July 8, 2025

Christopher J. MacLellan
Assistant Professor
School of Interactive Computing

I. Earned Degrees

Carnegie Mellon University, Ph.D., Human-Computer Interaction. 2017
  Advisor: Kenneth Koedinger
  Thesis Title: Computational models of human learning: Applications for tutor
  development, behavior prediction, and theory testing

Carnegie Mellon University, M.S., Human-Computer Interaction. 2015

University of Wyoming, B.S., Computer Science and Mathematics. 2010

II. Employment History

Georgia Institute of Technology, Atlanta, Georgia, USA
Assistant Professor, School of Interactive Computing   Aug, 2022 - Present

Drexel University, Philadelphia, Pennsylvania, USA
Affiliated Appointment, Computer Science   Sept, 2021 – July, 2022
Assistant Professor, Information Science   Sept, 2020 – July, 2022

Soar Technology, Inc., Ann Arbor, Michigan, USA
Lead Scientist, Autonomous Systems   Aug, 2019 – July, 2020
Research Scientist, Autonomous Systems   Aug, 2017 – July, 2019

Carnegie Mellon University, Pittsburgh, Pennsylvania, USA
Graduate Research Assistant (Advisor: Ken Koedinger), HCI Institute   Aug, 2012 - Sept, 2017

Arizona State University, Phoenix, Arizona, USA
Graduate Research Assistant (Advisor: Pat Langley), Computer Science   Aug, 2010 - July, 2012

III. Honors and Awards

CIOS Honor Roll Fall 2024, Georgia Tech Center for Teaching and Learning	2024
Thank-a-Teacher Spring 2024, Georgia Tech Center for Teaching and Learning	2024
CIOS Honor Roll Fall 2023, Georgia Tech Center for Teaching and Learning	2023
Semi-finalist, NSF VITAL Prize Competition	2023
New and Future AI Educator Award, AAAI/ACM SIGAI	2022
Faculty Research Excellence Award, Drexel University	2022
Outstanding Mentor of the Year Nominee, Drexel University	2021
Named on RealLIST of technologists building Philadelphia's future, Technical.ly	2021
Post Doctoral Research Fellowship (declined), National Research Council	2017
Exemplary Paper Award, Educational Data Mining	2016
Program for Interdisciplinary Education Research Fellowship, Carnegie Mellon	2012-2015
Conference Travel Awards, AAAI 2011, NSF 2015, ACM 2015, ACS 2016	2011-2016
Fulton Fellowship, Arizona State University	2010-2011
Deans Fellowship Award, Arizona State University	2010-2014
Selected as Most Outstanding Graduate of 2010 Class, University of Wyoming	2010
NASA Space Grant Fellowship, University of Wyoming	2010
Excellent Academic Achievement Award, University of Wyoming	2007-2009

NASA Space Grant Fellowship, NASA Jet Propulsion Laboratory	2009
Arts and Sciences Board of Visitors Student Service Award, University of Wyoming	2008
Arts and Sciences Catherine Gibbs Shaw Award, University of Wyoming	2008
EPSCoR Research Fellowship, University of Wyoming	2008
Undergraduate Research Fellowship, National Science Foundation	2007–2008

IV.   Research, Scholarship, and Creative Activities
A.   Published Books, Book Chapters, and Edited Volumes

A1.   Books

No data.

A2.   Refereed Book Chapters

[A2.1] Harpstead, E., **MacLellan, C. J.**, Aleven, V., & Myers, B. A. (2015). Replay analysis in open-ended educational games. In C. S. Loh, Y. Sheng, & D. Ifenthaler (Eds.), *Serious Game Analytics: Methodologies for Performance Measurement, Assessment, and Improvement* (pp. 381-399). Springer International. https://doi.org/10.1007/978-3-319-05834-4_17

A3.   Edited Volumes

No data.

B.   Refereed Publications and Submitted Articles

B1.   Published and Accepted Journal Articles

Journal	# of Papers	Google h5-index
Advances in Cognitive Systems	3	Not Listed
Journal of Computing and Information Science in Engineering	2	34
Frontiers in Psychology	1	185
Cognitive Systems Research	1	47
International Journal of AI in Education	1	41
Journal of Experimental Child Psychology	1	39
International Archives of Allergy and Immunology	1	35
Total	10	–

[B1.10] Lian, X., Zekun, W., & **MacLellan, C.J.** (2025). Efficient and Scalable Masked Word Prediction Using Concept Formation. *Cognitive Systems Research.* `https://doi.org/10.1016/j.cogsys.2025.101371`

[B1.9] **MacLellan, C.J.**, Stowers, K., Brady, L. (2023). Evaluating Alternative Training Interventions Using Personalized Computational Models of Learning. *Advances in Cognitive Systems*, 10, 35-52. `https://doi.org/10.48550/arXiv.2408.13684`

[B1.8] Patchett, B.J., Nriagu, B.N., Mavraj, G., Patel, R.R., **MacLellan, C.J.**, Thakur, T., & Schulman, E.S. (2023) Allergic Polysensitization Clusters: Newly Recognized Severity Marker in Urban Asthmatic Adults. *International Archives of Allergy and Immunology*, 184 (3), 261-272. `https://doi.org/10.1159/000526706`

[B1.7] Stowers, K., Brady, L., **MacLellan, C.J.**, Wohleber, R., Salas, R. (2021). Improving Teamwork Competencies in Human-Machine Teams: Perspectives from Team Science. *Frontiers in Psychology*, 12, 590290. `https://doi.org/10.3389/fpsyg.2021.590290`

[B1.6] **MacLellan, C.J.** & Koedinger, K.R. (2020). Domain General Tutor Authoring with Apprentice Learner Models. *International Journal of AI in Education*, 32, 76–117. `https://doi.org/10.1007/s40593-020-00214-2`

[B1.5] **MacLellan, C.J.**, Harpstead, E., Marinier III, R. P., Koedinger, K.R. (2018). A Framework for Natural Cognitive System Training Interactions. *Advances in Cognitive Systems*, 6, 177-192. `http://cogsys.org/journal/volume6/article-6-12.pdf`

[B1.4] **MacLellan, C.J.**, Harpstead, E., Aleven, V. Koedinger, K.R. (2016). TRESTLE: A Model of Concept Formation in Structured Domains. *Advances in Cognitive Systems*, 4, 131-150. `https://doi.org/10.48550/arXiv.2410.10588`

[B1.3] Unger, L., Fisher, A. V., Nugent, R., Ventura, S. L., **MacLellan, C.J.** (2016). Developmental Changes in the Semantic Organization. *Journal of Experimental Child Psychology*, 146, 202-222. `https://doi.org/10.1016/j.jecp.2016.01.005`

[B1.2] Dinar, M., Danielescu, A., **MacLellan, C.J.**, Shah, J., Langley, P. (2015). Problem Map: An ontological framework for a computational study of problem formulation in engineering design. *Journal of Computing and Information Science in Engineering*, 15(3). `https://doi.org/10.1115/1.4030076`

[B1.1] **MacLellan, C.J.**, Langley, P., Shah, J., Dinar, M. (2013). A Computational Aid for Problem Formulation in Early Conceptual Design. *Journal of Computing and Information Science in Engineering*, 13(3), 031007. `https://doi.org/10.1115/1.4024714`

B2. Conference Presentation with Proceedings (Refereed)

Conference	# of Papers	Google h5-index
Educational Data Mining	8	32
Advances in Cognitive Systems	6	Not Listed
Cognitive Science	4	38
AI in Education	3	31
ACM Learning @ Scale	3	23
ACM CHI	2	129
Intelligent Tutoring Systems	2	16
AAAI	1	220
IEEE International Symposium on Biomedical Imaging	1	53
ACM Designing Interactive Systems	1	49
ACM Foundations of Digital Games	1	25
ACM Creativity & Cognition	1	23
ACM Advanced Visual Interfaces	1	15
International Conference on Neuro-Symbolic Systems	1	Not Listed
IEEE CAI - AI Standard	1	Not Listed
ASME Design Engineering Technical Conf.	1	Not Listed
Design Computing & Cognition	1	Not Listed
Trends in Functional Programming	1	Not Listed
Total	39	–

[B2.39] Weitekamp, D., Siddiqui, M., & **MacLellan, C.J.** (2025). TutorGym: A Testbed for Evaluating AI Agents as Tutors and Students. In *Proceedings of the 26th International Conference on Artificial Intelligence in Education.* 19% acceptance rate.

[B2.38] Gupta, A., Reddig, J., Caló, T., Weitekamp, D., & **MacLellan, C.J.** (2025). Beyond Final Answers: Evaluating Large Language Models for Math Tutoring. In *Proceedings of the 26th International Conference on Artificial Intelligence in Education.* `https://doi.org/10.48550/arXiv.2503.16460` 19% acceptance rate.

[B2.37] Zhou, J., Rui, S., You, Y., DiSalvo, C., Dombrowski, L. & **MacLellan, C.J.** (2025). Improving Public Service Chatbot Design and Civic Impact: Investigation of Citizens' Perceptions of a Metro City 311 Chatbot. In *Proceedings of the 2025 ACM Designing Interactive Systems Conference.* 25% acceptance rate.

[B2.36] **MacLellan, C.J.** (2025). Model Human Learners: Computational Models to Guide Instructional Design. In *Proceedings of the 47th Annual Conference of the Cognitive Science Society.* `https://doi.org/10.48550/arXiv.2502.02456` 56.6% acceptance rate.

[B2.35] Weitekamp, D., MacLellan, C.J., Harpstead, E., & Koedinger, K. (2025, accepted). Decomposed Inductive Procedure Learning: Learning Academic Tasks with Human-Like Data Efficiency. In *Proceedings of the 47th Annual Conference of the Cognitive Science Society.* 56.6% acceptance rate.

