



Dr. Chad Hogg

Associate Professor / Department Chair of Computer Science

Millersville University

ORCID

GitHub

Summary

Chad Hogg is an Associate Professor and Chair of the Department of Computer Science at Millersville University, where he has taught since 2018. He earned his Ph.D. in Computer Science from Lehigh University in 2011, and his research centers on artificial intelligence — particularly automated planning, machine learning, and case-based reasoning — along with computer science pedagogy and computer gaming. He has authored numerous peer-reviewed publications, supervised student research projects resulting in conference presentations and honors theses, and received multiple awards recognizing his teaching and research.

Education

- **Ph.D. in Computer Science**, Lehigh University, 2011. Dissertation: *Learning Hierarchical Task Networks from Traces and Semantically Annotated Tasks*. [\[PDF\]](#)
- **M.S. in Computer Science**, Lehigh University, 2007.
- **B.S. in Computer Science**, Ursinus College, 2004. Honors thesis: *Computer-Assisted Composition in the 32-bar Jazz Standard Form*. [\[PDF\]](#)

Experience

Academic

- **August 2018 - present:** Department Chair (May 2026 - present) / Associate Professor (August 2025 - present) / Assistant Professor (August 2018 - July 2024) in the Department of Computer Science at Millersville University of Pennsylvania in Millersville, PA.
- **August 2012 - July 2018:** Assistant Professor in the Department of Mathematics & Computing at King's College in Wilkes-Barre, PA. (Promoted to Associate Professor, but left before assuming that title.)
- **August 2011 - May 2012:** Visiting Assistant Professor in the Department of Mathematics & Computer Science at Ursinus College in Collegeville, PA.

- **August 2010 - May 2011:** Instructor in the Department of Mathematics & Computer Information Science at Mansfield University of Pennsylvania in Mansfield, PA.
- **August 2006 - August 2010:** Research Assistant in the InSyTe Lab at Lehigh University in Bethlehem, PA.
- **June 2006 - July 2006:** Instructor in the Department of Computer Science & Engineering at Lehigh University in Bethlehem, PA.
- **September 2004 - May 2006:** Research Assistant in the SEAL-DB Lab at Lehigh University in Bethlehem, PA.

Professional

- **May 2002 - August 2004:** Software Developer at Eagle Solutions in Gap, PA.

Teaching

- From Fall 2018 through Fall 2026, taught 5 sections of *Introduction to Programming 1*, 4 sections of *Computer Graphics*, 17 sections of *Introduction to Programming 2*, 2 sections of *3D Game Programming*, 7 sections of *Database Systems*, 10 sections of *Operating Systems*, 2 sections of *Data Structures*, 1 section of *Special Topics (Search Engines)*, and 1 section of *Artificial Intelligence* at Millersville University of Pennsylvania.
- From Fall 2012 through Spring 2018, taught 6 sections of *Mathematical Ideas*, 3 sections of *Introduction to Computer Science*, 2 sections of *Programming for Scientists & Engineers*, 6 sections of *Fundamentals of Software Development I*, 3 sections of *Fundamentals of Software Development II*, 5 sections of *Database Management Systems*, 7 sections of *Computer Organization*, 1 section of *Theory of Algorithms*, 2 sections of *Theory of Computation*, 3 sections of *Operating Systems*, 3 sections of *Artificial Intelligence*, and 2 sections of *Special Topics in Computer Science: Search Engines* at King's College.
- From Fall 2011 through Spring 2012, taught 2 sections of *Introduction to Computer Science*, 2 sections of *Data Structures*, 1 section of *Computer Architecture & Organization*, and 1 section of *Artificial Intelligence* at Ursinus College.
- From Fall 2010 through Spring 2011, taught 1 section of *Explorations in Computer Science*, 1 section of *Programming With Objects*, 1 section of *Advanced Web Design*, 1 section of *Data Structures*, 1 section of *Operating Systems*, and 1 section of *Software Engineering* at Mansfield University of Pennsylvania.
- In Summer 2006, taught 1 section of *Programming in C & The UNIX Environment* at Lehigh University.

