

# Curriculum Vitae for Prof. Bruce Martin McLaren

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Wikipedia Page: [https://en.wikipedia.org/wiki/Bruce\\_M.\\_McLaren](https://en.wikipedia.org/wiki/Bruce_M._McLaren)

## PROFESSIONAL BIO

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Prof. Bruce M. McLaren is Professor at Carnegie Mellon University, a [past President of the International Society for Artificial Intelligence in Education](#) (2017-2019), and a [current member of the executive committee of the society \(until 2027\)](#). McLaren is passionate about how technology can support education and has dedicated his work and research to projects that explore how students can learn with digital learning games, intelligent tutoring systems, e-learning principles, and collaborative learning technology.

Prof. McLaren has over 200 publications (42 journal articles) to his credit, spanning peer-reviewed journals, conferences, workshops, symposiums and book chapters. McLaren's research with digital learning games, for instance, has shown that middle school students can learn decimals better by playing an Internet-based game than by using more conventional technology (e.g., [IJGBL 2017 paper](#) and see the [Decimal Point project website](#)) and that female students learn more from the game than male students. In 2023 McLaren published a [book chapter](#) on how AI is used in digital learning games. McLaren's research with intelligent tutors investigates [how students learn when presented with erroneous examples](#) in conjunction with intelligent tutors on the Internet. Prof. McLaren has also investigated [how erroneous examples can work synergistically with educational games](#) to help students learn. Additionally, McLaren has conducted a series of experiments investigating [how chemistry students learn](#) with an intelligent tutor and worked examples. Finally, Prof. McLaren has a research interest and experience with collaborative learning and technology for supporting and analyzing collaborative argumentation. Prof. McLaren has researched and developed educational technology using Artificial Intelligence (AI) techniques to help teachers moderate collaborative e-Discussions and online arguments (See the project [LASAD](#)).

Prof. McLaren also has over 20 years of experience in the commercial sector, applying research ideas to practical problems using AI techniques. For instance, as Director of Research at OpenWebs Corporation from 2000 to 2002, he led a group of engineers in the development of an inter-company (B2B) trading product. He was also the project leader of many expert system projects during his 10+ year tenure with Carnegie Group, Inc.

## EDUCATION

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### **Ph.D., Artificial Intelligence (Intelligent Systems Program), 1999**

Dissertation Title: *Assessing the Relevance of Cases and Principles Using Operationalization Techniques*,  
University of Pittsburgh

#### *Ph.D. Committee:*

Prof. Kevin Ashley (chair): Prof. of Intelligent Systems, Senior Scientist at University of Pittsburgh  
Prof. Manuela Veloso: Past President of AAAI; [Herbert A. Simon University Professor Emerita](#)  
Prof. Bruce Buchanan: Past President of AAAI; Retired  
Dr. Martha Pollack: Past President of AAAI; [President of Cornell University](#)  
(Note: All committee members are elected members of the prestigious AAAI Fellows)

### **M.S., Artificial Intelligence (Intelligent Systems Program), 1994**

University of Pittsburgh

**M.S., Computer Science, 1984**

University of Pittsburgh

**B.S., Computer Science, *Cum Laude*, 1981**

Millersville University of Pennsylvania

**SUMMARY OF PROFESSIONAL EXPERIENCE**

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<b>Carnegie Mellon University</b>	Pittsburgh, Pa. Human-Computer Interaction Institute Professor (Promoted in 2024) Associate Research Professor (Promoted in 2015) Senior Systems Scientist (Promoted in 2009) Systems Scientist	<b>June 2003 – Present</b>
<b>Saarland University</b>	Saarbrücken, Germany Center for e-Learning Technology (CeLTech) Adjunct Principal Researcher	<b>Sept. 2010 – June 2013</b>
<b>German Research Center for Artificial Intelligence (Deutsches Forschungszentrum für Künstliche Intelligenz – DFKI)</b>	Saarbrücken, Germany Competence Center for e-Learning Visiting Senior Researcher	<b>July 2006 – Aug 2010</b>
<b>Carnegie Mellon University</b>	Pittsburgh, Pa. Institute for Software Research, International Adjunct Systems Scientist	<b>Sept. 2002 – May 2003</b>
<b>OpenWebs Corporation (Later CarParts Technology)</b>	Pittsburgh, Pa. Director, eCommerce Technologies Director, Research and Development (Promoted 2001) Manager, Intelligent Trading Technologies	<b>May 2000 - Nov. 2002</b>
<b>The IBM Transarc Laboratory</b>	Pittsburgh, Pa. Technical Consultant (Independent)	<b>Mar. 1999 - Feb. 2000</b>
<b>MAYA Design Group</b>	Pittsburgh, Pa. Technical Consultant (Independent)	<b>Aug. 1998 - Feb. 1999</b>
<b>Carnegie Group, Inc.</b>	Pittsburgh, Pa. Project Manager (Promoted in 1996) Senior Engineer	<b>Dec. 1989 - May 1998</b>
<b>Carnegie (U.K.) Limited</b>	Ascot, England Senior Consultant	<b>Sept. 1986 - Dec. 1989</b>
<b>Carnegie Mellon University</b>	Pittsburgh, Pa. Project Supervisor (Promoted in 1986) Research Programmer	<b>Jan. 1985 - Sept. 1986</b>
<b>General Electric</b>	Erie, Pa. Computer Programmer	<b>Oct. 1981 - Dec. 1982</b>