[B2.34] Wang, Z., Haarer, E., Barari, N., & **MacLellan, C.J.** (2025). Taxonomic Networks: A Representation for Neuro-Symbolic Pairing. Submitted to *the 2nd International Conference on Neuro-symbolic Systems.*

[B2.33] Kim, J., **MacLellan, C.J.**, & Tonetto, L. (2025). AI-Enabled Progressive Web Application to Decrease Risk of Breast Cancer. In *Proceedings of the IEEE CAI - AI Standard 2025 Conference.*

[B2.32] Zhang, Q., Smith, G., Ziyu, L., Dong, Y., Harpstead, E. & **MacLellan, C.J.** (2025). Dice Adventure: An Asymmetrical Collaborative Game for Exploring the Hybrid Teaming Effects. In *Proceedings of the 19th International Conference on the Foundations of Digital Games.* **Best Paper Award**, 43% acceptance rate.

[B2.31] Hannan, D., Nesbit, S.C., Wen, X., Smith, G., Zhang, Q., Goffi, A., Chan, V., Morris, M.J., Hunninghake, J.C., Villalobos, N.E., Kim, E., Weber, R.O. & **MacLellan, C.J.** (2024). Interpretable Models for Detecting and Monitoring Elevated Intracranial Pressure. In *Proceedings of the IEEE International Symposium on Biomedical Imaging.* `https://doi.org/10.1109/ISBI56570.2024.10635474` **Full Oral Presentation**, Top 25% of accepted papers.

[B2.30] Siddiqui, M.N., Gupta, A., Reddig, J. M., & **MacLellan, C.J.** (2024). HTN-Based Tutors: A New Intelligent Tutoring Framework Based on Hierarchical Task Networks. In *Proceedings of the Eleventh ACM Conference on Learning @ Scale* (pp. 491–495). `https://doi.org/10.1145/3657604.3664702`

[B2.29] Calo, T., & **MacLellan, C.J.** (2024). Towards Educator-Driven Tutor Authoring: Generative AI Approaches for Creating Intelligent Tutor Interfaces. In *Proceedings of the Eleventh ACM Conference on Learning @ Scale* (pp. 305–309). `https://doi.org/10.1145/3657604.3664694`

[B2.28] Lian, X., Varma, S., & **MacLellan, C.J.** (2024). Cobweb: An Incremental and Hierarchical Model of Human-Like Category Learning. In *Proceedings of the 46th Annual Conference of the Cognitive Science Society* (pp. 2597–2604). `https://doi.org/10.48550/arXiv.2403.03835` 53.4% acceptance rate.

[B2.27] Barari, N., Lian, X., & **MacLellan, C.J.** (2024). Incremental Concept Formation over Visual Images Without Catastrophic Forgetting. In *Proceedings of the Eleventh Annual Advances in Cognitive Systems Conference.* `https://doi.org/10.48550/arXiv.2402.16933`

[B2.26] Lian, X., Baglodi, N., & **MacLellan, C.J.** (2024). Incremental and Data-Efficient Concept Formation to Support Masked Word Prediction. In *Proceedings of the Eleventh Annual Advances in Cognitive Systems Conference.* `https://doi.org/10.48550/arXiv.2409.12440`

[B2.25] Lawley, L., & **MacLellan, C.J.** (2024). VAL: Interactive Task Learning with GPT Dialog Parsing. In *Proceedings of the CHI Conference on Human Factors in Computing Systems* (Article No. 5, pp 1–18). `https://doi.org/10.1145/3613904.3641915` 26.3% acceptance rate.

[B2.24] Guo, G., Kumar, A. M. S., Gupta, A., Coscia, A., **MacLellan, C.J.**, & Endert, A. (2024). Visualizing Intelligent Tutor Interactions for Responsive Pedagogy. In *Proceedings of the 2024 International Conference on Advanced Visual Interfaces* (Article No. 45, pp. 1–9). `https://doi.org/10.1145/3656650.3656667` 25.6% acceptance rate.

[B2.23] Hannan, D., Nesbit, S.C., Wen, X., Smith, G., Zhang, Q., Goffi, A., Chan, V., Morris, M.J., Hunninghake, J.C., Villalobos, N.E., Kim, E., Weber, R.O., **MacLellan, C.J.** (2023). MobilePTX: Sparse Coding for Pneumothorax Detection Given Limited Training Examples. In *Proceedings of the AAAI Conference on Artificial Intelligence*, 37(13), 15675-15681. `https://doi.org/10.1609/aaai.v37i13.26859` 19.6% acceptance rate.

[B2.22] Zhang, Q., **MacLellan, C.J.** (2022). (A)I Will Teach You to Play Gomoku: Exploring the Use of Game AI to Teach People. In *Proceedings of the Ninth ACM Conference on Learning @ Scale* (pp. 263–266). `https://doi.org/10.1145/3491140.3528331`

[B2.21] **MacLellan, C.J.**, Matsakis, P., Langley, P. (2022). Efficient Induction of Language Models via Probabilistic Concept Formation. In *Proceedings of the Tenth Annual Conference on Advances in Cognitive Systems.* `https://doi.org/10.48550/arXiv.2212.11937`

[B2.20] Zhang, Q., Chen, Z., Lalwani, N., **MacLellan, C.J.** (2022). Modifying Deep Knowledge Tracing for Multi-step Problems. In *Proceedings of the 15th International Conference on Educational Data Mining* (pp. 684–687). 57.7% acceptance rate.

[B2.19] **MacLellan, C.J.**, Gupta, A. (2021). Learning Expert Models for Educationally Relevant Tasks using Reinforcement Learning. In *Proceedings of the 14th International Conference on Educational Data Mining* (pp. 302–309). 22% acceptance rate.

[B2.18] Zhang, Q., **MacLellan, C.J.** (2021). Going Online: A simulated student approach for evaluating knowledge tracing in the context of mastery learning. In *Proceedings of the 14th International Conference on Educational Data Mining* (pp. 331–337). 25% acceptance rate.

[B2.17] **MacLellan, C.J.**, Thakur, H. (2021). Convolutional Cobweb: A Model of Incremental Learning from 2D Images. In *Proceedings of the Ninth Annual Conference on Advances in Cognitive Systems.* `https://doi.org/10.48550/arXiv.2201.06740`

[B2.16] **MacLellan, C.J.**, Stowers, K., Brady, L. (2020). Optimizing Human Performance using Individualized Computational Models of Learning. In *Proceedings of the Eighth Annual Conference on Advances in Cognitive Systems.* 30.2% acceptance rate.

[B2.15] Weitekamp, D., Harpstead, E., Rachatasumrit, N., **MacLellan, C.J.**, Koedinger, K. (2019). Toward Near Zero-Parameter Prediction Using a Computational Model of Student Learning. In *Proceedings of the 12th International Conference on Educational Data Mining* (pp. 456–461). 21% acceptance rate.

[B2.14] Chaplot, D. S., **MacLellan, C.J.**, Salakhutdinov, R., Koedinger, K. (2018). Learning Cognitive Models using Neural Networks. In *Proceedings of the 19th International Conference on Artificial Intelligence in Education* (pp. 43–56). `https://doi.org/10.1007/978-3-319-93843-1` 23.4% acceptance rate.

[B2.13] **MacLellan, C.J.**, Harpstead, E., Patel, R., Koedinger, K.R. (2016). The Apprentice Learner Architecture: Closing the loop between learning theory and educational data. In *Proceedings of the 9th International Conference on Educational Data Mining* (pp. 151–158). **Exemplary Paper Award**, 15% acceptance rate.

[B2.12] **MacLellan, C.J.** (2015). Assessing the Creativity of Designs at Scale. In *Proceedings of the 2015 ACM SIGCHI Conference on Creativity and Cognition* (pp. 339–340). `https://doi.org/10.1145/2757226.2764770` 60.8% acceptance rate.

[B2.11] **MacLellan, C.J.**, Harpstead, E., Aleven, V., Koedinger, K.R. (2015). TRESTLE: Incremental Learning in Structured Domains using Partial Matching and Categorization. In *Proceedings of the Third Annual Conference on Advances in Cognitive Systems.* 30.5% acceptance rate.

[B2.10] Tenison, C., **MacLellan, C.J.** (2015). The Impact of Instructional Intervention and Practice on Help-Seeking Strategies within an ITS. In *Proceedings of the 8th International Conference on Educational Data Mining* (pp. 616–617). 51.6% acceptance rate.

[B2.9] **MacLellan, C.J.**, Liu, R., Koedinger, K.R. (2015). Accounting for Slipping and Other False Negatives in Logistic Models of Student Learning. In *Proceedings of the 8th International Conference on Educational Data Mining* (pp. 53-60). 23.8% acceptance rate.

[B2.8] Harpstead, E., **MacLellan, C.J.**, Aleven, V., Myers, B.A. (2014) Using Extracted Features to Inform Alignment-Driven Design Ideas in an Educational Game. In *Proceedings of CHI Conference on Human Factors in Computing Systems* (pp. 3329–3338). `https://doi.org/10.1145/2556288.2557393` 22.7% acceptance rate.

[B2.7] **MacLellan, C.J.**, Koedinger, K.R., Matsuda, N. (2014). Authoring Tutors with SimStudent: An Evaluation of Efficiency and Model Quality. In *Proceedings of the 12th International Conference on Intelligent Tutoring Systems* (pp. 551-560). `https://doi.org/10.1007/978-3-319-07221-0_70` 17.5% acceptance rate.

[B2.6] Tenison, C., **MacLellan, C.J.** (2014). Modeling Strategy Use in an Intelligent Tutoring System: Implications for Strategic Flexibility. In *Proceedings of the 12th International Conference on Intelligent Tutoring Systems* (pp. 466–475). `https://doi.org/10.1007/978-3-319-07221-0_58` 17.5% acceptance rate.

