

Dustin Dannenhauer

Naval Research Laboratory, Code 5514
4555 Overlook Ave
Washington, D.C. 20375
U.S.A.

Email: dustin.dannenhauer.ctr@nrl.navy.mil

URL: <http://www.dustindannenhauer.com>

Current position

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

Areas of specialization

Computer Science • Artificial Intelligence • Autonomous Systems
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 JOURNAL, CONFERENCE AND WORKSHOP PROCEEDINGS

- 2018 Dannenhauer, D., Cox, M. T., Munoz-Avila, H. Declarative Metacognitive Expectations for High-Level Cognition. *To appear in Advances in Cognitive Systems*. 2018. In press.
- 2018 Boggs, J., Dannenhauer, D., Floyd, M. W., & Aha, D. W. The Ideal Rebellion: Maximizing Task Performance in Rebel Agents. *6th Goal Reasoning Workshop*. Stockholm, Sweden. IJCAI. 2018.
- 2018 Dannenhauer, D., Floyd, M. W., Molineaux, M., & Aha, D. W. Learning from Exploration: Towards an Explainable Goal Reasoning Agent. *Adaptive Learning Agents Workshop*. Stockholm, Sweden. IJCAI. 2018.

- 2018 Dannenhauer, D., Floyd, M. W., Magazzeni, D., & Aha, D. W. Explaining Rebel Behavior in Goal Reasoning Agents. *Workshop on Explainable AI Planning*. Delft, The Netherlands. ICAPS. 2018.
- 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.
- 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/ijcai2016grw/>
- 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. LUGi: 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.

DOCTORAL DISSERTATION

- 2017 Dannenhauer, D. Self monitoring goal driven autonomy agents. *Doctoral dissertation*, Lehigh University, Department of Computer Science and Engineering, Bethlehem, PA.

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

- 2018 Selected as a DARPA Riser for early career scientists, presented at DARPA's 60th Anniversary Symposium, National Harbor, MD
 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 Program Committee Reviewer for the Thirty-Third AAAI Conference on Artificial Intelligence (AAAI-2019)
 2018 Co-organizer of the 6th Goal Reasoning Workshop at the International Joint Conference on Artificial Intelligence (IJCAI-2018)
 2018 Reviewer for the 6th Goal Reasoning Workshop at the International Joint Conference on Artificial Intelligence (IJCAI-2018)
 2018 Publicity Chair for the International Conference on Case-based Reasoning (ICCBR-2018)

- 2018 Program Committee Reviewer for International Conference on Case-based Reasoning (ICCBR-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 the Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-2018)
- 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

- 2017-Pres Postdoctoral Research Associate of the National Research Council
Naval Research Laboratory, Washington, D.C.
Investigating areas of robust autonomous agents, explainable artificial intelligence, and rebel agents.
Mentored
- 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, D.C.
Explored literature on goal-reasoning agents under David Aha
- 2010 SOFTWARE ENGINEER INTERNSHIP
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 D60: DARPA's 60th Anniversary Symposium, National Harbor, MD
Selected as a DARPA Riser where I presented a poster on Goal Transformation to current DARPA Program Managers

- 2018 Advances in Cognitive Systems (ACS-18), Stanford, California
Oral presentation in main conference
- 2018 International Joint Conference on Artificial Intelligence (IJCAI-18), Stockholm, Sweden
Co-organizer of 6th Goal Reasoning Workshop
Multiple oral presentations in 6th Goal Reasoning Workshop
Poster in Adaptive Learning Agents (ALA) Workshop
Organized joint panel between Goal Reasoning and Engineering Multi-Agent Systems (EMAS) Workshops
- 2018 International Conference on Automated Planning and Scheduling (ICAPS-18), Delft, The Netherlands
Oral presentation in Explainable AI Planning Workshop
- 2018 Association for the Advancement of Artificial Intelligence (AAAI-18), New Orleans, LA
Oral Presentation in Knowledge Extraction from Games Workshop
- 2018 Second Annual MIDCA Workshop, Wright State University
Organizer, Chair of the workshop
Multiple oral presentations
- 2017 International Joint Conference on Artificial Intelligence (IJCAI-17), Melbourne, Australia
Oral presentation in Goal Reasoning Workshop
- 2017 First Annual MIDCA Workshop, Wright State University
Organizer, 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