Student Projects Supervised

- **2025-6 Craddock:** Work by Lincoln Craddock (Millersville '26) exploring algorithms for simulating microscopic life, an honors thesis.
- **2023-4 Rivera / Harrison:** Work by Jonathan Rivera (Millersville '24) and Mitchell Harrison (Millersville '24) to develop a tower defense game and test several reinforcement learning algorithms within it. Resulted in a publication at PACISE-24.
- **2022-3 Stevens:** Work by Justin Stevens (Millersville '24) continuing the project begun by Evan Hanzelman below. Resulted in a publication at PACISE-23 that won the Best Faculty Paper award and an honors thesis.
- **2022 Foresta / Pham:** Work by Trevor Foresta (Millersville '22) and Andy Pham (Millersville '22) assisting me with a scheduling problem. Unpublished.
- **2021 Hanzelman:** Work by Evan Hanzelman (Millersville '21) in consultation with Simulation Systems, Inc. to develop a microsurgery simulator in Unity. Unpublished.
- **2020 Hildebrandt:** Work by Jessie Hildebrandt (Millersville '20) on Implementing a 3D Procedurally Animated Walking System. Unpublished.
- **2019 Urban:** Work by Peter Urban (King's '19) on The Dangers and Ethics of Artificial Intelligence, an honors thesis.
- **2017 Morrison:** Work by Victoria Morrison (King's '17) on Soft-Constraint-Based Scheduling, an honors thesis.
- **2016 Melf:** Work by Joseph Melf (King's '16) on Soft-Constraint-Based Scheduling, an honors thesis.
- **2014 Bromiley:** Work by Sean Bromiley (King's '14) on Resident Physician Scheduling, an honors thesis.

Publications

Journal Articles

- **Chad Hogg;** Héctor Muñoz-Avila; Ugur Kuter. (2016) Learning Hierarchical Task Models from Input Traces. *Computational Intelligence* 32(1). [\[PDF\]](#)

Book Chapters

- **Chad Hogg;** Stephen Lee-Urban; Héctor Muñoz-Avila; Bryan Auslander; Megan Smith. (2011) Game AI for Domination Games. In Pedro A. González Calero (Ed.), *Artificial Intelligence for Computer Games*. Springer.

Conference Papers

- **Chad Hogg**. (2024) A Case For Reflection in Autograding. In *Proceedings of the 29th Annual ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE-24)*. [\[PDF\]](#) (acceptance rate unknown)
- **Chad Hogg**; Maria Jump. (2022) Designing Autograders for Novice Programmers. In *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education (SIGCSE-22)*. [\[PDF\]](#) (acceptance rate unknown; took the form of a workshop)
- **Chad Hogg**; Ugur Kuter; Héctor Muñoz-Avila. (2010) Learning Methods to Generate Good Plans: Integrating HTN Learning and Reinforcement Learning. In *Proceedings of the Twenty-Fourth AAAI Conference on Artificial Intelligence (AAAI-10)*. [\[PDF\]](#) (acceptance rate 29%)
- Hua Li; Héctor Muñoz-Avila; Diane Bramsen; **Chad Hogg**; Rafael Alonso. (2009) Spatial Event Prediction by Combining Value Function Approximation and Case-Based Reasoning. In *Proceedings of the 8th International Conference on Case-Based Reasoning (ICCBR-09)*. [\[PDF\]](#) (acceptance rate for oral presentation $17/55 = 30.9\%$)
- **Chad Hogg**; Héctor Muñoz-Avila; Ugur Kuter. (2009) Learning Hierarchical Task Networks for Nondeterministic Planning Domains. In *Proceedings of the Twenty-First International Joint Conference on Artificial Intelligence (IJCAI-09)*. [\[PDF\]](#) (acceptance rate $331/1290 = 25.7\%$)
- Hankz Hankui Zhuo; Qiang Yang; Derek Hao Hu; **Chad Hogg**; Héctor Muñoz-Avila. (2009) Learning HTN Method Preconditions and Action Models from Partial Observations. In *Proceedings of the Twenty-First International Joint Conference on Artificial Intelligence (IJCAI-09)*. [\[PDF\]](#) (acceptance rate $331/1290 = 25.7\%$)
- Bryan Auslander; Stephen Lee-Urban; **Chad Hogg**; Héctor Muñoz-Avila. (2008) Recognizing The Enemy: Combining Reinforcement Learning with Strategy Selection using Case-Based Reasoning. In *Proceedings of the 9th European Conference on Advances in Case-Based Reasoning (ECCBR-08)*. [\[PDF\]](#) (acceptance rate for oral presentation $18/71 = 25.4\%$)
- **Chad Hogg**; Héctor Muñoz-Avila; Ugur Kuter. (2008) HTN-MAKER: Learning HTNs with Minimal Additional Knowledge Engineering Required. In *Proceedings of the Twenty-Third AAAI Conference on Artificial Intelligence (AAAI-08)*. [\[PDF\]](#) (acceptance rate $227/937 = 24.2\%$)
- Ian Warfield; **Chad Hogg**; Stephen Lee-Urban; Héctor Muñoz-Avila. (2007) Adaptation of Hierarchical Task Network Plans. In *Proceedings of the Twentieth Flairs International Conference (FLAIRS-07)*. [\[PDF\]](#) (acceptance rate unknown)