[B2.5] Unger, L., Fisher, A. V., **MacLellan, C.J.** (2014). Developmental Changes in the Semantic Organization of Living Kinds. In *Proceedings of the 36th Annual Meeting of the Cognitive Science Society* (pp. 1646–1651). 31% acceptance rate.

[B2.4] Harpstead, E., **MacLellan, C.J.**, Koedinger, K.R., Aleven, V., Dow, S.P., Myers, B.A. (2013). Investigating the Solution Space of an Open-Ended Educational Game Using Conceptual Feature Extraction. In *Proceedings of the 6th International Conference on Educational Data Mining* (pp. 51–58). 24.7% acceptance rate.

[B2.3] Danielescu, A., Dinar, M., **MacLellan, C.J.**, Shah, J., Langley, P. (2012). The structure of creative design: what problem maps can tell us about problem formulation and creative designers. In *Proceedings of the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference* (pp. 437–446). https://doi.org/10.1115/DETC2012-70325

[B2.2] Dinar, M., **MacLellan, C.J.**, Danielescu, A., Shah, J. (2012). Beyond Function-Behavior-Structure. In J. Gero (Ed.), *Proceedings of Design Computing and Cognition '12* (pp. 511–527). https://doi.org/10.1007/978-94-017-9112-0 37.3% acceptance rate.

[B2.1] Wiederrecht, M., **MacLellan, C.J.**, Gamboa, R. (2010). Reasoning about DrScheme Programs in ACL2. In R. Page, Z. Horvath, V. Zsók (Eds.), *Proceedings of Trends in Functional Programming* (pp. 276–283).

B3. Other Refereed Material

[B3.27] Lange, L., **MacLellan, C.J.**, Zhang, Q., & Wu, Y. (2025). Training Humans for Robust Human-Agent Teaming: Knowing When to Engage with an AI Partner. In *Proceedings of the 2025 AAAI Spring Symposium on Current and Future Varieties of Human-AI Collaboration.*

[B3.26] Zhang, Q. & **MacLellan, C.J.** (2025). Think and Play: Designing and Evaluating Human-AI Teaming Dynamics in Gaming Environments. In *Proceedings of the 2025 AAAI Spring Symposium on Current and Future Varieties of Human-AI Collaboration.*

[B3.25] Zhou, J. & **MacLellan, C.J.** (2024). Improving Interface Design in Interactive Task Learning for Hierarchical Tasks based on a Qualitative Study. In *Adjunct Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology* (Article No. 85, pp. 1–3). https://doi.org/10.1145/3672539.3686326

[B3.24] Wen, X., Weber, R.O., Sen, A., Hannan, D., Nesbit, S.C., Chan, V., Goffi, A., Morris, M., Hunninghake, J.C., Villalobos, N.E., Kim, E., **MacLellan, C.J.** (2024) The Impact of an XAI-Augmented Approach on Binary Classification with Scarce Data. In *Proceedings of the XAI 2024 Workshop @ IJCAI.*

[B3.23] Harpstead, E., Stowers, K., Lawley, L., Zhang, Q., **MacLellan, C.J.** (2023). Speculative Game Design of Asymmetric Cooperative Games to Study Human-Machine Teaming. In *Proceedings of the 18th International Conference on the Foundations of Digital Games: Workshop on Human-AI Interaction through Play* (Article No. 77, pp. 1–4). https://doi.org/10.1145/3582437.3587200

[B3.22] Guerzhoy, M., Neumann, M., Johnson, E., Johnson, D., Chai, H., Garijo, D., Lyu, Z., **MacLellan, C.J.** (2022) EAAI-22 Blue Sky Ideas in Artificial Intelligence Education from

the AAAI/ACM SIGAI New and Future AI Educator Program. AI Matters, 8(2), 16-21. https://doi.org/10.1145/3557785.355778

[B3.21] Smith, G., Zhang, Q., **MacLellan, C.J.** (2022) Do it Like the Doctor: How We Can Design a Model That Uses Domain Knowledge to Diagnose Pneumothorax. In *Proceedings of the AAAI Spring Symposium on Machine Learning and Knowledge Engineering for Hybrid Intelligence.*

[B3.20] Zhang, Q., **MacLellan, C.J.** (2021) Investigating Knowledge Tracing Models using Simulated Students. In *Proceedings of the AAAI 2021 Spring Symposium on AI for K12 Education.*

[B3.19] Gupta, A., **MacLellan, C.J.** (2021) Designing Teachable Systems for Intelligent Tutor Authoring. In *Proceedings of the AAAI 2021 Spring Symposium on AI for K12 Education.*

[B3.18] **MacLellan, C.J.**, Harpstead, E., Sheline, R. (2019) A Human-centered Approach to Designing Teachable Systems. In *Proceedings of the CHI 2019 Workshop titled Where is the Human? Bridging the Gap Between AI and HCI.*

[B3.17] Harpstead, E., **MacLellan, C.J.**, Weitekamp, D., Koedinger, K. (2019). The Use of Simulated Learners in Adaptive Education. In *Proceedings of the 3rd International Conference on Artificial Intelligence + Adaptive Education.*

[B3.16] Harpstead, E., **MacLellan, C.J.** (2019). Visualizing the Solution Space of Educational Games using Trestle. In *Companion Proceedings of the 9th International Conference on Learning Analytics & Knowledge.*

[B3.15] Sheline, R., **MacLellan, C.J.** (2018). Investigating Machine-Learning Interaction with Wizard-of-Oz Experiments. In *Proceedings of the NeurIPS 2018 Workshop on Learning by Instruction.*

[B3.14] Harpstead, E., **MacLellan, C.J.**, Koedinger K.R. (2018). Towards Natural Cognitive System Training Interactions: A Preliminary Framework. In *Proceedings of the AAAI 2018 Spring Symposium on the User Experience of Artificial Intelligence.*

[B3.13] **MacLellan, C.J.** (2016). Apprentice Learner Architecture: A framework for modeling human learning from demonstrations and feedback in digital environments. *Proceedings of the Students of Cognitive Systems Workshop at the Fourth Annual Conference on Advances in Cognitive Systems.*

[B3.12] **MacLellan, C.J.**, (2016). Investigating the Impact of Slipping Parameters on Additive Factors Model Parameter Estimates. *Proceedings of the 9th International Conference on Educational Data Mining: Workshop on Data Analysis using LearnSphere.*

[B3.11] **MacLellan, C.J.**, Harpstead, E., Wiese, E.S., Zou, M., Matsuda, N., Aleven, V., Koedinger, K.R. (2015). Authoring Tutors with Complex Solutions: A Comparative Analysis of Example Tracing and SimStudent. In *Workshop Proceedings of the 17th International Conference on Artificial Intelligence in Education* (Vol. 5, pp. 35-44).

[B3.10] Koedinger, K.R., Matsuda, N., **MacLellan, C.J.**, McLaughlin, E.A. (2015). Methods for Evaluating Simulated Learners: Examples from SimStudent. In *Workshop Proceedings of the 17th International Conference on Artificial Intelligence in Education* (Vol. 5, pp. 45-54).

[B3.9] Harpstead, E., **MacLellan, C.J.**, Aleven, V. (2015). Discovering Knowledge Models in an Open-Ended Educational Game using Concept Formation. In *Workshop Proceedings of the 17th International Conference on Artificial Intelligence in Education* (Vol. 2, pp. 9-16).

[B3.8] **MacLellan, C.J.**, Wiese, E.S., Matsuda, N., Koedinger, K.R. (2014). SimStudent: Authoring Expert Models by Tutoring. In *Proceedings of the Second Annual GIFT Users Symposium* (pp. 25-32).

[B3.7] **MacLellan, C.J.**, Wiese, E.S., Matsuda, N., Koedinger, K.R. (2014). SimStudent: Improving Tutor Quality and Reducing Authoring Costs. In *Workshop Proceedings of the 12th International Conference on Intelligent Tutoring Systems.*

[B3.6] Harpstead, E., **MacLellan, C.J.**, Aleven, V., Koedinger, K.R. (2014). Using Data to Explore the Differences between Instructional Vision and Student Performance. In *Proceedings of the CHI 2014 Workshop on Learning Innovations at Scale.*

[B3.5] **MacLellan, C.J.**, Matsuda, N., Koedinger, K. R. (2013). Toward a reflective SimStudent: Using experience to avoid generalization errors. In *Workshop Proceedings of the 16th International Conference on Artificial Intelligence in Education AIED 2013* (Vol. 4, pp. 55–64).

[B3.4] Langley, P., Emery, M., Barley, M., **MacLellan, C.J.** (2013). An Architecture for Flexible Problem Solving. In *Proceedings of the Second Annual Conference on Advances in Cognitive Systems: Workshop on Metacognition in Situated Agents.*

[B3.3] Langley, P., Emery, M., Barley, M., **MacLellan, C.J.** (2013). An Architecture for Flexible Problem Solving. In *Proceedings of the Second Annual Conference on Advances in Cognitive Systems: Workshop on Metacognition in Situated Agents.*

[B3.2] **MacLellan, C.J.**, Langley, P., Walker, C. (2012). A Generative Theory of Problem Solving. In *Proceedings of the First Annual Conference on Advances in Cognitive Systems: Poster Collection.*

[B3.1] **MacLellan, C.J.** (2011). An elaboration account of insight. In *Proceedings of the 2011 AAAI Fall Symposium on Advances in Cognitive Systems* (pp. 194-201).

