

Stephen G. Ware, Ph.D.

<http://cs.uky.edu/~sgware> sgware@cs.uky.edu Last updated April 22, 2026

Biography

Stephen is an Associate Professor in the Department of Computer Science at the University of Kentucky, where he directs the Narrative Intelligence Lab and teaches courses on artificial intelligence and game development.

He uses AI to model interactive stories in virtual environments like video games and training simulations. Virtual reality experiences are more effective when the simulated characters adapt to accommodate the player's choices. Stephen works on strong story narrative planning systems (contrasted with emergent story systems) which quickly consider millions of hypothetical futures to find optimal stories given the experience designer's aesthetic and pedagogic goals.

His work has earned six best paper awards and been nominated for two more. Since 2014, he has participated in over \$3 million in sponsored federal, state, and local research, including a CAREER award from the U.S. National Science Foundation. He has published over 50 peer-reviewed papers. According to Google Scholar, his h-index is 17 and his work receives over 120 citations a year. He referees for the *IEEE Transactions on Games* journal and has served as an organizer or program committee member for top conferences in his field, including AIIDE, CoG, IVA, ICIDS, FDG, AAAI, and IJCAI.

Employment

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| Associate Professor with Tenure University of Kentucky Department of Computer Science | Summer 2023 to present |
| Consultant Disney Research Studios, Zürich | Summer 2022 to Spring 2023 |
| Assistant Professor University of Kentucky Department of Computer Science | Fall 2019 to Summer 2023 |
| Assistant Professor University of New Orleans Department of Computer Science | Fall 2014 to Summer 2019 |
| Instructor, Research Assistant, and Teaching Assistant North Carolina State University Department of Computer Science | Fall 2008 to Spring 2014 |
| Software Engineer Intern DAXCO Inc. Birmingham, AL, USA | Summer 2007 |

Education

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| Doctor of Philosophy in Computer Science, North Carolina State University Thesis: <i>A Plan-Based Model of Conflict for Narrative Reasoning and Generation</i> | June 2014 |
| Master of Science in Computer Science, North Carolina State University GPA 4.0 / 4.0 | May 2011 |
| Bachelor of Science in Computer Science and Philosophy, Loyola University New Orleans Summa cum laude with university honors, GPA 4.0 / 4.0 | May 2008 |

Awards

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| Best Paper: <i>Speeding Up Narrative Planning Using Fog of War Pruning</i> 21 st AAAI conference on Artificial Intelligence and Interactive Digital Entertainment | November 2025 |
| Best Paper: <i>Language Models as Narrative Planning Heuristics</i> Foundations of Digital Games conference | April 2025 |
| Best Student Paper: <i>A Model for Automating the Abstraction of Planning Problems in a Narrative Context</i> 20 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment | November 2024 |
| Best Program Committee Member 19 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment | October 2023 |
| Early Career Creativity, Research, and Scholarship Award Univeristy of New Orleans | January 2019 |
| Best Program Committee Member 13 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment | October 2017 |
| Faculty Distinguished Research Award University of New Orleans Honors Program | April 2017 |
| Region 1 Postsecondary Teacher of the Year Louisiana Association of Computer Using Educators | December 2016 |
| Best Student Paper: <i>Glaive: A State-Space Narrative Planner Supporting Intentionality and Conflict</i> 10 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment | October 2014 |
| Best Paper: <i>Achieving the Illusion of Agency</i> International Conference on Interactive Digital Storytelling | July 2012 |
| Best Student Paper on a Cognitive Science Topic: <i>Indexer: A Computational Model of the Event-Indexing Situation Model for Characterizing Narratives</i> Computational Models of Narrative workshop | May 2012 |
| Outstanding Teaching Assistant North Carolina State University Graduate Student Association | March 2010 |
| Dean's Fellowship North Carolina State University College of Engineering | August 2009 |
| William T. Cotton Service Award Loyola Univeristy New Orleans | May 2008 |
| Percy A. Roy S.J. Award for Highest Grade Point Average Loyola University New Orleans College of Humanities and Natural Sciences | May 2008 |
| Outstanding Computer Science Major Loyola University New Orleans Department of Mathematics and Computer Science | May 2008 |
| Guy Lemieux S.J. Award for Excellence in Philosophy Loyola University New Orleans Department of Philosophy | May 2008 |
| Ignatian Scholarship Loyola University New Orleans | May 2004 |

Sponsored Research

About \$95,000 in internal grants omitted for brevity.

Supporting Players of Interactive Narrative Games by Recognizing Beliefs, Intentions, Memory, and Expectations, U.S. Army Research Lab August 2024 to August 2027
Principal Investigator / \$503,047 total

Inferring Domain Models to Help Analysts with Belief and Intention Recognition, Laboratory for Analytic Science, U.S. Department of Defense January 2023 to May 2024
Co-Principal Investigator / \$224,993 total / \$101,000 my share

Incentivization and Gamification Techniques to Promote Bedside Teaching During Patient Rounds and Reduce Neurophobia, American Board of Psychiatry and Neurology January 2023 to July 2024
Co-Investigator / \$100,000 total / \$50,000 my share

CAREER: Structured High-Agency Interactive Narratives for Virtual Environments, U.S. National Science Foundation April 2022 to April 2027
Principal Investigator / \$530,369 total