Workshop Papers

- Mitchell Harrison; Justin Stevens; Jonathan Rivera; **Chad Hogg**. (2024) Training Artificial Intelligence Agents to Play a Tower Defense Game Using Reinforcement Learning. In *Proceedings of the 38th Annual Spring Conference of the Pennsylvania Computer and Information Science Educators (PACISE-24)*. [\[PDF\]](#)
- Justin Stevens; **Chad Hogg**; Evan Hanzelman; Brian Smith; Joseph Sassani. (2023) Modelling a Microsurgical Suture in Unity. In *Proceedings of the 37th Annual Spring Conference of the Pennsylvania Computer and Information Science Educators (PACISE-23)*. [\[PDF\]](#) Awarded Best Faculty Paper.
- **Chad Hogg**. (2022) Lessons from Surviving an Academic Ransomware Attack. In *Proceedings of the 36th Annual Spring Conference of the Pennsylvania Computer and Information Science Educators (PACISE-22)*. [\[PDF\]](#)
- **Chad Hogg**. (2020) Reflection-Based Precise Auto-Grading. In *Proceedings of the 35th Annual Spring Conference of the Pennsylvania Computer and Information Science Educators (PACISE-20)*. [\[PDF\]](#) Awarded Best Faculty Paper
- Hankz Hankui Zhuo; Derek Hao Hu; Qiang Yang; **Chad Hogg**; Héctor Muñoz-Avila. (2009) Learning Model Structures in AI Planning from Partial Observations. In *Proceedings of the IJCAI-09 Workshop on Learning Structural Knowledge from Observations (Struck-09)*. [\[PDF\]](#)
- **Chad Hogg**; Ugur Kuter; Héctor Muñoz-Avila. (2009) From Plan Traces to Hierarchical Task Networks Using Reinforcements: A Preliminary Report. In *Proceedings of the IJCAI-09 Workshop on Learning Structural Knowledge from Observations (Struck-09)*. [\[PDF\]](#)
- **Chad Hogg**; Stephen Lee-Urban; Bryan Auslander; Héctor Muñoz-Avila. (2008) Discovering Feature Weights for Feature-Based Indexing of Q-Tables. In *Proceedings of the Uncertainty and Knowledge Discovery in CBR Workshop at the 9th European Conference on Advances in Case-Based Reasoning (ECCBR-08)*. [\[PDF\]](#)
- **Chad Hogg**. (2007) From Task Definitions and Plan Traces to HTN Methods. In *Proceedings of the Doctoral Consortium at the Seventeenth International Conference on Automated Planning and Scheduling (ICAPS-07)*. [\[PDF\]](#)
- **Chad Hogg**; Héctor Muñoz-Avila. (2007) Learning Hierarchical Task Networks from Plan Traces. In *Proceedings of the AI Planning and Learning Workshop (AIPL) at the Seventeenth International Conference on Automated Planning and Scheduling (ICAPS-07)*. [\[PDF\]](#)

Presentations

Every Conference or Workshop publication listed above for which I was the first author, and a few for which I was not, with the exception of PACISE-20 that was cancelled due to COVID-19.