## AWARDS AND RECOGNITION

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- Elected to the Executive Committee of the [International Artificial Intelligence in Education Society \(IAIED\) \(AI-ED Executive Committee\)](#) for a six-year term, 2022-2027
- President - [International Artificial Intelligence in Education Society \(IAIED\)](#) - 2017-2019
- Elected to the Executive Committee of the Artificial Intelligence in Education Society in October 2011, for a six-year term, 2012-2017
- **Best Paper Award**  
**The 18th European Conference on Technology Enhanced Learning (ECTEL 2023), 2023**  
Paper Title: [Evaluating ChatGPT's decimal skills and feedback generation to students' self-explanations in a digital learning game.](#) Nguyen, H., Stec, H., Hou, X., Di, S., & McLaren, B.M. (2023). *Proceedings of Eighteenth European Conference on Technology Enhanced Learning (ECTEL 2023)*.  
<https://doi.org/10.48550/arXiv.2306.16639>.
- **Best Paper Award**  
**The 19th International Conference on Artificial Intelligence in Education (AIED 2018), 2018**  
Paper Title: [Student learning benefits of a mixed-reality teacher awareness tool in AI-enhanced classrooms.](#) Holstein, K., McLaren, B.M. & Alevan, V. (2018). In C. Rosé, R. Martínez-Maldonado, H.U. Hoppe, R. Luckin, M. Mavrikis, K. Porayska-Pomsta, B. McLaren and B. du Boulay (Eds.). *Proceedings of the 19th International Conference on Artificial Intelligence in Education (AIED 2018)*. LNAI 10947 (pp. 154-168). Springer: Berlin.
- **Best Student Paper Award**  
**The 13th International Conference of the Learning Sciences (ICLS '18), 2018**  
Paper Title: [Informing the design of teacher awareness tools through causal alignment analysis.](#) Holstein, K., McLaren, B.M. & Alevan, V. (2018). In J. Kay and R. Luckin (Eds.). *Proceedings of the 13th International Conference of the Learning Sciences (ICLS'18)*. (pp. 104-111).
- **Best Poster Paper Award**  
**The 18th International Conference on Artificial Intelligence in Education (AIED 2017), 2017**  
Paper Title: [Uncovering gender and problem difficulty effects in learning with an educational game.](#) McLaren, B.M., Farzan, R., Adams, D.M., Mayer, R.E., & Forlizzi, J. (2017). In the *Proceedings of the 18th International Conference on Artificial Intelligence in Education (AIED 2017)* held in Wuhan, China.
- **Best Paper Award**  
**The 24th Conference on User Modeling, Adaptation and Personalization (UMAP 2016), 2016**  
Paper Title: [Predicting individual differences for learner modeling in intelligent tutors from previous learner activities;](#) by Eagle, M., Corbett, A., Stamper, J., McLaren, B. M., Baker, R., Wagner, A., MacLaren, B., & Mitchell, A. (2016). In F. Cena, M. Desmarais, D. Dicheva, J. Zhang (Eds.), *Proceedings of the 24th Conference on User Modeling, Adaptation and Personalization (UMAP 2016)*. ACM, New York, NY. (pp. 55-63) ISBN 978-1-4503-4370-1/16/07. DOI: <http://dx.doi.org/10.1145/2930238.2930255>
- **Best Poster Paper Award**  
**The 17th International Conference on Artificial Intelligence in Education (AIED 2015), 2015**  
Paper Title: [Examples are more efficient for learning than high-assistance instructional software;](#) by McLaren, B. M., van Gog, T., Ganoë, C., Yaron, D., & Karabinos, M. In C. Conati, N. Heffernan, A. Mitrovic, & M. F. Verdejo (Eds.), *Proceedings of the 17th International Conference on Artificial Intelligence in Education (AIED 2015)*. LNAI 9112 (pp. 710-713).
- **Best Student Paper Award.** *Adaptive support versus alternating worked examples and tutored problems: Which leads to better learning?* Najar, A.S., Mitrovic, T. & McLaren, B.M. In the *Proceedings of the 21st International Conference on User Modeling, Adaptation and Personalization (UMAP 2014)* held in Aalborg, Denmark, July 7-11, 2014.