Visualizing and Assisting the Analytic Process, Laboratory for Analytic Science, U.S. Department of Defense January 2022 to December 2023
Co-Principal Investigator / \$182,453 total / \$91,227 my share

Hierarchical Abstract Process Modeling for Analyst Workflow, Laboratory for Analytic Science, U.S. Department of Defense January 2021 to December 2021
Co-Principal Investigator / \$182,453 total / \$91,227 my share

Explainable Interventions for Analyst Workflow, Laboratory for Analytic Science, U.S. Department of Defense January 2020 to December 2020
Co-Principal Investigator / \$182,438 total / \$91,219 my share

CHS: Small: Strong Story Narrative Planning for Authoring Proactive Intelligent Virtual Environments, U.S. National Science Foundation October 2019 to September 2024
Principal Investigator / \$493,256 total

Foreseeing, Recognizing, and Influencing Possible Futures Using Multi-Agent Planning Algorithms, Laboratory for Analytic Science, U.S. Department of Defense January 2019 to December 2019
Principal Investigator / \$80,543 total

CC Network Design: ARCHES (Advanced Research Computing in the Humanities Engineering and Sciences) Network at the University of New Orleans (equipment grant)*, U.S. National Science Foundation July 2017 to July 2019
Co-Principal Investigator / \$335,000 total

EAGER: Planning Believable Narratives by Modeling Agent Beliefs, U.S. National Science Foundation August 2016 to July 2017
Principal Investigator / \$156,969 total

CRII: CHS: Structuring Narratives in Interactive Virtual Environments Using Computational Models of Possible Worlds, U.S. National Science Foundation May 2015 to April 2019
Principal Investigator / \$138,436 total

Creating an Interdisciplinary Digital Media Laboratory (equipment grant), Louisiana Board of Regents Enhancement Program May 2015 to May 2016
Principal Investigator / \$110,042 total

Publications

Refereed Journal Articles

9. R. Farrell and S. G. Ware, "Large language models as narrative planning search guides," *IEEE Transactions on Games*, vol. 17, no. 2, pp. 419–428, 2024
8. A. Shirvani et al., "Personality and emotion in strong-story narrative planning," *IEEE Transactions on Games*, vol. 15, no. 4, pp. 669–682, 2023
7. S. G. Ware et al., "Multi-agent narrative experience management as story graph pruning," *IEEE Transactions on Games*, vol. 15, no. 3, pp. 378–387, 2022
6. M. Siler and S. G. Ware, "Solution density and search strategy in narrative generation," *IEEE Transactions on Games*, vol. 14, no. 4, pp. 715–724, 2022
5. R. Farrell et al., "Manipulating narrative salience in interactive stories using Indexter's Pairwise Event Salience Hypothesis," *IEEE Transactions on Games*, vol. 12, no. 1, pp. 74–85, 2020
4. S. G. Ware and R. M. Young, "Intentionality and conflict in The Best Laid Plans interactive narrative virtual environment," *IEEE Transactions on Computational Intelligence and Artificial Intelligence in Games*, vol. 8, no. 4, pp. 402–411, 2015
3. B. Harrison et al., "A survey and analysis of techniques for player behavior prediction in Massively Multiplayer Online games," *IEEE Transactions on Emerging Topics in Computing Special Issue on MMO Technologies*, vol. 3, no. 2, pp. 260–274, 2014
2. S. G. Ware et al., "A computational model of narrative conflict at the fabula level," *IEEE Transactions on Computational Intelligence and Artificial Intelligence in Games*, vol. 6, no. 3, pp. 271–288, 2014
1. R. M. Young et al., "Plans and planning in narrative generation: A review of plan-based approaches to the generation of story, discourse and interactivity in narratives," *Sprache und Datenverarbeitung, Special Issue on Formal and Computational Models of Narrative*, vol. 37, no. 1-2, pp. 41–64, 2013

Refereed Conference Papers

33. L. Senanayake and S. G. Ware, "Speeding up narrative planning using Fog of War Pruning," in *Proceedings of the 21st AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2025, pp. 121–131, 24% acceptance rate, awarded Best Paper
32. M. Siler and S. G. Ware, "An answer set encoding for narrative planning with theory of mind," in *Proceedings of the 21st AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2025, pp. 132–141, 24% acceptance rate
31. F. N. Khan et al., "Detecting duplicate states is worth it in narrative planning with belief," in *Proceedings of the 21st AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2025, pp. 62–69, 24% acceptance rate
30. M. Siler et al., "Pareto-based narrative planning: Making NPCs more rational," in *Proceedings of the 21st AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, full paper presented as poster, 2025, pp. 337–346, 54% acceptance rate
29. M. Fisher et al., "Structure, agency, and improvisation in human-led digital interactive narrative exercises," in *Proceedings of the 21st AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, full paper presented as poster, 2025, pp. 237–246, 54% acceptance rate
28. G. Birchmeier and S. G. Ware, "Speeding up narrative planning with Causal Width Search and Pruning," in *Proceedings of the 21st AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, full paper presented as poster, 2025, pp. 196–205, 54% acceptance rate