Invited

- **AI Workshop For Schools.** At the *Mid-Atlantic Association of Career Schools Annual Conference* at the Lancaster Convention Center in Lancaster, PA on July 21, 2026. A workshop led jointly with Dr. Marc Tomljanovich.
- **Artificial Intelligence and Its Impact on Society.** At *Trinity Lutheran Church* in Mount Joy, PA on August 4, 2024. A public lecture, later recorded and made available as a video series on YouTube.
- **Large Language Models in Nursing Education.** At the *Pennsylvania Higher Education Nursing Schools Association Fall 2023 Conference* at the Best Western Premier in Harrisburg, PA on September 12, 2023. An invited talk that closed the conference.
- **Sorting Algorithms Demonstration.** At the *Computer Club at Luther Acres Retirement Community* on January 26, 2023. An interactive presentation in which attendees applied different sorting techniques to shuffled decks of cards.

Other

- **Teaching Computers to Make Plans.** At the *Women in Mathematics, Science and Technology Conference* at Millersville University on April 6, 2021 as a “science demonstration” about my research so that attendees might be inspired to study Computer Science.
- **An Introduction to Unity for Game Development.** At the *Central Pennsylvania Open Source Conference* held virtually on December 5, 2020, about how attendees might start using the tool. Presented jointly with Dr. Chris Cain of Millersville University.
- **Integrating Quizlet as a Study Aid.** At the *Tech For Teaching Day Workshop* at King's College on May 15, 2018, about my experiences using the tool in my courses.
- **Flipping the CS116 Classroom.** At the *Faculty Development Day* at King's College on January 12, 2018, reporting on curriculum development for which I had been awarded a grant.
- **Student Scheduling with Constraint Satisfaction.** At the *Summer Science Seminar Series* at King's College on May 6, 2017, about my research.

Grant Proposals

Awarded

- **2022:** A Travel to Present grant from Millersville University's Faculty Grants Committee, for the purpose of leading a workshop at SIGCSE 2022. Competitiveness: unknown. Amount: \$500.
- **2017:** An Innovation in Teaching Grant from King's College's Center for Excellence in Learning and Teaching, for the purpose of redesigning the delivery of the introductory programming course there. Competitiveness: 2 awarded annually to King's College faculty members. Amount: \$500.

Not Awarded

- **2024:** An NSF Small Business Technology Transfer (STTR) proposal, co-written with the principals of Simulation Systems, Inc., to fund continued development of a virtual reality microsurgery training simulator. Competitiveness: unknown. Amount: \$74,312 to Millersville University and \$130,000 to Simulation Systems, Inc. Declined.
- **2022:** A Mentored Undergraduate Summer Experience grant for student Marshall Feng to participate in a research project with me. Competitiveness: unknown. Amount: unknown.
- **2021:** An American Rescue Plan: Humanities Organizations grant from the National Endowment for the Humanities. The grant would have supported the university's efforts to digitize the WGAL film collection and incorporate it into pedagogy in the university and local secondary schools. Co-written with Marilyn Parrish, Andy Weilash, Josh Hartranft, and James Machado, all of Millersville University. Competitiveness: Approximately 150 organizations. Amount: \$183,642.
- **2020:** A Coronavirus Aid, Relief, and Economic Security Act grant from the National Endowment for the Humanities. The grant would have supported the WGAL digitization project described above. Co-written with Marilyn Parrish, Andy Weilash, and James Machado, all of Millersville University. Competitiveness: Approximately 300 organizations. Amount: \$220,000.
- **2019:** A Mentored Undergraduate Summer Experience grant for student Drew Walizer to participate in a research project with me and William Killian. Competitiveness: unknown. Amount: unknown.

Awards and Honors

- **2023:** Awarded Best Faculty Paper for "Modelling a Microsurgical Suture in Unity" at PACISE-23.

- **2020:** Awarded Best Faculty Paper for "Reflection-Based Precise Auto-Grading" at PACISE-20.