B4.   Submitted Publications (with Date of Submission)

[B4.2] Barari, N., Lian, X., & **MacLellan, C.J.** (submitted, December 2024). Incremental Concept Formation over Visual Images Without Catastrophic Forgetting. Submitted to *Cognitive Systems Research.*

[B4.1] Reddig, J. & **MacLellan, C.J.** (submitted, August 2024). Generating In-Context, Personalized Feedback for Intelligent Tutors with Large-Language Models. Submitted to the *International Journal of AI in Education.*

C.   Other Publications and Creative Products

C1.   Patents

[C1.3] **MacLellan, C.J.**, Barari, N., Lian, X., Wang, Z. (2025). Information-Theoretic Hierarchical Concept Learning for Masked-Word Prediction. U.S. Patent Application No. 19/237,713. Filed June 13, 2025. Available from U.S. Patent and Trademark Office database.

[C1.2] **MacLellan, C.J.**, Wang, Z., Haarer, E. (2025). Deep Learning Based Diagnostic Quality Prediction During Magnetic Resonance Elastography Data Acquisition. U.S. Patent Application No. 63/815,020. Filed May 30, 2025. Available from U.S. Patent and Trademark Office database.

[C1.1] **MacLellan, C.J.**, Weber, R., Kim, E., Hannan, D., Nesbit, S., Zhang, Q., Smith, G., Goffi, A., Chan, V., Wen, X. (2022). Sparse Coding and Extraction of Ultrasound Knowledge for Explainable Point-of-Care Ultrasound Artificial Intelligence. U.S. Patent Application No. 63/381,678. Filed October 31, 2022. Available from U.S. Patent and Trademark Office database.

C2.   Non-Refereed Publications

[C2.5] Gupta, A., Siddiqui, M., Smith, G., Reddig, J., & **MacLellan, C.J.** (2025). Intelligent Tutors for Adult Learners: An Analysis of Needs and Challenges. arXiv preprint. `https://doi.org/10.48550/arXiv.2412.04477`

[C2.4] Gupta, A. & **MacLellan, C.J.** (2025). Intelligent Tutors Beyond K-12: An Observational Study of Adult Learner Engagement and Academic Impact. arXiv preprint. `https://doi.org/10.48550/arXiv.2502.16613`

[C2.3] Smith, G., Gupta, A., & **MacLellan, C.J.** (2024). Apprentice tutor builder: A platform for users to create and personalize intelligent tutors. arXiv preprint. `https://doi.org/10.48550/arXiv.2404.07883`

[C2.2] Lawley, L. & **MacLellan, C.J.** (2023). Interactive Learning of Hierarchical Tasks from Dialog with GPT. arXiv preprint. `https://doi.org/10.48550/arXiv.2305.10349`

[C2.1] Weitekamp, D., **MacLellan, C.J.**, Harpstead, E., Koedinger, K. (2021). Decomposed Inductive Procedure Learning. arXiv preprint. `https://arxiv.org/abs/2110.13233`

C3.   Posters (excluding those presented with papers listed above)

[C3.11] **MacLellan, C.J.**, Weitekamp, D., Wu, Y., Harpstead, H. (2025). A Framework for Evaluating Human-AI Teaming Potential. Presented at AAAI-25 Spring Symposium on Current and Future Varieties of Human-AI Collaboration.

[C3.10] Caló, T., **MacLellan, C.J.** (2024). Towards Generative AI Approaches for Creating Intelligent Tutor Interfaces. Presented at NSF Annual Evaluation Meeting, NSF AI ALOE Institute.

[C3.9] Siddiqui, M., Gupta, G., Reddig, J., **MacLellan, C.J.** (2024). HTN-Based Tutors: A New Intelligent Tutoring Framework Based on Hierarchical Task Networks. Presented at NSF Annual Evaluation, NSF AI ALOE Institute.

[C3.8] Barari, N., **MacLellan, C.J.**, Kim, E. (2024). Toward More Reliable Learning Models through Human-Inspired Learning. Presented at AAAI-24 Spring Symposium on Human-Like Learning, Stanford University.

[C3.7] Zhang, Q., **MacLellan, C.J.** (2024). Understanding Human-AI Teaming Dynamics through Gaming Environments. Presented at Human-Machine Teaming Paradigm Workshop, University of Colorado Boulder.

[C3.6] Zhou, J., Lawley, L., **MacLellan, C.J.** (2024). Post-VAL: Interactive Task Learning Qualitative Analysis. Presented at Human-Machine Teaming Paradigm Workshop, University of Colorado–Boulder.

[C3.5] Smith, G., Gupta, G., **MacLellan, C.J.** (2023). Apprentice Tutors: A User-Friendly Platform for Building Personalized and Inclusive AI Tutors. Presented at External Advisory Board Meeting, NSF AI ALOE Institute.

[C3.4] Zhang, Q., **MacLellan, C.J.** (2022). (A)I Can Play Gomoku: An Intelligent Tutoring System for Strategic Games. Presented at GVU Showcase, Georgia Institute of Technology.

[C3.3] Smith, G., Gupta, G., **MacLellan, C.J.** (2022). Apprentice: A Platform for Authoring and Deploying Intelligent Tutors at Scale. Presented at External Advisory Board Meeting, NSF AI ALOE Institute.

[C3.2] **MacLellan, C.J.** (2016). Using SimStudent to Model Apprentice Learning. Presented at Annual Inter-Science of Learning Centers Conference.

[C3.1] **MacLellan, C.J.** (2016). Computational Models of Apprentice Learning. Presented at Demo Days, Human-Computer Interaction Institute.

D.   Presentations

D1.   Invited Seminar Talk

[D1.20] **MacLellan, C.J.** (2023). Computational Models of Human-Like Skill and Concept Formation. GVU Seminar Series, Georgia Institute of Technology.

[D1.19] **MacLellan, C.J.** (2023). Computational Models of Human-Like Skill and Concept Formation. Cognitive Science Department, Indiana University Bloomington.

[D1.18] **MacLellan, C.J.** (2022). Human-Guided ML for Futuristic Human-Machine Teaming, Scientific Advisory Board, Humans in Complex Systems Division, Army Research Labs.

[D1.17] **MacLellan, C.J.** (2022). Teachable AI: A cognitively inspired and human-centered approach to the knowledge transfer problem, Institute of Cognitive Science, University of Colorado Boulder.

[D1.16] **MacLellan, C.J.** (2021). Teachable AI, College of Computing and Informatics, Drexel University.

[D1.15] **MacLellan, C.J.** (2021). Teachable AI, Moberg Analytics.

[D1.14] **MacLellan, C.J.** (2021). Leveraging Computational Models of Human Learning to Support the Design and Development of Educational Technology at Scale, Process Data Special Interest Group, Educational Testing Services.

[D1.13] **MacLellan, C.J.** (2020). Computational Models of Learning: Applications for Tutor Development and Theory Testing, College of Computing and Informatics, Drexel University.

[D1.12] **MacLellan, C.J.** (2020). Computational Models of Learning: Applications for Tutor Development and Theory Testing, Computer and Information Science, University of Oregon.

[D1.11] **MacLellan, C.J.** (2019). Computational Models of Learning: Applications for Tutor Development and Theory Testing, School of Interactive Computing, Georgia Institute of Technology.

[D1.10] **MacLellan, C.J.** (2019). Teachable Cognitive Systems, Computer Science and Engineering, University of Michigan.

[D1.9] **MacLellan, C.J.** (2018). The Future of AI: Personalized Cognitive Systems Made Possible by Teachable AI Technology, Soar Technology.

[D1.8] **MacLellan, C.J.** (2017). Computational Models of Learning: Using Simulation to Predict Tutor Effectiveness, Soar Technology, Inc.

[D1.7] **MacLellan, C.J.** (2016). Computational Models of Learning: Applications for Tutor Development and Theory Testing, Computer Science, University of Rochester.

[D1.6] **MacLellan, C.J.** (2016). Computational Models of Learning: Applications for Tutor Development and Theory Testing, Computer Science, Illinois Institute of Technology.

[D1.5] **MacLellan, C.J.** (2016). Computational Models of Learning: Applications for Tutor Development and Theory Testing, 711th Human Performance Wing, Air Force Research Laboratory.

[D1.4] **MacLellan, C.J.** (2016). Computational Models of Learning: Applications for Tutor Development and Theory Testing, Computer Science, University of Kentucky.

[D1.3] **MacLellan, C.J.** (2016). Towards a Computational Model of Human Learning from Interactive Training, University of Pittsburgh.

[D1.2] **MacLellan, C.J.** (2016). Predicting Learning Curves using Simulated Students, LearnLab Summer School.

[D1.1] **MacLellan, C.J.** (2009). Cryptography and Code Breaking, Keith and Thyra Thomson Honors Convocation, University of Wyoming.

D2.   Invited Symposia and Workshop Presentations

[D2.15] **MacLellan, C.J.** (2025). What is a symbolic system that we may know it, and why should we care? The Annual Summer Interdisciplinary Conference (ASIC 2025).

[D2.14] **MacLellan, C.J.** (2024). Computational Models of Skill and Concept Learning. Center of Excellence in Computational Cognition (CoCo), Georgia Institute of Technology.

[D2.13] **MacLellan, C.J.** (2024). Your AI, Your Way: Enabling Educators and Teams with Teachable AI. Summit on Responsible Computing, AI, and Society, Georgia Institute of Technology.

[D2.12] **MacLellan, C.J.** (2024). Exploring the use of Cooperative Games to Investigate Human-Machine Teaming, Human-Machine Teaming Paradigm Workshop, University of Colorado–Boulder.

[D2.11] **MacLellan, C.J.** (2023). Leveraging games to build teachable agents for human-machine teaming. The CogSci-23 Workshop on "Video games as a path to a contextualized cognitive science, or How to play 20 questions with nature and win".

[D2.10] **MacLellan, C.J.** (2023). Human-Guided ML for Human-Machine Teaming, Human-Machine Teaming Paradigm Workshop, University of California San Diego.