27. L. Senanayake and S. G. Ware, "Language models as narrative planning heuristics," in *Proceedings of the 20th international conference on the Foundations of Digital Games*, 2025, 50% acceptance rate, awarded Best Paper
26. M. Fisher and S. G. Ware, "A model for automating the abstraction of planning problems in a narrative context," in *Proceedings of the 20th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2024, pp. 35–45, 27% acceptance rate, awarded Best Student Paper
25. S. G. Ware et al., "Causal necessity as a narrative planning step cost function," in *Proceedings of the 19th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2023, pp. 155–164, 29% acceptance rate
24. S. G. Ware and R. Farrell, "Salience as a narrative planning step cost function," in *Proceedings of the IEEE Conference on Games*, 2022, pp. 433–440, 44% acceptance rate
23. R. Farrell et al., "Salience vectors for measuring distance between stories," in *Proceedings of the 18th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, full paper presented as poster, 2022, pp. 95–104, 62% acceptance rate
22. S. G. Ware and M. Siler, "Sabre: A narrative planner supporting intention and deep theory of mind," in *Proceedings of the 17th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2021, pp. 99–106, 29% acceptance rate, nomination for Best Paper
21. M. Siler and S. G. Ware, "A good story is one in a million: Solution density in narrative generation problems," in *Proceedings of the 16th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2020, pp. 123–129, 25% acceptance rate, nominated for Best Student Paper
20. R. Farrell and S. G. Ware, "Narrative planning for belief and intention recognition," in *Proceedings of the 16th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2020, pp. 52–58, 25% acceptance rate
19. A. Shirvani and S. G. Ware, "A formalization of emotional planning for strong-story systems," in *Proceedings of the 16th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2020, pp. 116–122, 25% acceptance rate
18. S. G. Ware et al., "Multi-agent narrative experience management as story graph pruning," in *Proceedings of the 15th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2019, pp. 87–93, 25% acceptance rate
17. A. Shirvani and S. G. Ware, "A plan-based personality model for story characters," in *Proceedings of the 15th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, full paper presented as poster, 2019, pp. 188–194, 49% acceptance rate
16. E. T. Garcia et al., "Measuring presence and performance in an intelligent virtual reality police use of force training simulation prototype," in *Proceedings of the 32nd AAAI International Florida Artificial Intelligence Research Society conference*, 2019, pp. 276–281, 52% acceptance rate
15. A. Shirvani et al., "Combining intentionality and belief: Revisiting believable character plans," in *Proceedings of the 14th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, full paper presented as poster, 2018, pp. 222–228, 50% acceptance rate
14. A. Shirvani et al., "A possible worlds model of belief for state-space narrative planning," in *Proceedings of the 13th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2017, pp. 101–107, 25% acceptance rate
13. R. Farrell and S. G. Ware, "Influencing user choices in interactive narratives using Indexter's Pairwise Event Salience Hypothesis," in *Proceedings of the 13th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2017, pp. 37–42, 25% acceptance rate

12. R. Farrell and S. G. Ware, "Causal link semantics for narrative planning using numeric fluents," in *Proceedings of the 13th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, full paper presented as poster, 2017, pp. 193–199, 50% acceptance rate
11. R. Farrell and S. G. Ware, "Fast and diverse narrative planning through novelty pruning," in *Proceedings of the 12th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2016, pp. 37–43, 28% acceptance rate
10. R. Farrell and S. G. Ware, "Predicting user choices in interactive narratives using Indexer's Pairwise Event Salience Hypothesis," in *Proceedings of the 9th International Conference on Interactive Digital Storytelling*, 2016, pp. 147–155, 36% acceptance rate
9. R. Farrell et al., "Asking hypothetical questions about stories using QUEST," in *Proceedings of the 9th International Conference on Interactive Digital Storytelling*, 2016, pp. 136–146, 36% acceptance rate
8. C. Kives et al., "Evaluating the Pairwise Event Salience Hypothesis in Indexer," in *Proceedings of the 11th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2015, pp. 30–36, 28% acceptance rate
7. S. G. Ware and R. M. Young, "Glaive: A state-space narrative planner supporting intentionality and conflict," in *Proceedings of the 10th AAAI international conference on Artificial Intelligence and Interactive Digital Entertainment*, 2014, pp. 80–86, 26% acceptance rate, awarded Best Student Paper
6. R. E. Cardona-Rivera et al., "Foreseeing meaningful choices," in *Proceedings of the 10th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2014, pp. 9–15, 26% acceptance rate
5. M. W. Fendt et al., "Achieving the illusion of agency," in *Proceedings of the 5th International Conference on Interactive Digital Storytelling*, 2012, pp. 114–125, 29% acceptance rate, awarded Best Paper
4. S. G. Ware et al., "Four quantitative metrics describing narrative conflict," in *Proceedings of the 5th International Conference on Interactive Digital Storytelling*, 2012, pp. 18–29, 29% acceptance rate
3. S. G. Ware and R. M. Young, "Validating a plan-based model of narrative conflict," in *Proceedings of the 7th international conference on the Foundations of Digital Games*, 2012, pp. 220–227, 29% acceptance rate
2. S. G. Ware and R. M. Young, "CPOCL: A narrative planner supporting conflict," in *Proceedings of the 7th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2011, pp. 97–102, 35% acceptance rate
1. S. G. Ware and R. M. Young, "Modeling narrative conflict to generate interesting stories," in *Proceedings of the 6th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, full paper presented as poster, 2010, pp. 210–215, 33% acceptance rate