- **Finalist for the Best Paper Award.** *Studying the Effects of Personalized Language and Worked Examples in the Context of a Web-Based Intelligent Tutor*; McLaren, B.M., Lim, S., Gagnon, F., Yaron, D., & Koedinger, K. R. In the *Proceedings of the 8th International Conference on Intelligent Tutoring Systems*, Jhongli, Taiwan, June 26-30, 2006.
- **Best Paper Award.** *Toward Tutoring Help Seeking: Applying Cognitive Modeling to Meta-Cognitive Skills* by Aleven, V., McLaren, B.M., Roll, I. & Koedinger, K. R. In the *Proceedings of the 7th International Conference on Intelligent Tutoring Systems (ITS-2004)*. Maceio, Brazil.
- **Most Distinguished Paper Award.** *Reasoning with Reasons in Case-Based Comparisons*; Ashley, K.D. & McLaren, B.M. In the *Proceedings of the First International Conference on Case-Based Reasoning*, 1995, Sesimbra, Portugal. Based on my 1994 Artificial Intelligence Masters project.

## GRANTS

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### Awarded and Active

- *National Science Foundation (NSF), EHR Core Research (ECR)*. PIs: Bruce M. McLaren, Jessica Hammer (Carnegie Mellon University), J. Elizabeth Richey, (University of Pittsburgh), Ryan Baker (University of Pennsylvania), Nicole Else-Quest (University of North Carolina), Jon Star (Harvard University), “Collaborative Research: Investigating Gender Differences in Digital Learning Games with Educational Data Mining,” (CMU Portion: \$1,050,243) Period: 07/01/22 to 06/30/25. (See the [NSF Award Announcement](#); [Read CMU article about this grant](#))
- *National Science Foundation (NSF), BCS - Science of Learning and Augmented Intelligence*. PI: Ido Davidesco (University of Connecticut); Co-PI: Bruce M. McLaren (Carnegie Mellon University), J. Elizabeth Richey (University of Pittsburgh), “NSF-BSF: Utilizing Neurophysiological Measures to Better Understand and Improve Engagement and Learning with Intelligent Tutoring Systems,” (CMU Portion: \$368,873) Period: 07/01/22 to 06/30/25. (See the [NSF Award Announcement](#))
- *National Science Foundation (NSF), Future of Work*. PI: Lee Branstetter; Co-PIs: Bruce M. McLaren, Carolyn Rose, Majd Sakr (Carnegie Mellon University), Michael Rinsem (Community College of Allegheny County), “A New Bridge to the Digital Economy: Integrated AI-Augmented Learning and Collaboration,” (McLaren Portion: \$560,439.93) Period: 09/01/22 to 08/31/25. (See the [NSF Award Announcement](#); [Read CMU article about this grant](#))
- *Richard King Mellon Foundation, Science and Technology Talent Development Program*. PI: Lee Branstetter (CMU); Co-PIs: Bruce M. McLaren (CMU), Carolyn Rose (CMU), Lauren Herckis (CMU), Majd Sakr (CMU), Michael Rinsem (CCAC), "Bridges to Digital Economy Jobs," (Total budget \$350,000; McLearn Lab current allocation: \$29,124), Period: 11/1/23 to 3/31/25

### Pending

- *Google. Google Academic Research Awards 2024*. PI: Bruce M. McLaren (Carnegie Mellon University), “Providing More Effective, Context-Sensitive, and Equitable Hints and Feedback in a Digital Learning Game using a Large Language Model,” Submitted July 17, 2023. Proposed Period: 09/01/24 to 08/31/29.
- *National Science Foundation (NSF), Racial Equity in STEM Education (EHR Racial Equity)*. PI: Leshell Hatley (Uplift); Co-PIs: Bruce M. McLaren, Jessica Hammer (Carnegie Mellon University), Bradley Mott, Jessica Vandenberg, James Lester (North Carolina State University) “Collaborative Research: Creating Equitable Digital Learning Games for Middle School STEM Topics - Supporting Engagement and Learning for Black Youth,” Submitted January 17, 2023. Proposed Period: 07/01/23 to 06/30/28.

### Awarded and Completed

- *Simon Initiative Grant (Internal CMU)*, PI: Huy Nguyen, Co-PI: Bruce M. McLaren, “Examining the Effect of Gender and Game Narrative on Learning and Enjoyment from Digital Learning Games” (\$15,000) Period: 07/01/23 to 06/30/24.
- *National Science Foundation (NSF), EHR Core Research (ECR)*. PIs: Bruce M. McLaren, Ryan Baker (University of Pennsylvania), Jon Star (Harvard University), “Collaborative Research: Using Educational Data Mining Techniques to Uncover How and Why Students Learn from Erroneous Examples,” (CMU Portion: \$914,042) Period: 06/01/17 to 12/31/22. (See the [NSF Award Announcement](#); [Read the CMU HCII article about this grant](#))
- *U.S. Department of Education (IES)*. PI: Vincent Alevan, Co-PIs: Bruce M. McLaren, Steve Ritter (Carnegie Learning, Inc.), “Enhancing Student Learning with an Orchestration Tool for Personalized Teacher-Student Interactions in Classrooms Using Intelligent Tutoring Software,” (\$1,399,754). Period: 07/01/18 to 06/30/22.

