *AI Magazine*, Special Issue on Intelligent User Interfaces, Winter 2001.

Editorial Boards

- *International Journal of STEM Education*, 2014-present.
- *Metacognition and Learning*, 2012-2019.
- *Autonomous Agents and Multi-Agent Systems*, 1999-2007.

Steering and Executive Committees

- Steering Committee, *IEEE Transactions on Transactions on Learning Technologies*, 2015-18.
- Steering Committee, *IEEE Transactions on Transactions on Affective Computing*, 2009-12.
- Executive Committee, HUMAINE Association for Affective Computing, 2007-09.
- Steering Committee, International Conference on Intelligent Tutoring Systems, 2004-present.

Conference and Program Committees Chair

- Program Co-Chair, Cyberlearning, 2019.
- Program Chair, International Conference on Foundations of Digital Games (FDG-2013), 2013.
- Program Co-Chair, International Conference on Interactive Digital Storytelling (ICIDS-2011), 2011.

- Conference Co-Chair, International Conference on Intelligent Virtual Agents (IVA-2008), 2008.
- Program Chair, International Conference on Intelligent Tutoring Systems (ITS-2004), 2004.
- Program Chair, International Conference on Intelligent User Interfaces (IUI-2001), 2001.

Conference Special Tracks Chair

- Co-Chair, Cognitive Systems Track, Thirtieth AAAI Conference on Artificial Intelligence (AAAI-2016), 2016.
- Chair, Virtual Agents Track, Tenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2011), 2011.

Conference Area Chair

- Area Chair, Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-2020), 2020.

Proceedings Edited

- Editor (with M. Si, D. Thue, E. André, J. Tanenbaum, and V. Zammitto), *Interactive Storytelling: 4th International Conference on Interactive Digital Storytelling, ICIDS 2011*, Springer, LNCS 7069, 2011.
- Editor (with H. Prendinger and M. Ishizuka), *Intelligent Virtual Agents: Eighth International Conference*, IVA 2008, Springer-Verlag, LNCS 5208, 2008.
- Editor (with R. Vicari and F. Paraguaçu), *Intelligent Tutoring Systems*, Springer-Verlag, LNCS 3220, 2004.

Elected Office

- ACM Special Interest Group on Artificial Intelligence (SIGART) Secretary-Treasurer, 1997-1999.

Conference Organizing Committees

- Interactive Media Strand Co-Leader, Annual Conference for NIH Science Education Projects (SciEd-2022), Washington, 2022.
- Awards Co-Chair, Nineteenth International Conference on Artificial Intelligence in Education (AIED-2018), London, 2018.
- Treasurer, First International Conference on Autonomous Agents (Agents-1997), Marina del Rey, California, 1997.

Symposia, Workshops, and Expert Panels Chaired

- Co-Chair: NSF Workshop 3 on AI-K12
  Workshop: Workshop on AI Education for K-12.
  Venue: Virtual, 2021.
- Co-Chair: NSF Workshop 2 on AI-K12
  Workshop: Workshop on AI Education for K-12.
  Venue: Virtual, 2021.
- Co-Chair, Digital Promise Expert Panel on AI & the Future of Learning, 2020.
  Sponsor: Center for Innovative Research in Cyberlearning (CIRCL).
  Venue: Virtual, 2020.

- Co-Chair: NSF Workshop 1 on AI-K12
  Workshop: Workshop on AI Education for K-12.
  Venue: Los Angeles, 2019.
- Co-Chair, AIED-2019 Workshop on AI Education in K12.
  Venue: Chicago, 2019.
- Co-Chair, AIED-09 Workshop on Question Generation.
  Venue: Brighton, UK, 2009.
- Co-Chair, AIED-97 Workshop on Pedagogical Agents.
  Venue: Kobe, Japan, 1997.

Conference Program Committee Member

- Program Committee: Eighteenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2022), Pomona, California, 2022.
- Program Committee: Twenty-Second ACM International Conference on Intelligent Virtual Agents (IVA-2022), Faro, Portugal, 2022.
- Senior Program Committee: Twenty-Third International Conference on Artificial Intelligence in Education (AIED-2022), Durham, United Kingdom, 2022.
- Senior Program Committee: Fifteenth International Conference on Educational Data Mining (EDM-2022), Durham, United Kingdom, 2022.
- Program Committee: Thirtieth ACM Conference on User Modeling, Adaptation, and Personalization (UMAP-2022), Barcelona/Hybrid, 2022.
- Program Committee: Twelfth International Conference on Learning Analytics & Knowledge (LAK-2022), Virtual, 2022.
- Program Committee: Ninth Annual Conference on Advances in Cognitive Systems (ACS-2021), Virtual, 2021.
- Program Committee: Fourteenth International Conference on Interactive Digital Storytelling (ICIDS-2021), Virtual, 2021.
- Program Committee: Seventeenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2021), Virtual, 2021.
- Program Committee: IEEE Conference on Games (CoG-2021), Virtual, 2021.
- Program Committee: Twenty-Ninth ACM Conference on User Modeling, Adaptation, and Personalization (UMAP-2021), Virtual, 2021.
- Senior Program Committee: Twenty-Second International Conference on Artificial Intelligence in Education (AIED-2021), Virtual, 2021.
- Program Committee: Eleventh International Conference on Learning Analytics & Knowledge (LAK-2021), Virtual, 2021.
- Program Committee: Twentieth ACM International Conference on Intelligent Virtual Agents (IVA-2020), Virtual, 2020.
- Program Committee: Sixteenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2020), Worcester, Massachusetts, 2020.
- Program Committee: Twenty-Eight ACM Conference on User Modeling, Adaptation, and Personalization (UMAP-2020), Genoa, Italy, 2020.

