

Dustin Dannenhauer

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Current position

Postdoctoral Fellow of the National Research Council at the Naval Research Laboratory

Areas of specialization

Computer Science • Artificial Intelligence
Goal Reasoning • Automated Planning • Instance-based Learning
Execution Monitoring • Metacognition • Cognitive Architectures

Education

- 2012 - 2017 PH.D. in Computer Science, Lehigh University
Advisor: Hector Munoz-Avila
Dissertation Title: “*Self Monitoring Goal Driven Autonomy Agents*”
- 2008 - 2012 B.S. in Computer Science, Indiana University Bloomington
Departmental Honors
Specializations: Artificial Intelligence, Programming Language Theory

Publications

REFEREED CONFERENCE AND WORKSHOP PROCEEDINGS

- 2018 Molineaux, M., Floyd, M. W., Dannenhauer, D., Aha, D. W. Human-Agent Teaming as a Common Problem for Goal Reasoning. *Symposium on Integrating Representation, Reasoning, Learning, and Execution for Goal Directed Autonomy*. AAAI Spring Symposium Series 2018. Stanford University, CA. 2018. <http://siddharthsrivastava.net/sirle18/>
- 2018 Molineaux, M., Dannenhauer, D., Aha, D. W. Towards Explainable NPCs: A Relational Exploration Learning Agent. *Knowledge Extraction from Games Workshop*. New Orleans, LA. AAAI. 2018. <https://sites.google.com/view/kegworkshop/>
- 2017 Cox, M. T., Dannenhauer, D., & Kondrakunta, S. Goal Operations for Cognitive Systems. *Proceedings of the 31st AAAI Conference on Artificial Intelligence*. Palo Alto, CA: AAAI Press. In press.

- 2016 Dannenhauer, D., Munoz-Avila, H., & Cox, M. T. Informed Expectations to Guide GDA Agents in Partially Observable Environments. *Proceedings of the 25th International Joint Conference on Artificial Intelligence (IJCAI)*. Palo Alto, CA: AAAI Press. 2016.
- 2016 Cox, M. T., & Dannenhauer, D. Goal transformation and goal reasoning. M.Roberts (Ed.), *Working Notes of the 4th Workshop on Goal Reasoning*. New York, IJCAI. 2016. <http://makro.ink/ijcaiz016grw/>
- 2016 Dannenhauer, D. Self Monitoring Goal Driven Autonomy Agents. *Doctoral Consortium, International Joint Conference on Artificial Intelligence (IJCAI)*. AAAI Press, 2016.
- 2016 Cox, M. T., Alavi, Z., Dannenhauer, D., Eyorokon, V., & Munoz-Avila, H. MIDCA: A Metacognitive, Integrated Dual-Cycle Architecture for Self-regulated Autonomy. *Proceedings of the 30th AAAI Conference on Artificial Intelligence (AAAI)*. Palo Alto, CA: AAAI Press. 2016.
- 2015 Dannenhauer, D., & Munoz-Avila, H. Raising expectations in GDA agents acting in dynamic environments. *Proceedings of the 24th International Conference on Artificial Intelligence (IJCAI)*. AAAI Press, 2015.
- 2015 Dannenhauer, D., & Munoz-Avila, H. Goal-Driven Autonomy with Semantically-annotated Hierarchical Cases. *International Conference on Case-Based Reasoning (ICCBR)*. Springer International Publishing, 2015. 88-103.
- 2015 Munoz-Avila, H., Dannenhauer, D., & Cox, M. T. Towards cognition-level goal reasoning for playing real-time strategy games. *Goal Reasoning: Papers from the ACS Workshop*. 2015.
- 2014 Dannenhauer, D., Cox, M. T., Gupta, S., Paisner, M. & Perlis, D. Toward meta-level control of autonomous agents. In *Proceedings of the 2014 Annual International Conference on Biologically Inspired Cognitive Architectures: Fifth annual meeting of the BICA Society (BICA)*. Elsevier/Procedia Computer Science, 41, 226-232. 2014.
- 2013 Dannenhauer, D. Ontological Knowledge for Goal-Driven Autonomy Agents in Starcraft. *Doctoral Consortium, 9th Artificial Intelligence and Interactive Digital Entertainment Conference (AIIDE)*. 2013.
- 2013 Dannenhauer, D. & Munoz-Avila, H. LUIGi: A Goal-Driven Autonomy Agent Reasoning with Ontologies. *Advances in Cognitive Systems Conference (ACS)*. 2013.
- 2013 Dannenhauer, D., Munoz-Avila, H. Case-based Goal Selection Inspired by IBM's Watson. *International Conference on Case-Based Reasoning (ICCBR)*. Springer. 29-43. 2013.
- MAGAZINE ARTICLES AND BLURBS
- 2017 Dannenhauer, D. "Planning and Scheduling." *AI Topics*. Apr. 2017. <https://aitopics.org/class/Technology/IT/AI/Representation%20&%20Reasoning/Planning%20&%20Scheduling> Web.