- *National Science Foundation (NSF), REAL Program*, PI: Bruce M. McLaren, Co-PIs: Aaron Mitchell, John Stamper, “Knowing What Students Know: Using Educational Data Mining to Predict Robust STEM Learning,” (\$1,487,345). Period: 09/01/14 to 08/31/19. (See the [NSF Award Announcement](#))
- *National Science Foundation (NSF), Cyberlearning Program*, PI: Bruce M. McLaren, “Support for Doctoral Students to Attend the 20th International Conference on Artificial Intelligence in Education (AIED 2019),” (\$20,000). Period: June 2019.
- *Manufacturing Futures Initiative (MFI), Internal CMU Funding from the Mellon Foundation*. PI: Bruce M. McLaren, Co-PI: Sandra DeVincent Wolf, “Generalizing the Framework for the AM Training Tutor to Support Training across Additive Manufacturing Machines,” (\$71,346). Period: 09/01/19 to 11/30/20.
- *Manufacturing Futures Initiative (MFI), Internal CMU Funding from the Mellon Foundation*. PI: Bruce M. McLaren, Co-PI: Matthew Travers, “Training for Mass Production: A Blueprint Project in the Food Industry,” (\$66,087) Period: 09/01/18 to 11/30/19.
- *Simon Initiative, ProSEED*. PI: Lauren Herckis, Co-PI: Bruce M. McLaren, “Deploying Educational Technology with Fidelity: Capitalizing on Research from Biomedicine,” (\$15,000) Period: 07/01/18 to 06/30/20.
- *Manufacturing Futures Initiative (MFI), Internal CMU Funding from the Mellon Foundation*. PI: Sandra DeVincent Wolf, Co-PI: Bruce M. McLaren, “Training in Additive Manufacturing Using Entertainment and Tutoring Technologies,” (\$59,483) Period: 09/01/18 to 08/31/19.
- *National Science Foundation (NSF), Cyberlearning*, PI: Vincent Aleven, Co-PI: Bruce M. McLaren, “EXP: Helping Teachers Help their Students: Teachers’ Use of Intelligent Tutoring Software Analytics to Improve Student Learning,” (\$549,575) Period: 09/01/15 to 08/31/18. (See the [NSF Award Announcement](#))
- *U.S. Department of Education (IES)*, PI: Sandra Katz, Co-PIs: Pamela Jordan, Patricia Albacete, Bruce M. McLaren, “Linking Dialogue and Student Modeling to Create an Enhanced Micro-Adaptive Tutoring System,” (Subcontract: \$571,470). Period: 09/01/15 to 08/31/18. (See the [Department of Education \(IES\) Announcement](#))
- *National Science Foundation (NSF), Small Business Technology Transfer (STTR)*, PI: Bruce M. McLaren, “LOGIC: Linkage Objects for Generalized Instruction in Coding,” (\$77,940) Subaward from Tutorgen, Inc. Period: 01/01/15 to 6/30/16 (with no-cost extension).
- *ProSEED, Simon Seed Grant, Carnegie Mellon University*, PI: Bruce M. McLaren, Co-PI: Mara Harrell, “Can Collaborative Argument Diagramming Improve Students’ Understanding of Argumentation and Ability to Argue?” (\$20,000). Period: 07/01/14 to 08/31/16.
- *Singapore Management University*, PI: Bruce M. McLaren, Co-PI: Ken Koedinger “Intelligent Tutoring for Business Modelling Spreadsheets,” (\$120,000). Period: 01/01/14 to 06/30/15.
- *National Science Foundation (NSF), Transforming STEM Learning (TSL)*, Award No: DRL-1238619. PI: Bruce M. McLaren, Co-PI: Jodi Forlizzi, “Enhancing Mathematics Education with Educational Games: Can Erroneous Examples Help?” (\$510,518). Period: 10/01/12 to 03/31/15. (See the [NSF Award Announcement](#))
- *U.S. Department of Education (IES)*, PI: Michael Timms (WestEd), Co-PIs: Bruce M. McLaren, Douglas Weihnacht “Voyage to Galapagos: Development of a Differentiated Assistance Model in an Inquiry Learning Environment,” (Subcontract amount: \$237,812) Period: 03/01/11 to 02/28/14.
- *National Science Foundation (NSF)* Award No: SBE0354420. PI: Kenneth R. Koedinger, “Pittsburgh Sciences of Learning Center: Robust Learning with Learning Experiments in Real Classrooms.” McLaren was awarded this project under the learning center grant. “Worked Examples, Intelligently-Tutored Problems, Erroneous Examples, and Problems to Solve: Which Materials are Best for Different Levels of Learners?” PI: Bruce M. McLaren, Co-PIs: Dave Yaron, Tamara Van Gog (\$91,714). Period: 01/01/12 to 12/31/13. (See <http://www.cs.cmu.edu/~bmclaren/projects/StoichAd/> and <https://stoichtutor.cs.cmu.edu/>)