- Senior Program Committee: Thirteenth International Conference on Educational Data Mining (EDM-2020), Ifrane, Moroco, 2020.
- Program Committee: Twenty-First International Conference on Artificial Intelligence in Education (AIED-2020), Ifrane, Moroco, 2020.
- Program Committee: Tenth International Conference on Learning Analytics & Knowledge (LAK-2020), Frankfurt, 2020.
- Program Committee: Twelfth International Conference on Interactive Digital Storytelling (ICIDS-2019), Snowbird, Utah, 2019.
- Program Committee: Fifteenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2019), Atlanta, 2019.
- Program Committee: Seventh Annual Conference on Advances in Cognitive Systems (ACS-2019), Cambridge, Massachusetts, 2019.
- Program Committee: Fifty-Seventh Annual Meeting of the Association for Computational Linguistics (ACL-2019), Florence, 2019.
- Senior Program Committee: Nineteenth ACM International Conference on Intelligent Virtual Agents (IVA-2019), Paris, 2019.
- Program Committee: Twenty-Seventh ACM Conference on User Modeling, Adaptation, and Personalization (UMAP-2019), Larnaca, Cyprus, 2019.
- Senior Program Committee: Fifteenth International Conference on Intelligent Tutoring Systems (ITS-2019), Kingston, Jamaica, 2019.
- Program Committee: Second IEEE International Conference on Artificial Intelligence and Virtual Reality (AVIR-2019), Osaka, 2019.
- Program Committee: Ninth International Conference on Learning Analytics & Knowledge (LAK-2019), Tempe, Arizona, 2019.
- Program Committee: Eleventh International Conference on Interactive Digital Storytelling (ICIDS-2018), Dublin, 2018.
- Program Committee: Fourteenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2018), Edmonton, 2018.
- Senior Program Committee: Eighteenth International Conference on Intelligent Virtual Agents (IVA-2018), Sydney, 2018.
- Program Committee: Twenty-Seventh International Conference on Computational Linguistics (COLING-2018), Santa Fe, 2018.
- Program Committee: IEEE Conference on Computational Intelligence and Games (CIG-2018), Maastricht, 2018.
- Senior Program Committee: Eleventh International Conference on Educational Data Mining (EDM-2018), Buffalo, New York, 2018.
- Senior Program Committee: Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI-2018), Stockholm, 2018.
- Program Committee: Nineteenth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL-2018), Melbourne, 2018.
- Program Committee: 2018 International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2018), Stockholm, 2018.
- Program Committee: Twenty-Sixth ACM Conference on User Modeling, Adaptation, and Personalization (UMAP-2018), Singapore, 2018.

- Program Committee: Nineteenth International Conference on Artificial Intelligence in Education (AIED-2018), London, 2018.
- Senior Program Committee: Fourteenth International Conference on Intelligent Tutoring Systems (ITS-2018), Montreal, 2018.
- Program Committee: Sixteenth Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT-2018), New Orleans, 2018.
- Program Committee: Technology, Mind & Society (TMS-2018), Washington, 2018.
- Program Committee: Thirteenth IEEE Conference on Automatic Face and Gesture Recognition (FG-2018), Xi'an, China, 2018.
- Program Committee: Eighth International Conference on Learning Analytics and Knowledge (LAK-2018), Sydney, 2018.
- Program Committee: Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-2018), New Orleans, 2018.
- Program Committee: Tenth International Conference on Interactive Digital Storytelling (ICIDS-2017), Funchal, Madeira, Portugal, 2017.
- Program Committee: Thirteenth Annual Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2017), Snowbird, Utah, 2017.
- Program Committee: International Conference on Affective Computing and Intelligent Interaction (ACII-2017), San Antonio, 2017.
- Senior Program Committee: Seventeenth International Conference on Intelligent Virtual Agents (IVA-2017), Stockholm, 2017.
- Senior Program Committee: Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI-2017), Melbourne, 2017.
- Program Committee: Eighteenth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL-2017), Saarbrücken, Germany, 2017.
- Program Committee: Twenty-Fifth Conference on User Modeling, Adaptation, and Personalization (UMAP-2017), Bratislava, Slovakia, 2017.
- Senior Program Committee: Eighteenth International Conference on Artificial Intelligence in Education (AIED-2017), Wuhan, China, 2017.
- Senior Program Committee: Tenth International Conference on Educational Data Mining (EDM-2017), Wuhan, China, 2017.
- Program Committee: Twelfth IEEE Conference on Automatic Face and Gesture Recognition (FG-2017), Washington, 2017.
- Program Committee: Fifth Annual Conference on Advances in Cognitive Systems (ACS-2017), Troy, New York, 2017.
- Program Committee: Seventh International Conference on Learning Analytics and Knowledge (LAK-2017), Vancouver, 2017.
- Program Committee: Ninth International Conference on Interactive Digital Storytelling (ICIDS-2016), Los Angeles, 2016.
- Program Committee: Twelfth Annual Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2016), San Francisco, 2016.
- Program Committee: Seventeenth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL-2016), Los Angeles, 2016.