Refereed Workshop and Consortium Papers

12. M. Siler et al., "Designing a modular, scalable benchmark for narrative experience management," in *Proceedings of the joint workshop on Experimental AI in Games and Intelligent Narrative Technologies at the 21st AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2025
11. M. Siler and S. G. Ware, "Structure, agency, and intent: Preliminary data collection," in *Proceedings of the Interactive Narrative Technologies workshop at the 20th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2024
10. M. Fisher et al., "Intelligent de-escalation training via emotion-inspired narrative planning," in *Proceedings of the 13th Intelligent Narrative Technologies workshop at the 18th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2022
9. S. G. Ware and M. Fisher, "Exploring regression-based narrative planning," in *Proceedings of the 12th Intelligent Narrative Technologies workshop at the 16th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2020

8. A. Shirvani and S. G. Ware, "Camelot: A modular customizable sandbox for visualizing interactive narratives," in *Proceedings of the 12th Intelligent Narrative Technologies workshop at the 16th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2020
7. A. Shirvani and S. G. Ware, "On automatically motivating story characters," in *Proceedings of the Experimental AI in Games workshop at the 15th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2019
6. S. G. Ware, "Mutual Implicit Question Answering for shared authorship: A pilot study on player expectations," in *Proceedings of the 10th Intelligent Narrative Technologies workshop at the 13th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2017, pp. 259–265
5. S. G. Ware, "The Intentional Fast-Forward narrative planner," in *Proceedings of the 5th Intelligent Narrative Technologies workshop at the 8th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2012, pp. 57–62
4. R. E. Cardona-Rivera et al., "Indexter: A computational model of the Event-Indexing Situation Model for characterizing narratives," in *Proceedings of the 3rd workshop on Computational Models of Narrative*, 2012, pp. 34–43, awarded Best Student Paper on a Cognitive Science Topic
3. S. G. Ware et al., "Initial results for measuring four dimensions of narrative conflict," in *Proceedings of the 4th Intelligent Narrative Technologies workshop at the 7th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2011, pp. 115–122
2. S. G. Ware, "A computational model of narrative conflict," in *Doctoral Consortium at the 6th international conference on the Foundations of Digital Games*, 2011, pp. 247–249
1. S. G. Ware and R. M. Young, "Rethinking traditional planning assumptions to facilitate narrative generation," in *Proceedings of the AAAI Fall Symposium on Computational Models of Narrative*, 2010, pp. 71–72

Refereed Posters and Extended Abstracts

1. S. G. Ware and M. Siler, "The Sabre narrative planner: Multi-agent coordination with intentions and beliefs," in *Proceedings of the 20th International Conference on Autonomous Agents and Multiagent Systems*, 2021, pp. 1698–1700

Refereed Book Chapters

2. S. G. Ware, "An introduction to Graph Theory," in *Practical Graph Mining with R*, N. F. Samatova et al., Eds., CRC Press, 2013, pp. 9–26. [Online]. Available: <http://www.crcpress.com/product/isbn/9781439860847>
1. B. Harrison et al., "Frequent Subgraph Mining," in *Practical Graph Mining with R*, N. F. Samatova et al., Eds., CRC Press, 2013, pp. 181–221. [Online]. Available: <http://www.crcpress.com/product/isbn/9781439860847>

Refereed Demonstrations

2. B. Samuel et al., "Playable experiences at AIIDE 2018," in *Proceedings of the 14th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2018, pp. 275–280
1. N. R. Sturtevant et al., "Playable experiences at AIIDE 2014," in *Proceedings of the 10th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment*, 2014, pp. 203–209

Non-Refereed Publications

4. S. G. Ware and R. Sanghrajka, "Workshop report: Intelligent Narrative Technologies: The 16th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment," in *Interactive AI Magazine*, 2021

3. S. G. Ware et al., “Interactive narrative planning in The Best Laid Plans,” in *Proceedings of the 25th AAAI conference on Artificial Intelligence, Virtual Agent Demonstrations*, 2015, pp. 4313–4314
2. O. Gown et al., “Reports on the 2012 AIIDE workshops,” *AI Magazine*, vol. 34, no. 1, pp. 90–92, 2012
1. S. G. Ware, *Crossed swords and broken hearts: A computational model of narrative conflict*, North Carolina State University Graduate Research Symposium, 2012

Keynotes and Invited Talks

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| <i>Innovations in Procedural Narrative</i> AI Summit, Game Developers Conference | March 2022 |
| <i>Learning from Mis-Spun Tales</i> Immersive Stories Workshop, Virginia Tech Center for Human-Computer Interaction, Blacksburg, VA, USA | March 2021 |
| <i>Learning from Mis-Spun Tales</i> Disney Research Studios, Zürich, Switzerland | April 2021 |

Panels

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| <i>Benchmarking Interactive Narrative Systems</i> , Panelist 12 th International Conference on Interactive Digital Storytelling, Snowbird, UT, USA | November 2019 |
| <i>Narrative Intelligence in Interactive Storytelling</i> , Panelist 1 st NarraScope Conference, Massachusetts Institute of Technology, Boston, MA, USA | June 2019 |
| <i>Expert Panel</i> , Panelist 5 th International Conference on Interactive Digital Storytelling, Technological Park, San Sebastián, Spain | November 2012 |
| <i>The Near Future of Intelligent Narrative Technologies</i> , Moderator 5 th workshop on Intelligent Narrative Technologies, Stanford University, Palo Alto, CA, USA | October 2012 |
| <i>Two Cultures: Crossing the Divide</i> , Panelist Collaborations: Humanities and Technology Festival, Duke University, Durham, NC, USA | February 2012 |