- *U.S. Department of Education* (IES), Award No: R305A090460. PI: Bruce M. McLaren, “AdaptErrEx: Exploring the Learning Benefits of Erroneous Examples and Their Dynamic Adaptations Within the Context of Middle School Mathematics,” (\$1,302,928). Period: 09/01/09 to 07/31/13 (including no-cost extension period). (See <http://www.cs.cmu.edu/~bmclaren/projects/AdaptErrEx/>)
- *European Commission, 7th Framework Programme on Research, Technological Development and Demonstration* (FP7-ICT-2009-5), PI: The Hebrew University of Jerusalem (Baruch Schwarz); Co-PIs: Saarland University (Bruce M. McLaren), Researchers from five other European institutions, “METAFORA - Learning to Learn Together: A Visual Language for Social Orchestration of Educational Activities,” (Subcontract amount: 230,000 Euros ≈ \$300,000) Period: 07/01/10 to 10/01/13. (See <http://www.metafora-project.org/>)
- *Deutsche Forschungsgemeinschaft* (DFG, the German Research Foundation), PIs: Bruce M. McLaren, Niels Pinkwart, “Learning to Argue: Generalized Support Across Domains (LASAD)” (Approximate funding over 4 years: 700,000 Euros ≈ \$1,000,000). Period: 11/01/08 to 10/31/12. (Notes: (1) There was an initial grant period of 2 years and then an extension of 2 years based on a new proposal. (2) Unlike U.S. grants, DFG allows equal PIs, as opposed to designating a single PI, so McLaren and Pinkwart are equal PIs.) (See <http://cses.informatik.hu-berlin.de/research/details/lasad/>)
- *Ministry of Education and Science of the Ukraine; National Aerospace University*, PI: Bruce M. McLaren; “Training of Dr. Andriy Chukhray on Intelligent Tutoring Systems and Studies of Learning,” (\$7,716). Period: 11/01/11 to 01/01/2012.
- *U.S. Department of Education* (IES), Award No: R305A080093. PI: Vincent Aleven, Co-PI: Bruce M. McLaren. “Bringing Cognitive Tutors to the Internet: A Website that Helps Middle-School Students Learn Math.” (\$1,490,705). Period: 03/01/08 to 04/30/11. (See <https://mathtutor.web.cmu.edu/>)
- *Deutsche Forschungsgemeinschaft* (DFG, the German Research Foundation), PIs: Erica Melis, Bruce M. McLaren, “Adaptive Learning with Erroneous Examples (ALoE)” (~\$250,000). Period: 09/01/08 to 08/31/10.
- *National Science Foundation* (NSF) Award No: 0627513. PI: Norman Sadeh, Co-PIs: Bruce M. McLaren, Lorrie Cranor, Ljudevit Bauer, and Jason Hong, “CT-T: User-Controllable Security and Privacy for Pervasive Computing.” (\$1,968,217). Period: 09/01/06 to 08/31/10.
- *Office of Naval Research* (ONR) Award No: N000140310220. PI: Kenneth R. Koedinger, Co-PIs: Neil Heffernan, Bruce M. McLaren, and Vincent Aleven. “Demonstrating Affordable Behavioral Modeling with CTAT Through Machine Learning and Human-Computer Interaction Techniques.” (\$887,362). Period: 12/01/05 to 11/30/08. (See <http://ctat.pact.cs.cmu.edu/>)
- *European Commission, Sixth Framework Programme IST – Technology-Enhanced Learning* (STREP Contract No. 027728), PI: The Hebrew University of Jerusalem; Co-PIs: DFKI (Bruce M. McLaren), Researchers from five other European institutions, “ARGUNAUT – An Intelligent Guide to Support Productive Online Dialogue,” Period: 12/01/05 to 08/31/08.
- *National Science Foundation* (NSF) Award No: SBE0354420. PI: Kenneth R. Koedinger, “Pittsburgh Sciences of Learning Center: Robust Learning with Learning Experiments in Real Classrooms.” Period: 10/01/04 to 09/30/14. McLaren was awarded the following learning center projects under this grant.
  - “Worked Examples, Intelligently-Tutored Problems, Erroneous Examples, and Problems to Solve: Which Materials are Best for Different Levels of Learners?,” PI: Bruce M. McLaren, Co-PIs: Dave Yaron, Tamara van Gog (\$141,700). Period: 12/01/12 to 12/31/13. (See <https://stoichtutor.cs.cmu.edu/>)
  - “Exploring the Assistance Dilemma and Robust Learning in the Context of the Stoichiometry Tutors,” PI: Bruce M. McLaren, Co-PIs: Dave Yaron, Ken Koedinger (\$83,266). Period: 01/01/08 to 09/30/09. (See <https://stoichtutor.cs.cmu.edu/>)
  - “CTAT: Start-to-Finish Creation of Computer-Based Tutors Without Programming,” PI: Vincent Aleven, Co-PIs: Bruce M. McLaren, Jonathan Sewall (\$598,990). Period: 10/01/07 to 09/30/09. (See <http://ctat.pact.cs.cmu.edu/>)