- Program Committee: Fourth Annual Conference on Advances in Cognitive Systems (ACS-2016), Chicago, 2015.
- Senior Program Committee: Sixteenth International Conference on Intelligent Virtual Agents (IVA-2016), Los Angeles, 2016.
- Program Committee: Twenty-Fourth Conference on User Modeling, Adaptation, and Personalization (UMAP-2016), Halifax, 2016.
- Program Committee: Twenty-Fifth International Joint Conference on Artificial Intelligence (IIJCAI-2016), New York, 2016.
- Program Committee: Ninth International Conference on Educational Data Mining (EDM-2016), Raleigh, North Carolina, 2016.
- Senior Program Committee: Thirteenth International Conference on Intelligent Tutoring Systems (ITS-2016), Zagreb, Croatia, 2016.
- Senior Program Committee: 2016 International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2016), Singapore, 2016.
- Program Committee: Eleventh Annual Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2015), Santa Cruz, California, 2015.
- Program Committee: Eighth International Conference on Knowledge Capture (K-CAP-2015), Palisades, New York, 2015.
- Program Committee: Sixteenth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL-2015), Prague, 2015.
- Program Committee: Third Annual Conference on Advances in Cognitive Systems (ACS-2015), Atlanta, 2015.
- Senior Program Committee: Fifteenth International Conference on Intelligent Virtual Agents (IVA-2015), Delft, The Netherlands, 2015.
- Program Committee: Tenth International Conference on the Foundations of Digital Games (FDG-2015), Pacific Grove, California, 2015.
- Program Committee: Fifty-Third Annual Meeting of the Association for Computational Linguistics (ACL-2015) and the Seventh International Joint Conference on Natural Language Processing, Beijing, 2015.
- Program Committee: Twenty-Third Conference on User Modeling, Adaptation, and Personalization (UMAP-2015), Dublin, 2015.
- Senior Program Committee: Seventeenth International Conference on Artificial Intelligence in Education (AIED-2015), Madrid, 2015.
- Program Committee: Third Annual Conference on Advances in Cognitive Systems (ACS-2015), Atlanta, 2015.
- Program Committee: Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-2015), Austin, 2015.
- Program Committee: Tenth Annual Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2014), Raleigh, North Carolina, 2014.
- Senior Program Committee: Fourteenth International Conference on Intelligent Virtual Agents (IVA-2014), Boston, 2014.
- Program Committee: Twenty-Eighth AAAI Conference on Artificial Intelligence (AAAI-2014), Québec City, Québec, Canada, 2014.
- Program Committee: Twenty-Second Conference on User Modeling, Adaptation and Personalization

(UMAP-2014), Aalborg, Denmark, 2014.

- Program Committee: Fifteenth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL-2014), Philadelphia, 2014.
- Senior Program Committee: Twelfth International Conference on Intelligent Tutoring Systems (ITS-2014), Honolulu, Hawaii, 2014.
- Program Committee: Ninth International Conference on the Foundations of Digital Games (FDG-2014), Fort Lauderdale, Florida, 2014.
- Program Committee: Ninth Annual Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2013), Boston, 2013.
- Program Committee: Fifth International Conference on Affective Computing and Intelligent Interaction (ACII-2013), Geneva, Switzerland, 2013.
- Senior Program Committee: Sixteenth International Conference on Artificial Intelligence in Education (AIED-2013), Memphis, 2013.
- Program Committee: Seventh International Conference on Knowledge Capture (K-CAP-2013), Banff, 2013.
- Program Committee: Twenty-First Conference on User Modeling, Adaptation and Personalization (UMAP-2013), Rome, 2013.
- Senior Program Committee: Twelfth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2013), St. Paul, Minnesota, 2013.
- Program Committee: Eighth Annual Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2012), Stanford, 2012.
- Senior Program Committee: Twelfth International Conference on Intelligent Virtual Agents (IVA-2012), Santa Cruz, 2012.
- Program Committee: Thirteenth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL-2012), Seoul, 2012.
- Program Committee: Fiftieth Annual Meeting of the Association for Computational Linguistics (ACL-2012), Jeju, South Korea, 2012.
- Program Committee: Twentieth Conference on User Modeling, Adaptation and Personalization (UMAP-2012), Montreal, 2012.
- Senior Program Committee: Eleventh International Conference on Intelligent Tutoring Systems (ITS 2012), Crete, 2012.
- Program Committee: 2012 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT 2012), Montreal, 2012.
- Senior Program Committee: Eleventh International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2012), Valencia, 2012.
- Program Committee: Fourth IEEE International Conference on Digital Game and Intelligent Toy Enhanced Learning (DIGITEL-2012), Kagawa, Japan, 2012.
- Associate Chair: 2012 ACM International Conference on Intelligent User Interfaces (IUI-2012), Lisbon, 2012.
- Program Committee: Seventh Annual Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-2011), Stanford, 2011.
- Program Committee: Eleventh International Conference on Intelligent Virtual Agents (IVA-2011), Reykjavik, Iceland, 2011.