Conferences Attended

- **ITiCSE:** The ACM Conference on Innovation and Technology in Computer Science Education, on July 8-10, 2024 in Milan, IT.
- **SIGCSE:** The Special Interest Group on Computer Science Education's Technical Symposium, on March 2-5, 2022 in Providence, RI; on March 14-20, 2021 virtually, on February 21-24, 2018 in Baltimore, MD; on March 8-11, 2017 in Seattle, WA; on March 2-5, 2016 in Memphis, TN; on March 4-7, 2015 in Kansas City, MO; and on March 5-8, 2014 in Atlanta, GA.
- **CPOSC:** The Central Pennsylvania Open Source Conference, on December 5, 2020 virtually, on September 21, 2019, and on December 1, 2018 at the Ware Center in Lancaster, PA.
- **CSAB:** A Computing Accreditation Workshop on November 4, 2019 in Baltimore, MD.
- **Robot Learning:** A Robot Learning Workshop October 14-15, 2019 at Lehigh University in Bethlehem, PA.
- **PACISE:** The Spring Conference Of The Pennsylvania Computer And Information Science Educators, on April 4, 2020 virtually; on April 12, 2019 at Millersville University in Millersville, PA; on March 24-25, 2023 at East Stroudsburg University in East Stroudsburg, PA; and on April 5-6, 2024 at Kutztown University in Kutztown, PA.
- **AAAI:** The AAAI Conference on Artificial Intelligence, on July 11-15, 2010 in Atlanta, GA and July 13-17, 2008 in Chicago, IL.
- **IJCAI:** The International Joint Conference on Artificial Intelligence, on July 12-17, 2009 in Pasadena, CA.
- **ICAPS:** The International Conference on Automated Planning and Scheduling, on September 22-26, 2007 in Providence, RI.

Professional Memberships

- The Association for Computing Machinery, and its Special Interest Group on Computer Science Education.
- The Association for the Advancement of Artificial Intelligence.

Research Interests

- **Automated Planning:** The majority of my research has been on planning systems and learning domain knowledge for planning, especially Hierarchical Task Network (HTN) planning.
- **Machine Learning:** Most of my work is in explanation-based learning through logical inference and induction, but I am also interested in statistical machine learning.
- **AI Applications:** I have come to believe that doing cutting-edge, theoretical work is not compatible with my present responsibilities and aspirations, so I have been moving toward applying existing technology toward novel problems.
- **Pedagogy:** Because I spend most of my time these days teaching and trying to improve my pedagogy, I would like to start publishing in the computer science education community.
- **Digital Preservation:** My work as part of a Millersville University project to digitize, archive, and make available film from a local television station has opened this new area of interest for me.
- **Simulation:** I have begun working on building virtual reality simulators for training surgeons.

Service

To My Institution

- **(ongoing):** Served on and chaired a variety of committees within the Department of Computer Science and the College of Science and Technology at Millersville University, including faculty search committees, the accreditation and assessment committee, and the student recruitment and retention committee.
- **(ongoing):** Served on the MU-WGAL Preservation Task Force / Advisory Board, helping gather information, author reports to the Millersville University President, and broker a partnership between Millersville University and WGAL to digitize and preserve local television news archives.
- **(ongoing):** Advised the Board Game Club at Millersville University.
- **2023-present:** Advised the Coding Club at Millersville University, coaching students for programming competitions.
- **2020-2023, 2025-present:** Served on the Academic Policies Committee of Millersville University.

- **2023-2025:** Served on the AI Academic Integrity Task Force and University AI Exploration Committee at Millersville University.
- **2024:** Co-organized and moderated a breakout session at "Lancaster: A Conversation on the Future of Work," a symposium sponsored by Millersville University examining the impact of artificial intelligence on local businesses and organizations.
- **2018-2020:** Represented the Computer Science department on the Faculty Senate at Millersville University.
- **2014-2016:** Represented the Division of Natural Sciences on the Curriculum & Teaching Committee at King's College.
- **2013-2015:** Represented the Division of Natural Sciences on the Public Policy & Social Research Institute board at King's College.
- **2010-2011:** Represented the department of Mathematics & Computer Information Science in the Mansfield University Senate.
- **2010-2011:** Served on Disciplinary Review Board at Mansfield University.

To My Profession

- **(ongoing):** Reviewed for a number of publication venues, including the AAAI, FLAIRS, ICCBR, ECCBR, IJCAI, and SIGCSE conferences and Computational Intelligence and Transactions on Computational Intelligence, AI in Games, IEEE Transactions on Games, and Journal of Artificial Intelligence Research journals.
- **2018-2019:** Served as the registration chair for the 34th Annual Spring Conference of the Pennsylvania Computer and Information Science Educators.
- **2024:** Served as a background source for Lancaster Newspapers on a story about the impact of artificial intelligence on the election.
- **2023:** Provided on-camera interviews and classroom footage for a WGAL news special report on the impact of artificial intelligence on higher education.

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