- “Supporting Conceptual Learning in Chemistry through Collaboration Scripts and Adaptive, Online Support,” PI: Bruce M. McLaren, Co-PIs: Nikol Rummel, Andi Harrer, Hans Spada, Niels Pinkwart (\$169,122). Period: 01/01/07 to 06/30/08.
- “Improving Algebra Learning and Collaboration through Collaborative Extensions to the Algebra Cognitive Tutor,” PI: Bruce M. McLaren, Co-PIs: Nikol Rummel, Mindy Kalchman, Hans Spada (\$503,500). Period: 01/01/05 to 12/31/07.
- “CTAT: Authoring Tools and Services for Computer-Based Tutors in LearnLab Experiments and Courses,” PI: Vincent Aleven, Co-PIs: Bruce M. McLaren, Jonathan Sewall, John laPlante (\$428,528). Period: 10/01/06 to 09/30/07. (See <http://ctat.pact.cs.cmu.edu/>)
- “Studying the Learning Effect of Personalization and Worked Examples in the Solving of Stoichiometry Problems,” PI: Bruce M. McLaren, Co-PIs: Dave Yaron, Ken Koedinger (\$44,842). Period: 08/01/05 to 12/31/05. (See <https://stoichtutor.cs.cmu.edu/>)
- “CTAT: Tools to Author Intelligent and Pseudo-Intelligent Tutors: A PSLC Enabling Technology Proposal,” PI: Vincent Aleven, Co-PIs: Bruce M. McLaren, Jonathan Sewall (\$785,167). Period: 10/01/04 to 09/30/06. (See <http://ctat.pact.cs.cmu.edu/>)



## INVITED PRESENTATIONS

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- Keynote speaker for the 11th International Conference on e-Learning and e-Teaching (ICeLeT 2024), Focusing on Technology Enhanced Learning. Title of talk: "A Decade with Decimal Point: How a Digital Learning Game Became a Research Platform," (Virtual Presentation) Isfahan, Iran. February 27, 2024 [ [See announcement](#) ] [ [Watch the keynote presentation](#) ]
- David Guralnick interviews Bruce McLaren about digital learning games at the The Learning Ideas Conference 2023 [ [See the interview](#) ]
- Invited lecture - Harvard University; Harvard Graduate School of Education course 'Artificial Intelligence in Education,' "How AIED Digital Learning Games Have Made an Impact on Education and How They Could Do Much More," October 17, 2022 [ [See announcement](#) ]
- Invited talk - University of Bari, Bari, Italy, "Learning with AI-Infused Digital Learning Games", May 24, 2022 [ [See announcement](#) ]
- Keynote speaker for the 2021 IEEE International Conference on Engineering, Technology, and Education (TALE 2021), Wuhan, China, "How AIED Digital Learning Games Have Made an Impact on Education and How They Could Do Much More," December 6, 2021 [ [Watch the keynote presentation](#) ]
- Keynote speaker for the Australian Learning Analytics Summer Institute 2019 (ALASI 2019), the University of Wollongong, Australia, "Bridging Education, Design, Learning Technology and Learning Analytics: Leveraging Multidisciplinarity in Striving for the Classroom of the Future", November 28, 2019 [ [Watch the keynote presentation](#) ]
- Invited talk – International Congress on Cognitive Science in the Classroom, Paris, France, "Advanced Technology for Learning in the Classroom", March 29, 2019 Sponsored by UNESCO [ [Watch the invited talk](#) ]
- Keynote speaker for e-Learning Korea 2018, Seoul, South Korea, "Classroom Orchestration: How Innovation and Artificial Intelligence are Impacting Education and Teaching", September 14, 2018 [ [Watch the keynote presentation](#) ]
- Presentation at CHI 2018 (Montreal, Canada) of the paper titled "Educational Game and Intelligent Tutoring System: A Classroom Study and Comparative Design Analysis." McLaren stepped in for Vincent Alevan and Yanjin Long to give this talk comparing an ITS and an educational game. [ [Watch the talk](#) ]
- Invited talk - Universidad Técnica Federico Santa María, Valparaíso, Chile, "Addressing the Challenges of Education in a Technological World: How Learning Science is Leading the Way", December 26, 2017 [ [See announcement](#) ]
- Invited talk - East China Normal University (ECNU), Shanghai, China, "Learning with Educational Games and Educational Technology Education at Carnegie Mellon University", March, 2017 [ [See announcement](#) ]
- Keynote speaker at the 24th International Conference on Computers in Education IIT, Bombay India, "Learning With Educational Games: Is it Just Hype or Supported by Evidence?" Nov 30, 2016 [ [See announcement](#) ] [ [Watch the keynote presentation](#) ]
- Invited talk - Texas A&M, "How the Networked World, Our Understanding of Collaborative Learning, and Advanced Technology are Converging for New Learning Opportunities." [http://mediamatrix.tamu.edu/streams/523269/Frontier\\_Lecture\\_Series\\_-\\_4](http://mediamatrix.tamu.edu/streams/523269/Frontier_Lecture_Series_-_4). November 12, 2014
- Invited Speaker – Wiley Faculty Network – Talks on adaptive educational technology and collaborative learning technology: Three talks - March 13, 2014, March 10, 2014, December 2, 2013.
- Keynote Speaker – 5<sup>th</sup> International Conference on Computer Supported Education (CSEDU 2013) in Aachen, Germany, "The Educational Software Gold Rush: How the Learning Sciences and Advanced Technology Can Lead the Way", May 2013. *Watch the presentation:* <http://vimeo.com/insticc/review/80464552/8977e188e6>