- Program Committee: International Conference on Affective Computing and Intelligent Interaction (ACII-2011), Memphis, 2011.
- Program Committee: Twenty-Fifth AAAI Conference on Artificial Intelligence (AAAI-2011), San Francisco, 2011.
- Senior Program Committee: Fifteenth International Conference on Artificial Intelligence in Education (AIED-2011), Auckland, New Zealand, 2011.
- Program Committee: Forty-Ninth Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (ACL-HLT-2011), Portland, Oregon, 2011.
- Program Committee: Nineteenth Conference on User Modeling, Adaptation and Personalization (UMAP-2011), Girona, Spain, 2011.
- Program Committee: Sixth International Conference on Knowledge Capture (K-CAP-2011), Banff, 2011.
- Program Committee: International Conference on Intelligent User Interfaces (IUI-2011), Palo Alto, 2011.
- Program Committee: Conference on Empirical Methods in Natural Language Processing (EMNLP-2010), Boston, 2010.
- Senior Program Committee: Tenth International Conference on Intelligent Tutoring Systems (ITS-2010), Pittsburgh, 2010.
- Senior Program Committee: Ninth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2010), Special Track on Virtual Agents, Toronto, 2010.
- Program Committee: Twenty-Fourth AAAI Conference on Artificial Intelligence (AAAI-2010), Atlanta, 2010.
- Program Committee: 2010 International Conference on Intelligent User Interfaces (IUI-2010), Hong Kong, 2010.
- Program Committee: Tenth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL-2010), Tokyo, 2010.
- Program Committee: Tenth International Conference on Intelligent Virtual Agents (IVA-2010), Philadelphia, 2010.
- Program Committee: Eighteenth Conference on User Modeling, Adaptation and Personalization (UMAP-2010), Hawaii, 2010.
- Program Committee: Sixth International Conference on Natural Language Generation (INLG-10), Trim, Ireland, 2010.
- Program Committee: Fifth International Conference on Knowledge Capture (K-CAP-2009), Redondo Beach, California, 2009.
- Program Committee: Twenty-First International Joint Conference on Artificial Intelligence (IIJCAI-2009), Pasadena, California, 2009.
- Program Committee: Eighth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2009), Budapest, Hungary, 2009.
- Program Committee: Ninth International Conference on Intelligent Virtual Agents (IVA-2009), Amsterdam, 2009.
- Program Committee: First IEEE International Conference on Games and Virtual Worlds for Serious Applications (VS-GAMES-2009), Coventry, UK, 2009
- Program Committee: Seventeenth International Conference on Computers in Education, ICCE Conference on AIED/ITS & Adaptive Learning (ICCE AIED/ITS-2009), Hong Kong, 2009.

- Program Committee: 2009 International Conference on Intelligent User Interfaces (IUI-2009), Sanibel Island, Florida, 2009.
- Program Committee: Ninth Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL-2009), London, 2009.
- Senior Program Committee: Ninth International Conference on Intelligent Tutoring Systems (ITS-2008), Montreal, 2008.
- Program Committee: Seventh International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2008), Virtual Agents Special Track, Estoril, Portugal, 2008.
- Senior Program Committee: Sixteenth International Conference on Computers in Education, ICCE Conference on AIED/ITS & Adaptive Learning (ICCE AIED/ITS-2008), Tapei, Taiwan, 2008.
- Program Committee: Second IEEE International Conference on Digital Games and Intelligent Toys Based Education (DIGITEL-2008), Banff, Alberta, 2008.
- Program Committee: Fifth International Conference on Natural Language Generation (INLG-08), Salt Fork State Park, Ohio, 2008.
- Senior Program Committee: Twenty-Second AAAI Conference on Artificial Intelligence (AAAI-2007), Vancouver, 2007.
- Program Committee: Sixth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2007), Honolulu, 2007.
- Program Committee: Seventh International Conference on Intelligent Virtual Agents (IVA-2007), Paris, 2007.
- Program Committee: Thirteenth International Conference on Artificial Intelligence in Education (AIED-2007), Marina del Rey, CA, 2007.
- Program Committee: 2007 International Conference on Intelligent User Interfaces (AIED-2007), Honolulu, 2007.
- Senior Program Committee: Twenty-First National Conference on Artificial Intelligence (AAAI-2006) Boston, 2006.
- Program Committee & Meta-Reviewer: 2006 International Conference on Intelligent User Interfaces (IUI-2006), Sydney, 2006.
- Program Committee: Sixth International Conference on Intelligent Virtual Agents (IVA-2006), Marina del Rey, CA, 2006.
- Program Committee: Fifth International Conference on Entertainment Computing (ICEC-2006), Cambridge, England, 2006.
- Program Committee: Second International Conference on Narrative and Interactive Learning Environments (NILE-2006), Edinburgh, 2006.
- Program Committee: Fifth Joint Conference on Autonomous Agents & Multiagent Systems (AAMAS-2006), Hakodate, Japan, 2006.
- Program Committee: 2005 International Conference on Intelligent User Interfaces (IUI-2005), San Diego, 2005.
- Program Committee: Fifth International Working Conference on Intelligent Virtual Agents (IVA-2005), Kos, Greece, 2005.
- Program Committee: Eighteenth International Conference on Computer Animation and Social Agents (CASA-2005), Hong Kong, 2005.
- Program Committee: Twelfth International Conference on Artificial Intelligence in Education (AIED-2005), Amsterdam, 2005.