Teaching

TEACHING ASSISTANT AT LEHIGH UNIVERSITY

- Fall 2014 *CSE 318: Intro To Theory Of Computation*
- Fall 2014 *CSE 340: Design and Analysis of Algorithms*

UNDERGRADUATE INSTRUCTOR AT INDIANA UNIVERSITY BLOOMINGTON

- Spring 2012 *CSCI-C211: Introduction to Computer Science*
- Fall 2011 *CSCI-B351: Introduction to Artificial Intelligence*
- Spring 2011 *CSCI-C211: Introduction to Computer Science*
- Fall 2010 *CSCI-C311: Introduction to Programming Languages*
- Spring 2010 *CSCI-C211: Introduction to Computer Science*
- Fall 2009 *CSCI-C211: Introduction to Computer Science*

Honors & Awards

- 2017 - Pres. National Research Council (NRC) Postdoctoral Research Award
- 2014 - 2017 Rossin Doctoral Fellow
- 2012 - 2013 Lehigh University Fellowship
- 2011 - 2012 Ronald E. McNair Postbaccalaureate Achievement Program Recipient
- 2010 Undergraduate Instructor of the Year Award
Department of Computer Science, Indiana University
Awarded solely based on student nominations

Service

- 2018 Publicity Chair for the International Conference on Case-based Reasoning (ICCB-2018)
- 2018 Program Committee Reviewer for International Conference on Case-based Reasoning (ICCB-2018)
- 2018 Reviewer for Knowledge Extraction from Games Workshop (AAAI-2018)
- 2018 Organized and chaired the Second Annual MIDCA Workshop at Wright State University
- 2017 Program Committee Reviewer for 5th Goal Reasoning Workshop at the International Joint Conference on Artificial Intelligence (IJCAI-2017)
- 2017 Reviewer for the Fifth Annual Conference on Cognitive Systems at Rensselaer Polytechnic Institute, Troy, New York
- 2017 Organized and chaired the First Annual MIDCA Workshop at Wright State University
- 2014 Vice President of the Graduate Student Senate at Lehigh University
- 2013 Organized and facilitated a student panel as part of the 2nd Workshop on Goal Reasoning at the Conference on Advances in Cognitive Systems (ACS)

Employment

- 2014 RESEARCH INTERNSHIP
University of Maryland, College Park, MD
Investigated metacognitive capabilities in autonomous agents under Michael T. Cox; Gained experience with TREX, Baxter robot, ROS, Gazebo, and the MIDCA cognitive Architecture

- 2012 RESEARCH INTERNSHIP
Naval Research Laboratory, Washington, DC
Explored literature on goal-reasoning agents under David Aha
- 2010 SOFTWARE ENGINEER INTERN
Cerner Corporation, Kansas City, MO
Assisted testing of a multi-threaded system to detect and fix race conditions; Worked on a colorized text editor for healthcare formatted document editing; primarily java development

Certifications

- Fall 2014 Teacher Development Program, Level One
Lehigh University

Conferences & Workshops Attended

- 2018 Association for the Advancement of Artificial Intelligence (AAAI-18), New Orleans, LA
- 2018 Second Annual MIDCA Workshop, Wright State University
Chair of the workshop
Multiple Oral Presentations
- 2017 International Joint Conference on Artificial Intelligence (IJCAI-17), Melbourne, Australia
- 2017 First Annual MIDCA Workshop, Wright State University
Chair of the workshop
Multiple Oral Presentations
- 2016 International Joint Conference on Artificial Intelligence (IJCAI-16), New York City, NY
Oral Presentation in Main Conference
Oral Presentation in Doctoral Consortium
Oral Presentation in Goal Reasoning Workshop
- 2016 Association for the Advancement of Artificial Intelligence (AAAI-16), Phoenix, AZ
- 2015 International Joint Conference on Artificial Intelligence (IJCAI-15), Buenos Aires, Argentina
Oral Presentation in Main Conference
- 2015 Advances in Cognitive Systems (ACS-15), Atlanta, GA
Oral Presentation in Goal Reasoning Workshop
- 2013 Advances in Cognitive Systems (ACS-13), Baltimore, MD
Chair and Participant of the Student Panel
Poster in Main Conference
- 2013 Artificial Intelligence and Interactive Digital Entertainment (AIIDE), Boston, MA
Poster in Doctoral Consortium

- 2013 International Conference on Case-based Reasoning (ICCBR), Saratoga Springs, NY
Oral Presentation in Main Conference
Oral Presentation in Doctoral Consortium
- 2011 Association for the Advancement of Artificial Intelligence (AAAI), San Francisco
- 2011 Machine Learning Summer School, Purdue University, June 13th - 24th