[D2.9] **MacLellan, C.J.** (2022). Computational Models of Learning, LearnLab Summer School, Carnegie Mellon University.

[D2.8] **MacLellan, C.J.** (2022). Interactive, Multi-modal, On-the-Fly Machine Learning, Speculative Human-Machine Teaming Workshop, Carnegie Mellon University.

[D2.7] **MacLellan, C.J.** (2022). How to make AI more interdisciplinary. Blue Sky Presentation at the 12th Symposium on Educational Advancements in Artificial Intelligence.

[D2.6] **MacLellan, C.J.** (2022). Learning Expert Models for Educationally Relevant Tasks using Reinforcement Learning. The AAAI-22 Workshop on Reinforcement Learning for Education.

[D2.5] **MacLellan, C.J.** (2021). Computational Models of Learning, LearnLab Summer School, Carnegie Mellon University.

[D2.4] **MacLellan, C.J.** (2021). Learning Expert Models for Educationally Relevant Tasks using Reinforcement Learning. Reinforcement Learning for Education Workshop at the 14th International Conference on Educational Data Mining.

[D2.3] **MacLellan, C.J.** (2020). Computational Models of Learning, LearnLab Summer School, Carnegie Mellon University.

[D2.2] **MacLellan, C.J.** (2019). Computational Models of Learning, LearnLab Summer School, Carnegie Mellon University.

[D2.1] **MacLellan, C.J.** (2018). Towards Natural Cognitive System Training Interactions: A Preliminary Framework. AFCEA C4I and Cyber Symposium.

D3. Other Scholarly Presentations

[D3.9] **MacLellan, C.J.** (2024). Exploring the Use of Cooperative Games to Investigate Human-Machine Teaming. *AAAI-25 Spring Symposium on Current and Future Varieties of Human-AI Collaboration.*

[D3.8] **MacLellan, C.J.** (2024). An Introduction to Human-Like Learning. *AAAI-24 Spring Symposium on Human-Like Learning*, Stanford University.

[D3.7] Lian, X., Varma, S., & **MacLellan, C.J.** (2024). New Explorations of Cobweb as a Model of Human Concept Formation. *AAAI-24 Spring Symposium on Human-Like Learning*, Stanford University.

[D3.6] Barari, N., Lian, X., **MacLellan, C.J.** (2024). Avoiding Catastrophic Forgetting in Visual Classification using Human-Like Concept Formation. *AAAI-24 Spring Symposium on Human-Like Learning*, Stanford University.

[D3.5] **MacLellan, C.J.** (2023). Personalized learning: A review of existing systematic reviews, Foundational and Use-Inspired AI Working Group, NSF AI ALOE Institute.

[D3.4] **MacLellan, C.J.** (2023). Human-Like Concept Formation from Language Corpora, Foundational and Use-Inspired AI Working Group, NSF AI ALOE Institute.

[D3.3] **MacLellan, C.J.** (2022). Knowledge-Learning-Instruction Framework, Foundational and Use-Inspired AI Working Group, NSF AI ALOE Institute.

[D3.2] **MacLellan, C.J.** (2021). Domain-General Tutor Authoring with Apprentice Learner Models. IJAIED Journal Track Presentation at International Conference on AI in Education.

[D3.1] **MacLellan, C.J.** (2021). Overview of DataShop, LearnSphere, and MORF, Technology Subcommittee, NSF AI ALOE Institute.

D4.   Program Review Presentations

[D4.33] **MacLellan, C.J.** (2025). Contributions to Theories of AI, NSF AI ALOE Institute Program Review, National Science Foundation.

[D4.32] **MacLellan, C.J.**, Harpstead, E., Wu, Y., Jung, T.P., Langley, P. (2025). Putting the Team in Context. STRONG Annual Program Review, Army Research Labs.

[D4.31] Wu, Y., **MacLellan, C.J.**, Roncone, A. (2025). The Co-evolution of Human-AI Adaptation. STRONG Annual Program Review, Army Research Labs.

[D4.30] **MacLellan, C.J.**, Harpstead, E. (2025). Human-Guided ML for Futuristic Human-Machine Teaming. STRONG Program Review, Army Research Labs.

[D4.29] **MacLellan, C.J.**, Harpstead, E., Wu, Y., Jung, T.P., Langley, P. (2024). Putting the Team in Context. STRONG Annual Program Review, Army Research Labs.

[D4.28] Wu, Y., **MacLellan, C.J.**, Roncone, A. (2024). The Co-evolution of Human-AI Adaptation. STRONG Annual Program Review, Army Research Labs.

[D4.27] **MacLellan, C.J.**, Harpstead, E. (2024). Human-Guided ML for Futuristic Human-Machine Teaming. STRONG Program Review, Army Research Labs.

[D4.26] **MacLellan, C.J.** (2024). Apprentice Tutors and Tutor Builder, Personalization Panel, NSF AI ALOE Institute Program Review, National Science Foundation.

[D4.25] **MacLellan, C.J.** (2024). Apprentice Tutors and Tutor Builder, Personalization Panel, External Advisory Board Review, NSF AI ALOE Institute.

[D4.24] Wu, Y., **MacLellan, C.J.**, Roncone, A. (2023). The Co-Evolution of Human-AI Adaptation. STRONG Annual Program Review, Army Research Labs.

[D4.23] **MacLellan, C.J.**, Harpstead, E. (2023). Human-Guided ML for Futuristic Human-Machine Teaming. STRONG Annual Program Review, Army Research Labs.

[D4.22] **MacLellan, C.J.** (2023). Personalization for Skill Learning, NSF AI ALOE Institute Program Review, National Science Foundation.

[D4.21] **MacLellan, C.J.** (2023). Personalization for Skill Learning, External Advisory Board, NSF AI ALOE Institute.

[D4.20] **MacLellan, C.J.** (2023). Apprentice Tutors Update, External Advisory Board, NSF AI ALOE Institute.

[D4.19] **MacLellan, C.J.** (2023). Leveraging LLMs and Generative AI to Provide Personalized Tutoring Support, External Advisory Board, NSF AI ALOE Institute.

[D4.18] Wu, Y., **MacLellan, C.J.**, Roncone, A. (2022). The Co-evolution of Human-AI Adaptation. STRONG Annual Program Review, Army Research Labs.

[D4.17] **MacLellan, C.J.**, Harpstead, E. (2022). Human-Guided ML for Futuristic Human-Machine Teaming. STRONG Annual Program Review, Army Research Labs.

[D4.16] **MacLellan, C.J.** (2022). Apprentice Tutors, NSF AI ALOE Institute Program Review, National Science Foundation.

[D4.15] **MacLellan, C.J.** (2022). AI-Powered Point-of-Care Ultrasound Diagnosis, Commercialization Potential Review, Defense Advanced Research Projects Agency.

[D4.14] **MacLellan, C.J.** (2022). Spartacus-X: Sparse Coding and Extraction of Ultrasound Knowledge for Explainable POCUS AI, POCUS Phase 2 Program Review, Defense Advanced Research Projects Agency.

[D4.13] **MacLellan, C.J.** (2022). Spartacus-X: Sparse Coding and Extraction of Ultrasound Knowledge for Explainable POCUS AI, POCUS Phase 1 Program Review, Defense Advanced Research Projects Agency.

[D4.12] **MacLellan, C.J.** (2021). Spartacus-X: Sparse Coding and Extraction of Ultrasound Knowledge for Explainable POCUS AI, POCUS Onsite Review, Defense Advanced Research Projects Agency.

[D4.11] **MacLellan, C.J.** (2021). Teachable Agent Capabilities for Teaming. STRONG Annual Program Review, Army Research Labs.

[D4.10] **MacLellan, C.J.** (2021). ATTUNE: Predicting Effects of HPO Interventions with Socio-Cognitive Agents that Leverage Individual Residuals, TAILOR PI Meeting 3, Defense Advanced Research Projects Agency.

[D4.9] **MacLellan, C.J.** (2021). ATTUNE: Predicting Effects of HPO Interventions with Socio-Cognitive Agents that Leverage Individual Residuals, TAILOR PI Meeting 3, Defense Advanced Research Projects Agency.

[D4.8] **MacLellan, C.J.** (2020). ATTUNE: Predicting Effects of HPO Interventions with Socio-Cognitive Agents that Leverage Individual Residuals, TAILOR PI Meeting 2, Defense Advanced Research Projects Agency.

[D4.7] **MacLellan, C.J.** (2020). ATTUNE: Predicting Effects of HPO Interventions with Socio-Cognitive Agents that Leverage Individual Residuals, TAILOR PI Meeting 1, Defense Advanced Research Projects Agency.

[D4.6] **MacLellan, C.J.** (2020). Rapid Configuration of Heterogeneous Models, Social Sim PI Meeting, Defense Advanced Research Projects Agency.

[D4.5] **MacLellan, C.J.** (2020). Cognitive Bias in Online Communication Activity, Social Sim PI Meeting, Defense Advanced Research Projects Agency.

[D4.4] **MacLellan, C.J.**, Jones, R. (2020). Fixed-Wing Autonomous Synthetic Pilot for AlphaDogfight, Trial 3 Program Review, Defense Advanced Research Projects Agency.

[D4.3] **MacLellan, C.J.**, Jones, R. (2020). Fixed-Wing Autonomous Synthetic Pilot for AlphaDogfight, Trial 2 Program Review, Defense Advanced Research Projects Agency.

[D4.2] **MacLellan, C.J.**, Jones, R. (2019). Fixed-Wing Autonomous Synthetic Pilot for AlphaDogfight, Trial 1 Program Review, Defense Advanced Research Projects Agency.

[D4.1] **MacLellan, C.J.** (2018). MineApprentice, SBIR Program Review, Office of Naval Research.