Teaching

University of Kentucky

CS 660: Topics in Artificial Intelligence (AI for Interactive Narrative)

- Spring 2023: 6 graduate
- Spring 2021: 5 graduate

CS 665: Planning Algorithms

- Spring 2026: 8 graduate
- Spring 2025: 8 graduate (taught as CS 660: Topics in Artificial Intelligence)
- Spring 2024: 10 graduate (taught as CS 660: Topics in Artificial Intelligence)
- Spring 2022: 8 graduate (taught as CS 660: Topics in Artificial Intelligence)
- Spring 2020: 6 graduate, 1 undergraduate (taught as CS 660/585: Topics in Artificial Intelligence)

CS 463G: Introduction to Artificial Intelligence

- Spring 2026: 41 undergraduate
- Spring 2024: 60 undergraduate
- Spring 2023: 65 undergraduate
- Spring 2022: 54 undergraduate
- Fall 2021: 55 undergraduate
- Spring 2021: 45 undergraduate

CS 410G: Introduction to Game Development

- Fall 2024: 40 undergraduate
- Fall 2023: 40 undergraduate
- Fall 2022: 56 undergraduate
- Fall 2020: 34 undergraduate (taught as CS 485G: Special Topics)
- Fall 2019: 55 undergraduate (taught as CS 485G: Special Topics)

CS 217: Introduction to Data Structures

- Spring 2025: 28 undergraduate

University of New Orleans

CSCI 6645: Planning Algorithms in Artificial Intelligence

- Fall 2017: 5 graduate
- Fall 2016: 7 graduate
- Fall 2015: 14 graduate (taught as CSCI 6990: Special Topics)

CSCI 4525 / 5525: Introduction to Artificial Intelligence

- Spring 2019: 12 undergraduate, 9 graduate
- Spring 2018: 18 undergraduate, 7 graduate
- Spring 2017: 11 undergraduate, 6 graduate
- Spring 2016: 17 undergraduate, 3 graduate
- Spring 2015: 19 undergraduate, 14 graduate

CSCI 4675 / 5675: Advanced Game Development

- Spring 2018: 5 undergraduate, 4 graduate
- Spring 2017: 9 undergraduate
- Spring 2016: 7 undergraduate, 3 graduate

CSCI 4670 / 5670: Fundamentals of Game Development

- Fall 2018: 17 undergraduate, 2 graduate
- Fall 2017: 20 undergraduate, 7 graduate
- Fall 2016: 13 undergraduate, 2 graduate
- Fall 2015: 10 undergraduate, 10 graduate
- Fall 2014: 11 undergraduate, 2 graduate

CSCI 1583: Software Design and Development I

- Spring 2019: 14 undergraduate
- Fall 2018: 32 undergraduate

North Carolina State University

CSC 316: Data Structures for Computer Scientists

- Summer 2013: 21 undergraduate

CSC 216: Programming Concepts – Java

- Summer 2009: 12 undergraduate

Service

Funding Panels and Reviews

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| Dutch Research Council The Hague, The Netherlands | December 2020 |
| University of Costa Rica San José, Costa Rica | October 2019 |
| National Sciences and Engineering Research Council of Canada Ottawa, Canada | January 2019 |
| U.S. National Science Foundation, CISE Directorate Arlington, VA, USA | May 2015 |

Journal Referee

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| <i>IEEE Transactions on Games</i> (previously <i>IEEE Transactions on Computational Intelligence and AI in Games</i>) | Since October 2013 |
| <i>Autonomous Agents and Multi-Agent Systems</i> | Since December 2019 |

Conference and Workshop Organization

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| Local Arrangements Chair 20 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment University of Kentucky, Lexington KY, USA | 2024 |
| General Chair 18 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment California State Polytechnic University, Pomona CA, USA | 2022 |
| Program Chair 17 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment Online due to COVID-19 pandemic | 2021 |
| Organizer 12 th workshop on Intelligent Narrative Technologies at 16 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment Online due to COVID-19 pandemic | 2020 |
| Organizer CamJam: Using the Camelot Virtual Environment workshop at the 15 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment Georgia Institute of Technology, Atlanta GA, USA | 2019 |
| Doctoral Consortium Chair 14 th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment University of Alberta, Edmonton, Canada | 2018 |
| Organizer 7 th workshop on Computational Models of Narrative at the Digital Humanities conference Kraków, Poland | 2016 |

5th workshop on Intelligent Narrative Technologies at the 8th AAAI conference on Artificial Intelligence and Interactive Digital Entertainment
Stanford University, Palo Alto, CA, USA

Program Committees

AAAI conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)

- 21st conference, University of Alberta, Edmonton, Canada, November 2025
- 20th conference, University of Kentucky, Lexington, KY, USA, November 2024
- 19th conference, University of Utah, Salk Lake City, UT, USA, October 2023
- 18th conference, California State Polytechnic Univ., Pomona, CA, USA, October 2022
- 17th conference, online due to COVID-19 pandemic, October 2021
- 16th conference, online due to COVID-19 pandemic, October 2020
- 15th conference, Georgia Institute of Technology, Atlanta, GA, USA, October 2019
- 14th conference, University of Alberta, Edmonton, Canada 2018
- 13th conference, Snowbird, UT, USA, October 2017
- 12th conference, Burlingame, CA, USA, October 2016
- 11th conference, Univ. of California Santa Cruz, Santa Cruz, CA, USA, November 2015
- 10th conference, North Carolina State University, Raleigh, NC, USA, October 2014