- Invited talk - University of Sydney, School of Information Technologies, Basser Seminar Series. Sydney, Australia “Supporting Collaborative Learning and E-Discussions Using Artificial Intelligence Techniques,” (<http://sydney.edu.au/engineering/it/research/news/mclaren.shtml>) April 3, 2013
- Invited talk - University of Canterbury, Department of Computer Science and Software Engineering Symposium Lecture. Christchurch, New Zealand, “Supporting Collaborative Learning and E-Discussions Using Artificial Intelligence Techniques,” (<http://www.cosc.canterbury.ac.nz/open/seminars/open/abstracts/496.html>) March 20, 2013
- Invited talk - Millersville University's Department of Computer Science Fall 2012 Symposium Lecture, “The Educational Software Gold Rush: How Can the Learning Sciences Help?” (<http://cs.millersville.edu/activities/symposium/fall2012>) November 26, 2012
- CSCL-2009 symposium “The Assistance Dilemma in CSCL,” Rhodes, Greece, June 2009. Talk titled “Adapting Assistance to the Student(s): Preliminary Ideas from Individual and Collaborative Computer-Supported Learning Contexts.”
- Kaleidoscope Symposium, Oberhausen, Germany, July 2006. Title of talk: “The Pittsburgh Science of Learning Center: Learning Studies and Technology in Actual Classroom Settings.”
- GE Research, Albany, New York, February 2003.
- Robert Gordon University, Aberdeen, Scotland, February 2003.
- Fraunhofer Institute, Berlin, Germany, February 2003.
- University of Edinburgh, Edinburgh, Scotland, February 2003.

## PARTICIPATION WITH ACADEMIC ORGANIZATIONS, CONFERENCES, WORKSHOPS, SEMINARS, AND JOURNALS

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- Past President - [International Artificial Intelligence in Education Society](#) (Vote in December 2015, for the years 2017-2019)
- Re-Elected to the Executive Committee of the International Artificial Intelligence in Education Society ([IAIED Executive Committee](#)) in November 2021, for a six-year term, 2022-2027.
- Conference Co-Chair of the 16<sup>th</sup> International Conference on Computer Supported Education (CSEDU 2024), May 2024.
- Conference Co-Chair of the 15<sup>th</sup> International Conference on Computer Supported Education (CSEDU 2023), April 2023.
- Conference Co-Chair of the [14th International Conference on Computer Supported Education \(CSEDU 2022\)](#). Online Streaming Event, April 2022.
- Conference Co-Chair of the [20th International Conference on Artificial Intelligence in Education \(AIED 2019\)](#), Chicago, Illinois, June 2019.
- Conference Co-Chair of the [19th International Conference on Artificial Intelligence in Education \(AIED 2018\)](#). London, England, June 2018.
- Program Co-Chair of the [10th International Conference on Computer Supported Education \(CSEDU 2018\)](#). Madeira, Portugal, March 2018.
- Conference Chair of the [9th International Conference on Computer Supported Education \(CSEDU 2017\)](#). Porto, Portugal, April 2017.
- Honorary Conference Chair of the [8th International Conference on Computer Supported Education \(CSEDU 2016\)](#). Rome, Italy, April 2016.
- On the Editorial Board of the [International Journal of Artificial Intelligence in Education \(IJAIED\)](#)
- On the Editorial Board of the [Journal of Educational Data Mining \(JEDM\)](#) since November 2008.
- Elected to the Executive Committee of the International Artificial Intelligence in Education Society in October 2011, for a six-year term, 2012-2017.
- Conference Co-Chair of the 7<sup>th</sup> International Conference on Educational Data Mining (EDM-2014) held in London, England, July 2014.
- Co-Chair, Poster Organization of the 16<sup>th</sup> International Conference on Artificial Intelligence in Education (AIED 2013), Memphis, July 2013.
- Co-Chair, Local Organization of *Intelligent Tutoring Systems 2010 (ITS-2010)*, Pittsburgh, June 2010.
- Workshop Chair for the *Fifth International Conference on Electronic Commerce (ICEC 2003)*, Pittsburgh, PA - October 1-3, 2003.
- Journal Contributions:
  - Co-Editor, along with Sergey Sosnovsky and Vincent Aleven: *Landmark Learning Systems and New Ideas and Developments in Mathematics and Science Learning* published as two special issues (Part 1 and Part 2) of the *International Journal of Artificial Intelligence in Education (IJAIED)* in 2014.
  - Co-Editor, along with Bert Bredeweg and Gautum Biswas of: *Learning Systems for Science and Technology Education*. Published by *IEEE Transactions on Learning Technologies (TLT)* as a Special Section, JULY-SEPTEMBER 2013 (Vol. 6, No. 3) pp. 194-196 © IEEE Computer Society.
  - Co-Editor, along with Niels Pinkwart, e-Book: *Educational Technologies for Teaching Argumentation Skills*, to be published in 2012 by Bentham Science Publishers.