E.   Grants and Contracts

E1.   As Principal Investigator

[E1.11] Putting the Team in Context: Modeling Teammates and their Context to Enable Efficient Hybrid Intelligence, Army Research Labs, $1.2M (MacLellan: 45.6%, $548k), July 2024 - June 2027. (Co-PI Erik Harpstead; Co-PI Ying Wu)

[E1.10] VITAL Prize: Apprentice Tutors: A User-Friendly Platform for Building Personalized and Inclusive AI Tutors, Digital Promise and National Science Foundation, $20k (MacLellan: 100%, $20k), July 2024 - July 2030.

[E1.9] Building Adaptable Machine Teammates with Human-Like Learning for Augmented Human-Machine Symbiosis, Army Research Labs, $100k (MacLellan: 100%, $100k), May 2023 - April 2024. (Co-PI Lane Lawley)

[E1.8] Human-Guided ML for Futuristic Human-Machine Teaming, Army Research Labs, $1.5M (MacLellan: 47.7%, $715.5k), August 2022 - July 2026. (Co-PI Erik Harpstead)

[E1.7] SPARTACUS-X: Sparse Coding and Extraction of Ultrasound Knowledge for Explainable POCUS AI, Defense Advanced Research Projects Agency, $1M (MacLellan: 33%, $333k), August 2022 - June 2023. (Co-PI Rosina Weber; Co-PI Edward Kim)

[E1.6] Teachable Agent Capabilities for Teaming (TACT), Army Research Labs, $100k (MacLellan: 100%, $100k), April 2021 - April 2022.

[E1.5] ATTUNE: Predicting Effects of HPO Interactions with Socio-Cognitive Agents that Leverage Individual Residuals, Defense Advanced Research Projects Agency, $996.7k (MacLellan: 83.6%, $833.3k), August 2020 - May 2021. (Co-PI Kimberly Stowers)

[E1.4] Bias in Online Communication Activity, Defense Advanced Research Projects Agency, $498.5k (MacLellan: 70%, $348.5k), May 2019 - May 2020. (Co-PI Kristina Lerman)

[E1.3] Rapid Configuration of Heterogeneous Models, Defense Advanced Research Projects Agency, $499.8k (MacLellan: 100%, $499.8k), June 2019 - June 2020.

[E1.2] Fixed-Wing Autonomous Synthetic Pilot for AlphaDogFight, Defense Advanced Research Projects Agency, $599.7k (MacLellan: 100%, $599.7k), September 2019 - March 2020.

[E1.1] MineApprentice: Learning Performance Models and Tactical Knowledge for Continuous Mission Planning, Office of Naval Research, $124.8k (MacLellan: 100%, $124.8k), May 2018 - November 2018.

E2.   As Co-Principal Investigator

[E2.1] The Coevolution of Human-AI Adaptation, Army Research Labs, $1.5M (MacLellan: 24.9%, $374k), August 2022 - April 2026. (GaTech PI; PI Ying Wu; Co-PI Alessandro Rancone)

E3.   As Senior Personnel or Contributor

[E3.1] AI Institute for Adult Learning and Online Education (ALOE), National Science Foundation, $19.99M (MacLellan: 4.5%, $907.9k), November 2021 - August 2026. (I was Drexel PI before transfer to GT; PI Ashok Goel; Co-PI Christopher Dede; Co-PI Scott Crossley; Co-PI Alexander Endert)

E4.   Pending Proposals

[E4.1] HCC Small: NSF-MUR: Automating Cognitive Tasks Analysis with Teachable AI: Scalable, Robust, and Pedagogically-Grounded Instruction for Enhanced Learning, National Science Foundation, $599,999k (MacLellan: 66%, $396k), August 2025 - July 2028. (PI; Co-PI Richard Catrambone)

E5.   Proposals Submitted but Not Funded (Last Two Years)

[E5.11] Taxonomic Networks: A Representation for Neuro-Symbolic Pairing, Defense Advanced Research Projects Agency, $100k (MacLellan: 100%, $100k), July 2025 - June 2027. (PI)

[E5.10] Teachable AI Assistants that Integrate Generative and Symbolic AI to Transform Learning at Scale, Google Research, $20k (MacLellan: 100%, $20k), July 2025 - June 2029. (PI)

[E5.9] Adult Learning and Online Education (ALOE) PARTNER: Expanding AI Education to Non-traditional, Diverse Students, National Science Foundation, $800k (MacLellan: 25%, $200k), July 2025 - June 2029. (Co-PI; Gatech PI Ashok Goel; Overall PI Jodi Reeves)

[E5.8] Artificial Intelligence (AI) Unplugged: A constraints-based approach to creativity in curriculum development for inclusive AI instruction, National Science Foundation, $2.99M (MacLellan: 4%, $132.7k), September 2025 - August 2029. (Co-PI; PI Roxane Moore)

[E5.7] Productive Failure-based AI Literacy Escape Room (ProFAILER): Exploring Productive Failure and Gamification to Support Development of AI Literacy, National Science Foundation, $900k (MacLellan: 37%, $334k), August 2025 - July 2028. (Co-PI; PI Jessica Roberts)

[E5.6] CAREER: Human-like Machine Learning to Power Human-Centered Teachable AI Assistants, National Science Foundation, $615.3k (MacLellan: 100%, $615k), January 2025 - December 2030. (PI)

[E5.5] Exploring Productive Failure and Gamification to Support Development of AI Literacy, Spencer Foundation, $374.3k (MacLellan: 41%, $153.9k), September 2024 - August 2027. (Co-PI; PI Jessica Roberts)

[E5.4] TA5: EEEI: Ego-Exo-Envivo Intelligence Task Guidance, $14.7M (MacLellan: 8.2%, $1.22M), September 2024 - September 2029. (GaTech PI; Overall PI Edward Kim, Co-PI Judy Hoffman, Co-PI Zsolt Kira, Co-PI Josiah Hester)

[E5.3] CAREER: Human-like Machine Learning to Power Human-Centered Teachable AI Assistants, National Science Foundation, $600k (MacLellan: 100%, $600k), January 2024 - December 2029. (PI)

[E5.2] Computational Models for Measuring and Optimizing Individual and Team-Based Training: A Cognitive Science Approach, US Army, $750k (MacLellan: 34%, $256k), January 2024 - December 2026. (GaTech PI; PI Caitlin Tenison, Co-PI Burcu Arslan)

[E5.1] Interactive Data Engagement for Multimodal Intelligence Analysis, Defense Advanced Research Projects Agency, Total Unknown (MacLellan: $861k), July 2023 - June 2026. (GaTech PI; PI David Ménager, Co-PI Sergei Nirenburg; Co-PI Edward Kim)

F. Other Scholarly and Creative Accomplishments

F1. Software Developed and Maintained

[F1.13] Apprentice Tutors and Tutor Builder: A platform that enables end users to author AI tutors and deploy them to classrooms through learning management systems.

[F1.12] TutorGym: A platform for evaluating AI agents as simulated students and as tutors. It leverages previously deployed intelligent tutors (Apprentice, CTAT, and OA) and human and synthetic problem-solving data. `https://github.com/Teachable-AI-Lab/tutor_gym`

[F1.11] DiceAdventure: A cooperative game for studying human-AI teaming. `https://github.com/STRONG-TACT/HMT-Game-1`

[F1.10] VAL: The verbal apprentice learner agent; it is able to learn and update hierarchical task knowledge from verbal instructions. `https://github.com/Teachable-AI-Lab/val`

[F1.9] Cobweb: A concept formation system that supports data-efficient, continual learning without catastrophic forgetting. `https://github.com/cmaclell/concept_formation` and `https://github.com/Teachable-AI-Lab/cobweb`

[F1.8] PyHTN: A python-based hierarchical task network planning system that supports similar functionality to SHOP2. `https://github.com/Teachable-AI-Lab/pyHTN`

[F1.7] SparseCoding: A library for creating convolutional sparse coding neural networks in PyTorch and Tensorflow. `https://gitlab.cci.drexel.edu/teachable-ai-lab/sparse_coding_torch`

[F1.6] TorcHMM: A PyTorch implementation of various hidden Markov model inference and learning algorithms. `https://github.com/cmaclell/torchmm`

[F1.5] The Apprentice Learner Architecture: A framework for creating and using computational models of tutored learning. `https://github.com/apprenticelearner`

[F1.4] PyRete: A python-based implementation of a RETE-based production-rule engine. `https://github.com/cmaclell/py_rete`

[F1.3] PyPlan: A python-based implementation of dozens of lifted planning algorithms in a standard framework. `https://github.com/cmaclell/py_plan`

[F1.2] PySearch: A python-based implementation of dozens of search algorithms in a standard framework. `https://github.com/cmaclell/py_search`

[F1.1] PyAFM: A python-based implementation of the additive factors model with slipping support, for learning curve fitting. `https://github.com/cmaclell/pyAFM`

G. Societal and Policy Impacts

[G.1] My Apprentice Tutors project (funded through the NSF AI ALOE Institute) supported the creation and deployment of over 46 intelligent tutoring systems for the Technical College System of Georgia. These tutors were made available as a supplemental resource in over 300 classes, serving more than 5300 adult learners in the state of Georgia.

[G.2] My project on learning Point-of-Care Ultrasound AI models from limited data (funded by DARPA) generated a patent-pending approach for ultrasound video diagnosis. The approach was validated by the FDA and found to achieve state of the art performance (see Hannan et al., 2023 for details). Our work and interactions with the FDA has informed how they evaluate AI models for medicine.

[G.3] My project on effective human-AI teaming (funded by ARL) has supported multiple cooperative game competitions (see `https://strong-tact.github.io`) that let people submit AI teaming agents or play with agents themselves. This work has raised awareness of human-AI teaming within the gaming community and made research on this topic broadly accessible to researchers and students around the world.

H. Other Professional Activities

No Data.