IEEE Conference on Games (CoG)

- 1st conference, London, United Kingdom, August, 2019

ACM conference on Intelligent Virtual Agents (IVA)

- 15th conference, Delft University of Technology, Delft, The Netherlands, August 2015

International Conference on Interactive Digital Storytelling (ICIDS)

- 13th conference, Bournemouth University, Bournemouth, United Kingdom, November 2020
- 12th conference, Snowbird, UT, USA, November 2019
- 10th conference, Funchal, Madeira, Portugal, November 2017
- 9th conference, Institute for Creative Technologies, Los Angeles, CA, USA, November 2016
- 5th conference, Technological Park, San Sebastián, Spain, November 2012

International conference on the Foundations of Digital Games (FDG)

- 9th conference, Royal Caribbean Liberty of the Seas, April 2014
- 7th conference, Raleigh, North Carolina, USA, May 2012

AAAI conference on Artificial Intelligence (AAAI)

- 36th conference, Vancouver, Canada, February 2022
- 35th conference, online due to COVID-19 pandemic, February 2021
- 32nd conference, New Orleans, LA, USA, February 2018

International Joint Conference on Artificial Intelligence (IJCAI)

- 34th conference, Special Track on AI, Arts and Creativity, Montreal, CA, August, 2025
- 33rd conference, Special Track on AI, Arts, and Creativity, Jeju, S. Korea, August, 2024
- 29th conference, Yokohama, Japan, July 2020
- 26th conference, Melbourne, Australia, August 2017

Experimental AI in Games workshop (EXAG)

- 12th workshop, University of Alberta, Edmonton, Alberta, Canada, November 2025
- 11th workshop, University of Kentucky, Lexington, Kentucky, USA, November 2024
- 9th workshop, California State Polytechnic University, Pomona, CA, USA, October 2022
- 6th workshop, Georgia Institute of Technology, Atlanta, GA, USA, October 2019

Intelligent Narrative Technologies workshop (INT)

- 14th workshop, University of Kentucky, Lexington, KY, USA, November 2024
- 13th workshop, California State Polytechnic Univ., Pomona, CA, USA, October 2022
- 12th workshop, online due to COVID-19 pandemic, October 2020

- 11th workshop, held jointly with Workshop on Intelligent Cinematography and Editing, University of Alberta, Edmonton, Alberta, Canada, November 2018
 - 10th workshop, Snowbird, UT, USA, October 2017
 - 9th workshop, special track of the 9th International Conference on Interactive Digital Storytelling, Los Angeles, CA, USA, November 2016
 - 8th workshop, University of California Santa Cruz, Santa Cruz, CA, USA, November 2015
 - 7th workshop, University of Wisconsin-Milwaukee, Milwaukee WI, USA, June 2014
 - 6th workshop, Northeastern University, Boston MA, USA, October 2013
 - 5th workshop, Stanford University, Palo Alto CA, USA, October 2012
- Computational Models of Narrative workshop (CMN)
- 9th workshop, Universidad Complutense de Madrid, Spain, June 2026
 - 8th workshop, University of Geneva, Geneva, Switzerland, May 2025
 - 7th workshop, Kraków, Poland, July 2016
 - 4th workshop, University of Hamburg, Berlin, Germany, August 2013

University of Kentucky

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| Chair, Media and Outreach Committee Department of Computer Science | Fall 2024 to Present |
| Faculty Advisor, Wildcat Games Studio Office of Student Organizations and Activities | Spring 2024 to Present |
| Member, Committee on Higher Degrees Department of Computer Science | Fall 2021 to Present |
| Member, Hiring Committee Department of Computer Science | Fall 2021 to Spring 2025 |
| Member, Media and Outreach Committee Department of Computer Science | Summer 2019 to Fall 2024 |

University of New Orleans

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| Faculty Advisor, International Game Developers Association, Student Chapter Office of Student Organizations | Fall 2015 to Spring 2019 |
| Member, Undergraduate Studies Committee Department of Computer Science | Fall 2015 to Spring 2019 |

Research Supervision

Doctor of Philosophy, as Advisor

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|---|----------------------------|
| 6. Gage Birchmeier, University of Kentucky (degree in progress) | Fall 2024 to Present |
| 5. Lasantha Senanayake, University of Kentucky (degree in progress) | Spring 2023 to Present |
| 4. Mira Fisher, University of Kentucky (degree in progress) | Summer 2020 to Present |
| 3. Molly Siler, University of Kentucky (degree in progress) | Spring 2020 to Present |
| 2. Alireza Shirvani, University of Kentucky Thesis: <i>Personality and Emotion for Virtual Characters in Strong-Story Narrative Planning</i> | Spring 2017 to Summer 2021 |
| 1. Rachelyn Farrell, University of Kentucky Thesis: <i>Don't Give Me That Story! Human-Centered Narrative Generation and Summarization of Possible Stories</i> | Spring 2015 to Fall 2022 |