- Senior Program Committee: Nineteenth National Conference on Artificial Intelligence (AAAI-2004), San Jose, 2004.
- Program Committee: 2004 International Conference on Intelligent User Interfaces (IUI-2004), Madeira, Portugal, 2004.
- Program Committee: Seventeenth International Conference on Computer Animation and Social Agents (CASA-2004), Geneva, Switzerland, 2004.
- Program Committee: Third International Conference on Entertainment Computing (ICEC-2004), Eindhoven, The Netherlands, 2004.
- Program Committee: Fourth International Conference on Computational Semiotics for Games and New Media (COSIGN-2004), Split, Croatia, 2004.
- Program Committee: Second International Joint Conference on Autonomous Agents & Multiagent Systems (AAMAS-2003), Melbourne, Australia, 2003.
- Program Committee: 2003 International Conference on Intelligent User Interfaces (IUI-2003), Miami, 2003.
- Program Committee: Third International Conference on Computational Semiotics for Games and New Media (COSIGN-2003), Middlesbrough, UK, 2003.
- Program Committee: International Conference of Computers in Education (ICCE-2003), Hong Kong, 2003.
- Program Committee: 2002 International Conference on Intelligent User Interfaces (IUI-2002), San Francisco, 2002.
- Program Committee: First International Joint Conference on Autonomous Agents & Multiagent Systems (AAMAS-2002), Bologna, Italy, 2002.
- Program Committee: Sixth International Conference on Intelligent Tutoring Systems (ITS-2002), Biarritz, France, 2002.
- Program Committee: Second International Conference on Computational Semiotics for Games and New Media (COSIGN-2002), Augsburg, Germany, 2002.
- Senior Program Committee: Fifth International Conference on Autonomous Agents (Agents-2001), Montreal, 2001.
- Program Committee: Joint International Conference on Computers in Education and International Conference on Computer-Assisted Instruction (ICCE/ICCAI-2000), Taipei, Taiwan, 2000.
- Senior Program Committee: Seventeenth National Conference on Artificial Intelligence (AAAI-2000), Austin, 2000.
- Program Committee: Fourth International Conference on Autonomous Agents (Agents-2000), Barcelona, Spain, 2000.
- Program Committee: International Conference on Natural Language Generation (INLG-2000), Mitzpe Ramon, Israel, 2000.
- Program Committee: Fifth International Conference on Intelligent Tutoring Systems (ITS-2000), Montreal, 2000.
- Program Committee: Third International Conference on Autonomous Agents (Agents-1999), Seattle, 1999.
- Program Committee: International Conference on Intelligent User Interfaces (IUI-99), Los Angeles, 1999.
- Program Committee & Organizing Committee: International Conference on Intelligent User Interfaces (IUI-98), San Francisco, 1998.

- Program Committee: Fifteenth National Conference on Artificial Intelligence (AAAI-98), Madison, Wisconsin, 1998.
- Program Committee: Autonomous Second International Conference on Autonomous Agents (Agents-1998), Minneapolis, 1998.
- Program Committee: Fourteenth National Conference on Artificial Intelligence (AAAI-1997), Providence, Rhode Island, 1997.

Symposium and Workshop Program Committee Member

- Program Committee: AAAI Fall Symposium on Cognitive Systems for Anticipatory Thinking, Arlington, Virginia, November 2019.
- Program Committee: EDM-2019 Workshop on EDM & Games: Leveling Up Engaged Learning with Data-Rich Analytics, Montreal, 2019.
- Program Committee: Joint Workshop on Intelligent Narrative Technologies and Intelligent Cinematography and Editing, Edmonton, Canada, 2018.
- Program Committee: Workshop on Intelligent Conversation Agents in Home and Geriatric Care Applications, Stockholm, 2018.
- Program Committee: Thirteenth Workshop on Innovative User of NLP for Building Educational Applications, New Orleans, 2018.
- Program Committee: CHI-2018 Workshop on Data-Driven Educational Game Design, Montreal, 2018.
- Program Committee: Tenth Workshop on Intelligent Narrative Technologies (INT10), Snowbird, Utah, 2017.
- Program Committee: Twelfth Workshop on Innovative User of NLP for Building Educational Applications, Copenhagen, 2017.
- Program Committee: Eleventh Workshop on Innovative Use of NLP for Building Educational Applications, San Diego, 2016.
- Program Committee: ITS-2016 Workshop on Supporting Dynamic Cognitive, Affective, and Metacognitive Processes, Zagreb, Croatia, 2016.
- Program Committee: ITS-2016 Workshop on Affect, Meta-Affect, Data, and Learning, Zagreb, Croatia, 2016.
- Program Committee: ITS-2016 Workshop on Workshop on Intelligent Support for Learning in Groups, Zagreb, Croatia, 2016.
- Program Committee: First International Workshop on Educational Robotics (WONDER-2015), Paris, 2015.
- Program Committee: Eighth Workshop on Intelligent Narrative Technologies (INT8), Santa Cruz, California, 2015.
- Program Committee: AIED-2015 Workshop on Should AI Stay Married to ED?", Madrid, 2015.
- Program Committee: AIED-2015 Workshop on Intelligent Support for Learning in Groups, Madrid, 2015.
- Program Committee: Tenth Workshop on Innovative Use of NLP for Building Educational Applications, Denver, 2015.
- Program Committee: IEEE FG-2015 International Workshop on Context-Based Affect Recognition (CBAR-2015), Ljubljiana, Slovenia, 2015.