V. Education

A. Courses Taught

A1. Georgia Institute of Technology, School of Interactive Computing

CS 4635/7637 – Knowledge-Based AI, 125 students.	Fall 2025
CS 8803 – Human-AI Interaction, 50 students.	Spring 2025
CS 4635/7637 – Knowledge-Based AI, 125 students.	Fall 2024
CS 8803 – Human-AI Interaction, 50 students.	Spring 2024
CS 4635/7637 – Knowledge-Based AI, 125 students.	Fall 2023
CS 4635/7637 – Knowledge-Based AI, 125 students.	Fall 2022

A2. Drexel University, Computing and Informatics

DS 521 – Data Analysis and Interpretation, 30 students.	Spring 2022
DS 511 – Data Acquisition and Preprocessing, 30 students.	Winter 2022
CS 8803 – Human-AI Interaction, 20 students.	Fall 2021
INFO T780 – Seminar on Human-AI Interaction, 20 students.	Spring 2021
DS 521 – Data Analysis and Interpretation, 25 students.	Winter 2021
DS 511 – Data Acquisition and Preprocessing, 25 students.	Fall 2020

July 8, 2025

B.   Individual Student Guidance

Guidance Category	Total GT Students	Overall Total
Ph.D. Students	6	9
M.S. Students	20	22
Undergraduate Students	8	20
Service on Thesis or Dissertation Committee	3	9
Mentorship of Postdoctoral Fellows or Visiting Scholars	3	3
Total	40	62

B1.   Ph.D. Students

Momin Siddiqui, Interactive Computing, Georgia Institute of Technology.   Fall 2025–Present
> *Advisor*: Christopher J. MacLellan
> *PhD Program*: Computer Science
> *Concentration*: Intelligent Systems
> *Project*: Low-Barrier Educational Technologies

Zekun Wang, Interactive Computing, Georgia Institute of Technology.   Summer 2024–Present
> *Advisor*: Christopher J. MacLellan
> *PhD Program*: Computer Science
> *Concentration*: Intelligent Systems
> *Project*: Probabilistic Concept Formation

Jieyu Zhou, Interactive Computing, Georgia Institute of Technology.   Spring 2024–Present
> *Advisor*: Christopher J. MacLellan
> *PhD Program*: Computer Science
> *Concentration*: Human-Computer Interaction
> *Project*: Human-AI Interaction Design for Interactive Task Learning

Jennifer Reddig, Interactive Computing, Georgia Institute of Technology.   Fall 2023–Present
> *Advisor*: Christopher J. MacLellan
> *PhD Program*: Human-Centered Computing
> *Concentration*: Learning Science & Technology
> *Project*: Leveraging AI to Personalized Learning for Adults
> *Candidacy Exam Passed*: April 2025

Glen Smith, Interactive Computing, Georgia Institute of Technology.   Fall 2021–Present
> *Advisor*: Christopher J. MacLellan
> *PhD Program*: Computer Science
> *Concentration*: Intelligent Systems
> *Project*: End-User Tools for Building and Personalizing Intelligent Tutors
> *Transferred from Drexel to Georgia Tech:* Spring 2023
> *Candidacy Exam Passed*: August 2024

Qiao Zhang, Interactive Computing, Georgia Institute of Technology.   Fall 2020–Present
> *Advisor*: Christopher J. MacLellan
> *PhD Program*: Computer Science
> *Concentration*: Intelligent Systems
> *Project*: Investigating Human-AI Teaming using Games
> *Transferred from Drexel to Georgia Tech:* Fall 2022
> *Candidacy Exam Passed*: May 2023

Nicki Barari, Computing and Informatics, Drexel University. Summer 2023–Present
    Co-Advisors: Christopher J. MacLellan and Edward Kim
    PhD Program: Computer Science
    Project: Human-Like Learning of Visual Concepts
    Candidacy Exam Passed: December 2023
    Thesis Proposed: February 2025

Adit Gupta, Computing and Informatics, Drexel University. Spring 2020–Spring 2025
    Advisor: Christopher J. MacLellan
    PhD Program: Computer Science
    Thesis Title: Designing and Deploying Scalable Intelligent Tutoring Systems to Enhance Adult Education
    Candidacy Exam Passed: Spring 2021
    Thesis Proposed: January 2024
    Thesis Defended: January 2025

Darryl Hannan, Computer Science, Drexel University. Fall 2021–Fall 2024
    Co-Advisors: Edward Kim and Christopher J. MacLellan
    PhD Program: Computer Science
    Thesis Title: Leveraging Multiple Modalities and Expert Knowledge for Limited Data Scenarios
    Transferred from UNC Chapel Hills to Drexel: Fall 2021
    Candidacy Exam Passed: December 2023
    Thesis Proposed: January 2024
    Thesis Defended: September 2024

B2. M.S. Students

Chunyi Wang, Independent Study, Georgia Tech. (Human-AI Teaming) Spring 2025 – Present
Jisu Kim, Independent Study, Georgia Tech. (Presentation Q&A) Spring 2025 – Present
Elias Izmirlian, Independent Study, Georgia Tech. (Apprentice Tutors) Fall 2024 – Present
Ethan Haarer, Independent Study, Georgia Tech. (Cobweb) Fall 2024 – Present
Avery Gong, Independent Study, Georgia Tech. (Finishing MS) Spring 2025
Shreyas Ravi, Independent Study, Georgia Tech. (Finishing MS) Spring 2025
Sneh Gupta, Independent Study, Georgia Tech. (Finishing MS) Spring 2025
Prasad Shetye, Independent Study, Georgia Tech. (Finishing MS) Spring 2025
Dan Nedelescu, Research Assistant, Georgia Tech. (Human-AI Teaming) Fall 2023 – Spring 2025
Momin Siddiqui, Research Assistant, Georgia Tech. (At GT for PhD) Fall 2023 – Spring 2025
    (Momin received the IPaT Foley Scholar Award)
Jiehui Kwa, Independent Study, Georgia Tech. (Finishing MS) Fall 2024
Rui Shen, Independent Study, Georgia Tech. (Finishing MS) Fall 2024
Yue You, Research Assistant, Georgia Tech. (At Flowith) Summer 2024 – Fall 2024
Nishant Baglodi, Research Assistant, Georgia Tech. (Finishing MS) Spring 2024 – Summer 2024
Drishti Jain, Independent Study, Georgia Tech. (At Adobe) Fall 2024
Rishi Pathak, Independent Study, Georgia Tech. (At Amazon) Fall 2024
Namyata Cheduri, Independent Study, Georgia Tech. (At Workday) Spring 2023
Xin Lian, Research Assistant, Georgia Tech (At Northwestern for PhD) Fall 2022 – Summer 2024
Anusha Srinivasa, Independent Study, Georgia Tech. (At Amazon) Fall 2022
Niharika Gali, Independent Study, Georgia Tech. (At Nvidia) Fall 2022
Andrew Chen, Independent Study, Drexel. (At Stevens Tech for PhD) Fall 2021 – Summer 2022

Natasha Lalwani, Independent Study, Drexel. (At Fractal)   Fall 2021 – Summer 2022

B3.   Undergraduate Students

Karthik Singaravadivelan, Independent Study, ISLE. (Cobweb)   Summer 2025 – Present
Kaitlyn Crutcher, Independent Study, Georgia Tech. (Apprentice Tutors) Fall 2024 – Spring 2025
Arav Arora, Independent Study, Georgia Tech. (Apprentice Tutors)   Fall 2024 – Spring 2025
Zory Zhang, Summer Intern, ISLE/Georgia Tech. (At Brown for PhD)   Summer 2024
Adi Krish, Independent Study, Georgia Tech. (Finishing BS)   Spring 2024
Duy Nguyen, Independent Study, Georgia Tech. (Finishing BS)   Fall 2023
Tanush Chopra, Independent Study, Georgia Tech. (At Amazon)   Fall 2023
Josh Fernandes, Independent Study, Georgia Tech. (At Meta)   Summer 2023 – Fall 2023
Peter Matsakis, Summer Intern, ISLE/Georgia Tech. (At Univ of Waterloo for BS) Summer 2022
Harshil Thaker, Independent Study, Drexel. (At IBM)   Summer 2021 – Summer 2022
Daniel Sin, Summer Coop, Drexel, (At UPenn for MS)   Spring 2021 – Summer 2021
Amrith Deepak, Independent Study, Carnegie Mellon. (At JPMorgan Chase)   Fall 2016
Anant Dadu, Independent Study, Carnegie Mellon. (At NIH)   Summer 2016
Zach Halle, Independent Study, Carnegie Mellon.   Summer 2015
Aohan Lin, Independent Study, Carnegie Mellon. (At Meta)   Summer 2014
Mengfan Zou, Independent Study, Carnegie Mellon. (At Amazon)   Summer 2014
Aditya Kothari, Independent Study, Carnegie Mellon.   Summer 2014
Steven Dang, Independent Study, Carnegie Mellon. (At Lexia Learning)   Fall 2013 – Spring 2014
Chiddu Bhat, Independent Study, Carnegie Mellon.   Summer 2013
Collin Walker, Independent Study, Arizona State.   Summer 2012

B4.   Service on Thesis or Dissertation Committees

Karan Taneja, PhD in CS, Georgia Institute of Technology.   Spring 2025 – Present
  Committee Role: Member
  Advisor: Ashok Goel
  Thesis Title: Conversational AI in Education: Design, Evaluation and Continual Improvement
Steven Nesbit, PhD in CS, Drexel University.   Fall 2022 – Present
  Committee Role: Member
  Advisor: Edward Kim
  Thesis Title: All the Intelligence at a Fraction of the Cost: Machine Learning on Neuromorphic
    Hardware
Vijay Marupudi, PhD in HCC, Georgia Institute of Technology.   Defended Spring 2025
  Committee Role: Member
  Advisor: Sashank Varma
  Thesis Title: Investigating the role of visual clustering in approximate numerosity perception
Adit Gupta, PhD in CS, Drexel University.   Defended Jan 2025
  Committee Role: Chair
  Advisor: Christopher MacLellan
  Thesis Title: Designing and Deploying Scalable Intelligent Tutoring Systems to Enhance Adult
    Education
  Current Position: CEO of Lula Commerce
Darryl Hannan, PhD in CS, Drexel University.   Defended Sept 2024