Doctor of Philosophy, as Committee Member

12. Jonathan Sekela, University of Kentucky (degree in progress) Spring 2025 to Present
11. Nicholas Fluty, University of Kentucky (degree in progress) Spring 2025 to Present
10. Muhammad Haider, University of Kentucky (degree in progress) Fall 2024 to Present
9. Motasem Obeidat, University of Kentucky (degree in progress) Summer 2024 to Present
8. Luke Elmore, University of Kentucky (degree in progress) Spring 2023 to Present
7. Adib Mosharrof, University of Kentucky Spring 2023 to Spring 2026
Thesis: *Advancing Task-Oriented Dialog Systems: Scalability, Generalization, and Evaluation*
6. Elinor Rubin-McGregor, University of Kentucky (degree in progress) Fall 2022 to Present
5. Nathan Arnold, University of Kentucky Fall 2021 to Fall 2024
Thesis: *Tiered Coalition Formation Game Variants, Stability, and Simulation*
4. Anton Vinogradov, University of Kentucky Spring 2021 to Summer 2024
Thesis: *Recovering From And Accommodating For Player Preference Shifts In A Player Modeled Experience Management Environment*
3. Giulio Mori, University of Reykjavik Spring 2020 to Summer 2023
Thesis: *Platform for Decoupling Experience Managers and Environments*
2. Tasmia Tasrin, University of Kentucky Spring 2020 to Present
Thesis: *Augmenting Machine Learning Technique Through Natural Language*
1. Md. Sultan Al Nahian, University of Kentucky Fall 2019 to Fall 2023
Thesis: *Practical AI Value Alignment Using Stories*

Master of Science, as Advisor

5. Jacob Finerty, University of Kentucky Fall 2022
Project: *Implementing Iterated Width Search into the Sabre Narrative Planner*
4. Dustin Peabody, University of New Orleans Spring 2016 to Spring 2018
Thesis: *Detecting Metagame Shifts in League of Legends Using Unsupervised Learning*
3. Edward T. Garcia, University of New Orleans Fall 2015 to Summer 2019
Thesis: *Multi-Agent Narrative Experience Management as Story Graph Pruning*
2. Dharmesh Desai, University of New Orleans Fall 2015 to Spring 2017
Thesis: *Measuring Presence in a Police Use of Force Simulation*
1. Rachelyn Farrell, University of New Orleans Summer 2015 to Spring 2017
Thesis: *Predicting User Choices in Interactive Narratives using Indexer's Pairwise Event Saliency Hypothesis*

Master of Science, as Committee Member

13. Jeffrey Nance, University of Kentucky Spring 2026
Project: *Automated Team Generation Using Multi-Agent Reinforcement Learning*
12. Riley Sheridan, University of Kentucky Spring 2026
Project: *One-Shot Prompted Extraction of Initial Game State Information from Super Smash Bros. Melee Using ChatGPT-5.4*
11. Sandesh Lamichhane, University of Kentucky Spring 2024
Project: *ABC to TAB*
10. Ethan Coots, University of Kentucky Spring 2024
Project: *Tractor Front-End Loader Image Classification using CNNs*
9. David Bosomworth, University of Kentucky Fall 2023
Project: *Code Generation Using Interpretable Machine Learning Policies*
8. Vincent Liu, University of Kentucky Spring 2023
Thesis: *Language Controlled Interfaces for Game Environments*
7. Jonathan Moore, Air Force Institute of Technology Spring 2023
Thesis: *Designing an Adaptable Game Framework to Teach Joint All-Domain Concepts in a Variety of Training Environments*
6. Ryan Lindsey, University of Kentucky Fall 2022
Project: *Novel 3D Environment for Reinforcement Learning*

5. Michael Probst, University of Kentucky Fall 2021
Thesis: *Maintaining Game Event Sequences in Procedurally Generated Levels*
4. Ryan Bowles, University of Kentucky Spring 2021
Project: *Penumbra Passage: A Single Player Digital Board Game*
3. Devi Kavya Sri Regati, University of Kentucky Spring 2020
Project: *Implementing Preference Reasoning over Answer Set Optimization Problems*
2. Dheeraj Betha, University of Kentucky Fall 2019
Project: *Using Omiotis for Software Tracing*
1. Shyla Clark, University of New Orleans Spring 2019
Thesis: *Remote Monitoring of Cherry Wetness Using a Leaf Wetness Sensor and Wireless Sensor Network*

Bachelor of Science, as Thesis Advisor or Independent Study Supervisor, etc.