- Program Committee: Third Workshop on Games and NLP (GAMNLP-2014), Raleigh, North Carolina, 2014.
- Program Committee: IVA-2014 Workshop on Affective Agents, Boston, 2014.
- Program Committee: Seventh Workshop on Intelligent Narrative Technologies (INT7), Milwaukee, Wisconsin, 2014.
- Program Committee: ITS-2014 Workshop on Intelligent Support for Learning in Groups, Honolulu, Hawaii, 2014.
- Program Committee: ITS-2014 Workshop on AI-supported Education for Computer Science, Honolulu, Hawaii, 2014.
- Program Committee: Second Workshop on Games and NLP (GAMNLP-2013), Boston, 2013.
- Program Committee: Sixth Workshop on Intelligent Narrative Technologies (INT6), Boston, 2012.
- Program Committee: AIED-2013 Workshop on Scaffolding in Open-Ended Learning Environments, Memphis, 2013.
- Program Committee: AIED-2013 Workshop on Simulated Learners, Memphis, 2013.
- Program Committee: AIED-2013 GIFT Workshop on Recommendations for Authoring, Instructional Strategies and Analysis for Intelligent Tutoring Systems (ITS): Toward the Development of a Generalized Intelligent Framework for Tutoring (GIFT), Memphis, 2013.
- Program Committee: AIED-2013 Workshop on Self-Regulated Learning in Educational Technologies: Supporting, Modeling, Evaluating, and Fostering Metacognition with Computer-based Learning Environments, Memphis, 2013.
- Program Committee: AIED-2013 Workshop on AI-supported Education for Computer Science, Memphis, 2013.
- Program Committee: AIIDE-2013 Workshop on AI for Serious Games, Stanford, 2012.
- Program Committee: Fifth Workshop on Intelligent Narrative Technologies (INT5), Stanford, 2012.
- Program Committee: ITS-2012 Workshop on Self-Regulated Learning in Educational Technologies, Crete, 2012.
- Program Committee: ITS-2012 Workshop on Intelligent Support for Learning in Groups, Crete, 2012.
- Program Committee: ITS-2012 Workshop on Emotion in Games for Learning, Crete, 2012.
- Program Committee: NAACL-HLT Workshop on Computational Linguistics for Literature, Montreal, 2012.
- Program Committee: AAMAS-2012 Workshop on Emotional and Empathetic Agents Workshop, Valencia, 2012.
- Program Committee: EC-TEL Workshop on Technology-Enhanced Learning for Math and Science, Palermo, Italy, 2011.
- Program Committee: Thirteenth European Workshop on Natural Language Generation (ENLG-2011), Nancy, France, 2011.
- Program Committee: Fourth Workshop on Intelligent Narrative Technologies (INT4), Stanford, 2011.
- Organizing Committee: AAAI Fall Symposium on Question Generation, Washington, D.C., 2011.
- Organizing Committee: AAAI Fall Symposium on Cognitive and Metacognitive Educational Systems, Washington, D.C., 2010.
- Steering Committee: ITS-2010 Workshop on Question Generation, Pittsburgh, PA, 2010.

- Program Committee: FDG-2010 Workshop on Intelligent Narrative Technologies, Monterey, California, 2010.
- Program Committee: MOG-2010 Workshop on Multimodal Output Generation, Dublin, 2010.
- Organizing Committee: AAAI Fall Symposium on Cognitive and Metacognitive Educational Systems, Washington, D.C., 2009.
- Program Committee: AIED 2009 Workshop on Closing the Affective Loop, Brighton, UK, 2009.
- Program Committee: AIED 2009 Workshop on Educational Games, Brighton, UK, 2009.
- Organizing Committee: NSF Workshop on the Question Generation Shared Task and Evaluation Challenge, Arlington, Virginia, 2008.
- Program Committee: AAAI Spring Symposium on Narrative Technologies II, Stanford, 2008.
- Program Committee: ECAI 2008 Workshop on Integrating Embodied Conversational Agents with Speech and Advanced Dialogue Modeling, Patras, Greece, 2008.
- Program Committee: ITS 2008 Workshop on Emotional and Cognitive Issues in ITS, Montreal, 2008.
- Program Committee: AAAI Fall Symposium on Intelligent Narrative Technologies, Arlington, Virginia, November 2007.
- Program Committee: AAAI 2007 Workshop on Preference Handling for Artificial Intelligence, Vancouver, 2007.
- Program Committee: AAMAS 2007 Workshop on Agent-Based Systems for Human Learning and Entertainment, Honolulu, 2007.
- Program Committee: AIED 2007 Workshop on Narrative Learning Environments, Marina del Rey, CA, 2007.
- Program Committee: First IEEE International Workshop on Digital Game and Intelligent Toy-Enhanced Learning, Jhongli, Taiwan, 2007.
- Program Committee: AAMAS 2006 Workshop on Agent-Based Systems for Human Learning, Hakodate, Japan, 2006.
- Program Committee: AAMAS 2006 Workshop on Agent-Based Human Learning, Hakodate, Japan, 2006.
- Program Committee: ITS 2006 Workshop on Motivation and Affect in Intelligent Tutoring Systems, Jhongli, Taiwan, 2006.
- Program Committee: ITS 2006 Workshop on Teaching with Agents and Robots, Jhongli, Taiwan, 2006.
- Program Committee: AI-ED 2005 Workshop on Motivation, Emotions and Affect in Educational Software, Amsterdam, 2005.
- Program Committee: AI-ED 2005 Workshop on Educational Games as Intelligent Learning Environments, Amsterdam, 2005.
- Program Committee: AAMAS 2005 Workshop on Agent-Based Systems for Human Learning, Utrecht, The Netherlands, 2005.
- Program Committee: Third International Workshop on Narrative and Interactive Learning Environments (NILE-2004), Edinburgh, Scotland, 2004.
- Program Committee: Advanced Visual Interfaces 2004 Workshop on How Human-Like Should an Intelligent Interface Be?, Gallipoli, Italy, 2004.