- On the Editorial Board of the *Journal of Educational Data Mining (JEDM)* since November 2008.
- Co-Organizer of the following workshops and seminars:
  - Workshop: “Intelligent Support for Exploratory Environments: Exploring, Collaborating, and Learning Together” Part of ITS-2012, Crete, Greece, June 2012. (Co-Organizers: Toby Dragon, Manolis Mavrikis, Sergio Gutiérrez Santos)
  - Seminar on *Technology-Enhanced Learning for Mathematics and Science (TELMAS): Landmark Research and New Contributions*. Part of EC-TEL 2011, Palermo, Italy, September 21, 2011. (Co-Organizers: Sergey Sosnovsky, Christoph Igel, Joerg Siekmann)
  - Workshop: “CSCL Argumentation Systems: How Do Empirical Results and Emerging Technologies Inform System Development?” Part of CSCL 2009, Rhodes, Greece, June, 2009. (Co-Organizers: Niels Pinkwart, Oliver Scheuer, Frank Loll)
- On program committee and/or reviewer for the following conferences and workshops:
  - AIED-2024 (Senior program member), AIED-2023 (Senior program member), AIED-2022 (Senior program member), CHI 2020, AIED-2019, AIED-2018, AIED-2015 (Senior program member), AIED-2013 (Senior program member), LAK-2013, CSEDU-2013, EDM-2012, Workshop *Intelligent Support for Learning in Groups* (ITS-2012), AIED-2011, CSCL-2011, FLAIRS-2009 *Special Track on Artificial Intelligence Education*, AIED-2009, EDM-2008, FLAIRS-2008 *Special Track on Intelligent Tutoring Systems*, *Workshop on Intelligent Tutoring Systems in Ill-Defined Domains* (ITS-2008), AIED-2007, ECCBR-2006, IJCAI-2005, ICCBR-2005, *Second Workshop on Agent-based Computing for Enterprise Collaboration* (ACEC), ECCBR-2004, ICCBR-2003, AAAI-2002 *Workshop on Agent-Based Technologies for B2B E-Commerce*, ICCBR-2001

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## ADVISEES

- **Post-Docs:** Dr. Mahboobeh Mehrvarz (2023-Present); Dr. Michael Mogessie Ashenafi (2018-2020); Dr. J. Elizabeth Richey (2018-2019); Dr. Irene-Angelica Chounta (2016-2018); Dr. Toby Dragon (2011-2013); Dr. Seiji Isotani (2009-2011)
- **PhD Students:** Huy Nguyen (Carnegie Mellon University HCII, PhD 2024, co-advisor); Ken Holstein (Carnegie Mellon University HCII, PhD 2019, co-advisor); Oliver Scheuer (Saarland University PhD 2015, co-advisor); Amir Najjar (University of Canterbury, PhD completed in 2014, co-advisor); Marieke Peeters (Utrecht University, PhD completed in 2014, on committee); Dimitra Tsovaltzi (Saarland University, PhD completed in 2010, on committee)
- **Master’s Students:** Anahuac Valero (Saarland University 2013); Ugur Kira (Saarland University 2012); Hina Minzur (Saarland University 2011); Alexander Borek (Karlsruhe Institute of Technology 2009); Jan Mikšátko (Charles University 2007)

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## PUBLICATIONS

Author or co-author of over 200 journal articles, conference papers, and book chapters.

See <https://www.cs.cmu.edu/~bmclaren/publications.html> for details.

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## PERSONAL ACHIEVEMENTS

- Hiked the entire Appalachian Trail, Georgia to Maine, over 2,000 miles in length, in 1989.

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## REFERENCES

- Available upon request or accessible at <http://www.cs.cmu.edu/~bmclaren/references.html>.