41. Calvin Higdon, University of Kentucky Fall 2024
40. Aaron Hall, University of Kentucky Spring 2024
39. Sydney Chapman, University of Kentucky Spring 2024
38. Jackson Cotthoff, University of Kentucky Spring 2024
37. Matthew Melton, University of Kentucky Spring 2023
36. Travis Nilest, University of Kentucky Spring 2023
35. Joseph Alverson, University of Kentucky Spring 2023
Thesis: *Desktop Drummer: Creating a Rhythm-Based Video Game with a Custom Controller*
34. Zachary Coleman, University of Kentucky Spring 2022
33. Alexa Griffin, University of Kentucky Spring 2022
32. Matthew Mitchell, University of Kentucky Fall 2021
31. Gareth Walker, University of Kentucky Fall 2021
30. Ethan Hall, University of Kentucky Fall 2021 to Spring 2022
29. Alexander Dingus, University of Kentucky Spring 2021
28. Evan Shepherd, University of Kentucky Spring 2021
27. John Colfer, University of Kentucky Spring 2020
26. Zachary Foster, University of Kentucky Spring 2020
25. Jacob Hayden, University of Kentucky Spring 2020
24. Mac McNerney, University of Kentucky Spring 2020
23. Jean-Paul Jeunesse, University of New Orleans Fall 2018 to Spring 2019
Thesis: *Measuring Interactive Narrative Quality with Experience Management as Story Graph Pruning*
22. Rishav Rajendra, University of New Orleans Spring 2018 to Fall 2018
21. Lee Lagarde, University of New Orleans Spring 2018 to Fall 2018
20. Ted Mader, University of New Orleans Fall 2016 to Spring 2017
Thesis: *Integrating Virtual Reality with Use-of-Force Training Simulations*
19. Nicholas Martin, University of New Orleans Spring 2017
18. Nishan Rayamajhee, University of New Orleans Spring 2017
17. Ashim Sitoula, University of New Orleans Spring 2016
16. Pujan Pokhrel, University of New Orleans Spring 2016
15. Scott Robertson, University of New Orleans Spring 2016
14. Hung Le, University of New Orleans Spring 2016
13. Abhishek Sapkota, University of New Orleans Fall 2015 to Spring 2016
12. Rodrigo Rodrigues do Carmo, University of New Orleans Spring 2015 to Summer 2015
11. Maurice Robert III, University of New Orleans Summer 2015
10. Thiago Vieira, University of New Orleans Summer 2015
9. Gabriel Miranda, University of New Orleans Summer 2015
8. Gabriel Queiroz, University of New Orleans Spring 2015
7. Christopher Toups, University of New Orleans Spring 2015
6. Christian Stith, North Carolina State University Fall 2013
5. Phillip Wright, North Carolina State University Fall 2013
4. Eric Lang, North Carolina State University Fall 2012

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| 3. Zack Litzsinger, North Carolina State University | Fall 2012 |
| 2. Evan Kochuk, North Carolina State University | Spring 2011 |
| 1. Courtney Harrison, North Carolina State University | Spring 2011 |

Professional Organizations

- AAAI: Association for the Advancement of Artificial Intelligence (member #53757)
- ACM: Association for Computing Machinery (member #2211285)
- IEEE: Institute of Electrical and Electronics Engineers (member #92209981)
- IGDA: International Game Developers Association (member #22066812)
- ARDIN: Association for Research on Digital Interactive Narratives

Publicity

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| <i>UK Researcher Enhances Police De-Escalation Training with Immersive AI, VR Simulations</i> UKNow: University of Kentucky News https://uknow.uky.edu/research/uk-researcher-enhances-police-de-escalation-training-immersive-ai-vr-simulations | 6 March 2025 |
| <i>Stephen Ware's NSF-funded Research Trains Police in De-escalation</i> UKNow: University of Kentucky News https://uknow.uky.edu/research/stephen-ware-s-nsf-funded-research-trains-police-de-escalation | 12 July 2022 |
| <i>Stephen Ware Receives NSF CAREER Award</i> University of Kentucky College of Engineering News https://enr.uky.edu/news/stephen-ware-receives-nsf-career-award | 28 April 2022 |
| <i>UNO's Stephen Ware Recognized as Post-Secondary Teacher of the Year by Louisiana Association of Computer Using Educators</i> University of New Orleans Campus News https://www.uno.edu/campus-news/2016/UNOs_Stephen_Ware_Recognized_as_Post_Secondary_Teacher_of_the_Year_by_Louisiana_Association_of_Computer_Using_Educators.aspx | 16 November 2016 |
| <i>Computer Science Professor Wins \$157,000 NSF Grant to Study Narrative Intelligence</i> University of New Orleans Campus News https://www.uno.edu/campus-news/2016/Computer_Science_Professor_Wins_157k_NSF_Grant_to_Study_Narrative_Intelligence.aspx | 26 July 2016 |
| <i>Game On: UNO's Video Game Development Concentration Simulates Real World Experience</i> University of New Orleans Campus News https://www.uno.edu/campus-news/2016/Game-On-UNO-Video-Game-Development-Concentration-Simulates-Real-World-Experience.aspx | 31 May 2016 |
| <i>University of New Orleans to Get New Digital Media Lab</i> NOLA.com https://www.nola.com/news/education/university-of-new-orleans-to-get-new-digital-media-lab/article_4ff31368-9a7c-5cd3-8417-3b1e5adef7de.html | 13 May 2015 |
| <i>UNO Professor Teaches Computers The Human Art Of Storytelling</i> <i>All Things Considered</i> , WWNO National Public Radio, New Orleans, LA, USA http://wwno.org/post/uno-professor-teaches-computers-human-art-storytelling | 26 February 2015 |
| <i>Guest</i> <i>Think Tank with Garland Robinette</i> , WWL Radio, New Orleans, LA, USA http://media.wwl.com/a/101898840/2-12-12pm-garland-uno-artificial-intelligence.htm | 12 February 2015 |

UNO Professor Wins National Science Foundation Grant for Artificial Intelligence Research

9 February 2015

NOLA.com

https://www.nola.com/news/education/uno-professor-wins-national-science-foundation-grant-for-artificial-intelligence-research/article_05a1aec2-1657-551e-9ebb-0edccf14231c.html

Miscellaneous

- Erdős Number: 3 (via Judy Goldsmith)