- Program Committee: Fourth International Working Conference on Intelligent Virtual Agents (IVA-2003), Irsee, Germany, 2003.
- Program Committee: Second International Symposium on Smart Graphics (Smart Graphics 2002), IBM T. J. Watson Research Center, Hawthorne, NY, 2002.
- Program Committee: Second International Workshop on Narrative and Interactive Learning (NILE-2002) Environments, Edinburgh, Scotland, 2002.
- Program Committee: Agents 2001 Workshop on Representing, Annotating, and Evaluating Non-Verbal and Verbal Communicative Acts to Achieve Contextual Embodied Agents, Montreal, 2001.
- Program Committee: First International Symposium on Smart Graphics (Smart Graphics 2001), IBM T. J. Watson Research Center, Hawthorne, NY, 2001.
- Program Committee: AAAI Symposium on Plan Acquisition for Intelligent Software Agents: Learning How to Do Things, Cape Cod, MA, 2000.
- Program Committee: AAAI Fall Symposium on Building Dialogue Systems for Tutorial Applications, Cape Cod, MA, 2000.
- Organizing Committee and Program Committee: Agents 2000 Workshop on Achieving Human-Like Behavior in Interactive Animated Agents, Barcelona, Spain, 2000.
- Program Committee: Agents 2000 Workshop on Communicative Agents in Intelligent Virtual Environments, Barcelona, Spain, 2000.
- Program Committee: INLG-2000 Workshop on Natural Language Generation Workshop on Coherence in Generated Multimedia, Mitzpe Ramon, Israel, 2000.
- Program Committee: AAAI Spring Symposium on Smart Graphics, Stanford, 2000.
- Organizing Committee: IUI-2000 Workshop on Using Plans in Intelligent User Interfaces, New Orleans, 2000.
- Program Committee: AAAI Fall Symposium on Narrative Intelligence, Cape Cod, MA, 1999.
- Program Committee: AI-ED 1999 Workshop on Instructional Uses of Animated and Personified Agents, Le Mans, France, 1999.
- Program Committee: Fifteenth Twente Workshop on Language Technology: Interactions in Virtual Worlds, University of Twente, Enschede, The Netherlands, 1999.
- Program Committee: Agents 1999 Workshop on Communicative Agents: The Use of Natural Language in Embodied Systems, Seattle, 1999.
- Program Committee: ECAI-1998 (European Conference on Artificial Intelligence) Workshop on AI/ALife and Entertainment, Brighton, UK, 1998.
- Program Committee: Fifth International Workshop on Agent Theories, Architectures, and Languages (ATAL-1998), Paris, France, 1998.
- Organizing Committee: AAAI-98 Workshop on Representations for Multi-modal Human-Computer Interaction, Madison, Wisconsin, 1998.
- Organizing Committee and Program Committee: IJCAI-97 Agents Workshop on Animated Interface Agents: Making Them Intelligent, Nagoya, Japan, 1997.
- Program Committee: Fourth International Workshop on Agent Theories, Architectures, and Languages (ATAL-1997), Providence, Rhode Island, 1997.
- Organizing Committee: NIST Workshop on Education and Training Technology, Washington, DC, 1996.

Journal Reviewer

- *British Journal of Educational Technology*, 2022.
- *Computers in Human Behavior*, 2021.
- *Computers & Education*, 2021.
- *International Journal of Computer-Supported Collaborative Learning*, 2020.
- *IEEE Transactions on Affective Computing*, 2020.
- *British Journal of Educational Technology*, 2020.
- *Journal of Research in Science Teaching*, 2020.
- *Computers in Human Behavior*, 2020.
- *Computers & Education*, 2020.
- *Educational Psychology*, 2019.
- *British Journal of Educational Technology*, 2019.
- *International Journal of Human-Computer Studies*, 2019.
- *Computers & Education*, 2019
- *IEEE Transactions on Learning Technologies*, 2019.
- *IEEE Transactions on Learning Technologies*, 2018.
- *IEEE Transactions on Learning Technologies*, 2017.
- *Human-Computer Interaction*, 2017.
- *Artificial Intelligence Review*, 2016.
- *Educational Psychologist*, 2016.
- *IEEE Transactions on Learning Technologies*, 2015.
- *Educational Psychologist*, 2015.
- *IEEE Transactions on Computational Intelligence and AI in Games*, 2015.
- *Artificial Intelligence*, 2014.
- *Human-Computer Interaction*, 2014.
- *Interacting with Computers*, 2014.
- *ACM Transactions on Interactive Intelligent* Systems, 2013.
- *Artificial Intelligence*, 2013
- *International Journal of Artificial Intelligence in Education*, 2013.
- *Human-Computer Interaction*, 2012.
- *IEEE Transactions on Learning Technologies,* 2012.
- *Computer Speech and Language*, 2012.
- *Human-Computer Interaction*, 2011.
- *Presence*, 2011.
- *IEEE Transactions on Learning Technologies*, 2011.