Committee Role: Co-Chair
Advisors: Edward Kim and Christopher MacLellan
Thesis Title: Leveraging Multiple Modalities and Expert Knowledge for Limited Data Scenarios
Current Position: Postdoctoral Researcher at Pacific Northwest National Labs

Danny Weitekamp, PhD in HCI, Carnegie Mellon University.   Defended Aug 2024
Committee Role: Member
Advisor: Ken Koedinger
Thesis Title: Building Educational Technology Quickly and Robustly with an Interactively
    Teachable AI
Current Position: Incoming Postdoctoral Researcher at Georgia Tech

Angela Mastrianni, PhD in Info Sci, Drexel University.   Defended June 2024
Committee Role: Member
Advisor: Aleksandra Sarcevic
Thesis Title: Designing Computerized Support for Identifying and Treating Patients with
    Life-Threatening Injuries During Medical Emergencies

Jane Kim, MS in Industrial Design, Georgia Institute of Technology.   Defended May 2024
Committee Role: Member
Advisor: Leandro Tonetto
Thesis Title: Designing an At-Home Breast Cancer Screening Kit

Adam Johs, PhD in Info Sci, Drexel University.   Defended Apr 2024
Committee Role: Member
Advisor: Rosina Weber
Thesis Title: A Qualitative Investigation of Explanation Goodness in a Biomedical AI System
Current Position: Senior UX Researcher at Vanguard

B5. Mentorship of Postdoctoral Fellows or Visiting Scholars

Danny Weitekamp, Postdoc, Georgia Tech. (Interactive Task Learning)   Fall 2024 – Present
Tommaso Caló, Visiting Student, Georgia Tech. (At PoliTO for Postdoc) Fall 2024 – Summer 2024
Lane Lawley, Postdoc, Georgia Tech. (At PayChex)   Spring 2022 – Summer 2023

C. Educational Innovations and Other Contributions

C1. New Courses and Mentoring Programs Developed

Human-AI Interaction (CS 8803), Georgia Institute of Technology.   Spring 2024
Graduating PhD Student Mentoring Program, Georgia Institute of Technology.   Fall 2022
Human-AI Interaction (INFO 873), Drexel University.   Fall 2021
Seminar on Human-AI Interaction (INFO T780), Drexel University.   Spring 2021

C2. Tutorials and Summer Schools Developed and Taught

Tutorial on Probabilistic Concept Formation, AAAI.   Spring, 2024
Computational Models of Learning, CMU LearnLab Summer School.   Summer, 2023
Computational Models of Learning, CMU LearnLab Summer School.   Summer, 2022
Computational Models of Learning, CMU LearnLab Summer School.   Summer, 2021
Computational Models of Learning, CMU LearnLab Summer School.   Summer, 2020
Computational Models of Learning, CMU LearnLab Summer School.   Summer, 2019

C3.   Participation in Candidacy and Qualifier Exams

Shi Ding, LMC Qualifier Exam, Digital Media PhD Program, Georgia Tech.	Spring 2025
Linqing Wang, HCI Qualifier Exam, HCC PhD Program, Georgia Tech.	Spring 2025
Kayla Evans, CogSci Qualifier Exam, HCC PhD Program, Georgia Tech.	Spring 2025
Jennifer Reddig, LS&T Qualifier Exam, HCC PhD Program, Georgia Tech.	Spring 2025
Cuong Nguyen, Social Computing Qualifier Exam, CS PhD Program, Georgia Tech.	Spring 2025
Cognitive Science Qualifier Exam, HCC PhD Program, Georgia Tech.	Spring 2025
Learning Science & Technology Qualifier Exam, HCC PhD Program, Georgia Tech.	Spring 2025
Glen Smith, Intelligent Systems Qualifier Exam, CS PhD Program, Georgia Tech.	Fall 2024
Adit Gupta, Candidacy Exam, PhD Student in CS, Drexel University.	Fall 2024
Learning Science & Technology Qualifier Exam, HCC PhD Program, Georgia Tech.	Spring 2024
John Kos, Intelligent Systems Qualifier Exam, CS PhD Program, Georgia Tech.	Spring 2024
Nicki Barari, Candidacy Exam, PhD Student in CS, Drexel University.	Fall 2023
Darryl Hannan, Candidacy Exam, PhD Student in CS, Drexel University.	Fall 2023
Cognitive Science Qualifier Exam, HCC PhD Program, Georgia Tech.	Fall 2023
Developed AI Specialization Reading List, HCC PhD Program, Georgia Tech.	Spring 2023
Learning Science & Technology Qualifier Exam, HCC PhD Program, Georgia Tech.	Spring 2023
Qiao Zhang, Intelligent Systems Qualifier Exam, CS PhD Program, Georgia Tech.	Spring 2023
Learning Science & Technology Qualifier Exam, HCC PhD Program, Georgia Tech.	Fall 2022
Erica Racine, Candidacy Exam, PhD Student in Info Sci, Drexel University.	Spring 2021
Diva Smriti, Candidacy Exam, PhD Student in Info Sci, Drexel University.	Spring 2021
Jenn Engimann, Candidacy Exam, PhD Student in CS, Drexel University.	Spring 2020

C4.   Guest Lecturers

Educational Technology (CS 6460), Georgia Institute of Technology.	Fall, 2023
Educational Technology (CS 6460), Georgia Institute of Technology.	Fall, 2022
Brain Technology Convergence (BTC I), Drexel University.	Summer, 2021

VI.   Service

A.   Professional Contributions

General Chair, Twelfth Annual Advances in Cognitive Systems Conference.	2024 – Present
Member, Board of Directors, Institute for the Study of Learning and Expertise.	2024 – Present
Member, NSF AI ALOE Institute Executive Committee.	2023 – Present
Co-Organizer, Foundational AI Working Group, NSF ALOE AI Institute.	2022 – Present
Grant Panel Reviewer, National Science Foundation.	2022, 2023, 2024
Organizing Chair, AAAI 2024 Spring Symposium on Human-Like Learning.	2024
Organizing Chair, AAAI 2024 Tutorial on Probabilistic Concept Formation with Cobweb.	2024
Organizing Chair, STRONG Program Human-Machine Teaming Hackathon.	2024
Organizing Co-Chair, Annual Speculative Human-Machine Teaming Workshop.	2022, 2023
Track Chair, LearnLab Summer School, Carnegie Mellon.	2019, 2020, 2021, 2022, 2023
Grant Panel Reviewer, Institute for Education Sciences.	2021
Organizer, Students of Cognitive Systems Workshop, Advances in Cognitive Systems	2016
Organizing Chair, Seventh Annual Inter-Science of Learning Center Conference	2014
Member, Pittsburgh Science of Learning Executive Committee	2013

B.   Public and Community Service

Associate Chair, CHI	2026
Reviewer, CHI	2012–2015, 2019, 2023–2025
Reviewer, AI in Education	2013–2015, 2017, 2018, 2025
Reviewer, Cognitive Systems Research	2025
Reviewer, Learning @ Scale	2016, 2025
Reviewer, EAAI	2025
Reviewer, Journal of Educational Data Mining	2023
Reviewer, Advances in Cognitive Systems	2012–2022
Reviewer, Cognitive Science	2016, 2022
Reviewer, AAAI	2017, 2018, 2020–2022
Reviewer, Educational Data Mining	2013–2020
Reviewer, CHI Play	2020
Reviewer, IAAI	2019
Reviewer, Intelligent Tutoring Systems	2013–2015, 2017, 2018
Exchange Student Host, Carnegie Mellon University Fusion Forum	2015
Reviewer, IEEE Transactions on Learning Technologies	2014
Language Editor, Central European Journal of Computer Science	2011–2014
Member, Graduate Student Professional Society, Arizona State University	2011–2012

C.   Institute Contributions

C1.   Department Service

Member, Faculty Hiring Committee, IC, Georgia Tech	Aug 2024 – Present
Member, IS/CPR/ML Area Committee, IC, Georgia Tech	Aug 2022 – Present
Member, CLS Area Committee, IC, Georgia Tech	Aug 2022 – Present
Member, HCC Area Committee, IC, Georgia Tech	Aug 2022 – Present
Member, HCI Area Committee, IC, Georgia Tech	Aug 2022 – Present
Member, Adjunct Appointment Review Committee, IC, Georgia Tech	Sept 2024 – Nov 2024
Organizer, PhD Student Mentoring Program, IC, Georgia Tech	Aug 2022 – May 2024
Member, Tenure Track Hiring Committee, IS, Drexel	Aug 2021 – June 2022
Faculty Representative, Data Science Open House, Drexel	Oct 2020, May 2021, Aug 2021
Internal NSF Career Grant Reviewer, IS, Drexel	2021
Member, Applied AI/ML Masters Degree Committee, CS, Drexel	July 2021 – Aug 2022
Member, Data Science Curriculum Committee, IS, Drexel	Sept 2020 - Sept 2021
Member, HCI Curriculum Committee, IS, Drexel	Sept 2020 - Sept 2021
Organizer, PIER EdBag Lunch Seminar Series, Carnegie Mellon	2015

C2.   College Service

Internal NSF GRFP Reviewer, College of Computing and Informatics, Drexel University	2020

C3.   University Service

Member, Graduate Student Excellence Awards Review Committee, Drexel University	2021