- *International Journal of Human-Computer Studies*, 2011.
- *IEEE Transactions on Affective Computing*, 2011.
- *International Journal of Human-Computer Studies*, 2010.
- *IEEE Transactions on Affective Computing*, 2010.
- *Journal of Multimodal User Interfaces*, 2010.
- *User Modeling and User-Adapted Interaction*, 2010.
- *Journal of Ambient Intelligence and Smart Environments*, 2010.
- *Natural Language Engineering*, 2009.
- *Journal of Media Psychology*, 2009.
- *Journal of Educational Technology & Society*, 2009.
- *IEEE Transactions on Computational Intelligence and AI in Games*, 2009.
- *Autonomous Agents and Multiagent Systems, 2009.*
- *International Journal of Human-Computer Studies, 2009.*
- *IEEE Transactions on Learning Technologies, 2008.*
- *International Journal of Artificial Intelligence in Education, 2008.*
- *Journal of Game Development, 2008.*
- *International Journal of Artificial Intelligence in Education*, 2007.
- *International Journal of Learning Technology, 2007.*
- *Journal of Natural Language Engineering*, 2007.
- *User Modeling and User-Adapted Interaction*, 2006.
- *International Journal of Human-Computer Studies*, 2006.
- *Knowledge-Based Systems*, 2006.
- *Journal of Artificial Intelligence*, 2005.
- *User Modeling and User-Adapted Interaction*, 2005.
- *International Journal of Artificial Intelligence in Education*, 2004.
- *International Journal of Artificial Intelligence in Education*, 2002.
- *Journal for Visualization and Computer Animation*, 2002.
- *Computational Linguistics*, 2001.
- *User Modeling and User-Adapted Interaction*, 2000.
- *International Journal of Artificial Intelligence in Education*, 2000.
- *User Modeling and User-Adapted Interaction*, 1999.
- *AI Communications: The European Journal on Artificial Intelligence*, 1999.
- *International Journal of Human-Computer Studies*, 1999.
- *Autonomous Agents and Multiagent Systems*, 1998.
- *Applied Artificial Intelligence*, 1998.

- *International Journal of Expert Systems*, 1995.

Conference Reviewer

- Eighteenth ACM International Conference on Multimodal Interaction (ICMI-2016), Tokyo, 2016.
- Seventeenth ACM International Conference on Multimodal Interaction (ICMI-2015), Seattle, 2015.
- ACM Conference on Creativity + Cognition, Glasgow, 2015.
- Forty-Ninth Annual Meeting of the Association for Computational Linguistics – Human Language Technologies (ACL-HLT 2011), Portland, Oregon, 2011.
- Annual Meeting of the American Educational Research Association (AERA-2011), New Orleans, 2011.
- Twenty-Third International Conference on Computational Linguistics (COLING-2010), Beijing, China, 2010.
- Eleventh Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT 2010), Los Angeles, 2010.
- Annual Meeting of the American Educational Research Association (AERA-2010), Denver, 2010.
- Twelfth Annual Visualization Symposium (EuroVis-2010), Bordeaux, France, 2010
- National Conference of the North American Association for Computational Linguistics – Human Language Technologies (NAACL-HLT-2009), Boulder, Colorado, 2009.
- 2008 International Conference on Intelligent User Interfaces (IUI-2008), Canary Islands, Spain, 2008.
- Twenty-Fifth SIGCHI Conference on Human Factors in Computing Systems – CHI Notes (CHI-2007), San Jose, 2007.
- Twentieth International Conference on Artificial Intelligence (IJCAI-2007), Hyderabad, India, 2007.
- Nineteenth International Joint Conference on Artificial Intelligence (IJCAI-2005), Edinburgh, 2005.
- Seventeenth Annual ACM Symposium on User Interface Software and Technology (UIST-2004), Santa Fe, 2004.
- Thirty-Ninth Annual Meeting of the Association for Computational Linguistics (ACL-2001), Toulouse, France, 2001.
- National Conference of the North American Association for Computational Linguistics (NAACL-2000), Seattle, 2000.
- Graphics Interface 2000, Montreal, 2000.
- Twenty-sixth International Conference on Computer Graphics and Interactive Techniques (SIGGRAPH-1999), Los Angeles, 1999.
- Twenty-First Cognitive Science Society Conference (CogSci-1999), Vancouver, 1999.
- Third International Conference on the Learning Sciences (ICLS-1998), Atlanta, 1998.
- Fourth International Conference on Intelligent Tutoring Systems (ITS-1998), San Antonio, 1998.
- East-West Conference on Human-Computer Interaction, Moscow, 1995.

Grant Proposal Reviewer – International

- Computer Science Evaluation Group, Natural Sciences and Engineering Research Council of Canada (NSERC), 2010-12.

- UK Engineering and Physical Sciences Research Council, 2011.
- Natural Sciences and Engineering Research Council of Canada: 2009, 2010.
- Natural National Science Foundation of China / Research Grants Council of Hong Kong, 2005.

Grant Proposal Reviewer – US

- National Institutes of Health: 2018 (2 Panels), 2019 (1 Panel), 2020 (1 Panel), 2021 (1 Panel).
- National Science Foundation: 1997 (1 Panel), 1998 (2 Panels), 1999 (1 Panel), 2005 (1 Panel), 2007 (2 Panels), 2008 (2 Panels), 2009 (3 Panels), 2010 (2 Panels), 2011 (7 Panels), 2012 (4 Panels), 2013 (1 Panel), 2014 (1 Panel), 2015 (1 Panel), 2016 (4 Panels), 2017 (1 Panel), 2018 (3 Panels), 2019 (3 Panels), 2020 (4 Panels), 2021 (3 Panels).
- U.S. Army: 2009, 2019.
- National Research Council, 1997.