

**Eric R. Eaton**  
Research Associate Professor

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University of Pennsylvania  
Department of Computer and Information Science  
General Robotics, Automation, Sensing & Perception (GRASP) Lab  
Children's Hospital of Philadelphia  
Department of Biomedical and Health Informatics

Levine Hall 401, 3330 Walnut St.  
Philadelphia, PA 19104-6309  
Office Phone: +1 (215) 746-1734  
E-mail: [eeaton@cis.upenn.edu](mailto:eeaton@cis.upenn.edu)  
Website: <http://seas.upenn.edu/~eeaton/>

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*Updated May 5, 2025*

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## RESEARCH INTERESTS

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My primary research interests are in statistical machine learning and artificial intelligence, focusing on lifelong learning, continual learning, knowledge transfer, multi-task learning, deep learning, representation discovery, interpretable methods, and interactive AI. I am especially interested in large-scale, continual learning systems that are deployed over extended time frames. My research applies these techniques to problems in service robotics and precision medicine.

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## EDUCATION

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- May 2009 **Ph.D. in computer science**, University of Maryland, Baltimore County  
Thesis: *Selective Knowledge Transfer for Machine Learning*  
Advisor: Marie desJardins. Committee: Tim Finin, Terran Lane, Tim Oates, and Yun Peng.
- Dec. 2005 **M.S. in computer science**, University of Maryland, Baltimore County  
Thesis: *Clustering with Propagated Constraints*  
Advisor: Marie desJardins. Committee: Tim Finin and Tim Oates.
- May 2003 **B.S. *summa cum laude* in computer science**, University of Maryland, Baltimore County  
Certificate of General Honors. Minor: psychology.

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## PROFESSIONAL APPOINTMENTS

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### Children's Hospital of Philadelphia

2022 – present *Research Associate Professor*, Department of Biomedical and Health Informatics

### University of Pennsylvania

2021 – present *Research Associate Professor*, Computer and Information Science Dept.

Secondary appointments:

- General Robotics, Automation, Sensing, and Perception (GRASP) Lab (2013–on)
- Technical Advisor, Penn HealthTech (2022–on)
- Senior Fellow, Penn Institute for Biomedical Informatics (2023–on)

2017 – 2021 *Senior Lecturer*, Computer and Information Science Dept., GRASP Lab

2013 – 2017 *Lecturer*, Computer and Information Science Dept., GRASP Lab

### Bryn Mawr College

2013 – 2016 *Research Associate*, Computer Science Department

2010 – 2013 *Visiting Assistant Professor*, Computer Science Department

### Lockheed Martin Advanced Technology Labs, Cherry Hill, NJ

2008 – 2010 *Senior Research Scientist*, Artificial Intelligence Group

### Swarthmore College

2009 – 2010 *Visiting Assistant Professor* (Part-time), Computer Science Department

### University of Maryland, Baltimore County

2003 – 2008 *Research Assistant* with Dr. Marie desJardins, Computer Science and Electrical Engr. Dept.

2005 – 2008 *Instructor* (Part-time), Computer Science and Electrical Engineering Department

## FUNDING

### Major Federal Grants and Contracts [Total Federal Funding as Principal or Co-Investigator: **\$18.969M**]

- G14. Eric Eaton (Co-I). PI: Ani Hsieh. *DURIP: The Penn Fantastic Beasts Robot Arena*. ONR. **\$267,000**. Duration: January 2025 – December 2025.
- G13. Eric Eaton (PI), Kostas Daniilidis (Co-I), CJ Taylor (Co-I), Jeremy Cannon (Co-I), Zaffer Qasim (Co-I), Jay Yelon (Co-I). *PRONTO: Penn Robotic Non-contact Triage and Observation*. DARPA, grant # HR00112420305. **\$ 2,249,180**. Duration: November 2023 – October 2026.
- G12. Eric Eaton (Co-I). *Cross-Domain Transfer Learning*. Subcontract from Lockheed Martin Space. Penn's portion: **\$202,776**. Duration: February 2022 – June 2022.
- G11. Eric Eaton (PI), and Peter Stone (Co-I). *Collective Lifelong Learning by Distributed Agents*. DARPA, grant # HR0011-21-9-0133. **\$1,000,000** total (my group's portion: \$511,216). Duration: September 2021 – May 2023.
- G10. Insup Lee (PI), Osbert Bastani (Co-I), Kostas Daniilidis (Co-I), Eric Eaton (Co-I), Julia Parrish-Morris (Co-I), Dan Roth (Co-I), James Weimer (Co-I). *MURI: Robust Concept Learning and Lifelong Adaptation Against Adversarial Attacks*. Army Research Office, Grant #W911NF2010080. **\$6,250,000**. May 2020 – April 2025.
- G9. Eric Eaton (Co-I). *Hypothesis-Guided Model Revision over Multiple Aligned Representations*. DARPA, contract #HR001120C0040, subcontract from PARC. My group's portion: **\$613,592**; ≈\$4M total. Duration: December 2019 – June 2023.
- G8. Eric Eaton (PI), Satinder Singh Baveja (Co-I), Michael Littman (Co-I), Fei Sha (Co-I), and Peter Stone (Co-I). *Lifelong Learning of Perception and Action in Autonomous Systems*. DARPA, Grant #FA8750-18-2-0117. **\$5,365,307** total (my group's portion: \$1,936,308). Duration: June 2018 – August 2022.
- G7. Eric Eaton (Co-I). *Multi-source Activity Graph Latent Uncovering & Merging*. DARPA. Subcontract from Lockheed Martin. My group's portion: **\$494,000**. Duration: September 2017 – August 2019.
- G6. Eric Eaton (Co-I). *Causal Hypotheses from Analysis of Obscure Systems*. DARPA. Subcontract from Two Six Labs. My group's portion: **\$203,178**. Duration: November 2017 – December 2018.
- G5. Eric Eaton (PI). *Deep Lifelong Reinforcement Learning for Resilient Control and Coordination*. Air Force Research lab, Grant #FA8750-16-1-0109. **\$493,405** total. Duration: Sept. 2016 – Sept. 2018.
- G4. Matthew Taylor (PI), Eric Eaton (Co-I), and Paul Ruvolo (Co-I). *Lifelong Transfer Learning for Heterogeneous Teams of Agents in Sequential Decision Processes*. Air Force Research Lab, Grant #FA8750-14-1-0069. **\$606,361** total (my group's portion: \$310,918). Subcontract from Washington State University. Duration: March 2014 – Feb. 2016.
- G3. Eric Eaton (PI) and Paul Ruvolo (Co-I). *Interactive Transfer for Continuous Lifelong Learning*. Office of Naval Research, Grant #N00014-11-1-0139. **\$349,534** total (my group's portion: \$310,800). Duration: Oct. 2013 – Sept. 2015.
- G2. Eric Eaton (PI) and Terran Lane (Co-I). *Interactive Transfer for Continuous Lifelong Learning*. Office of Naval Research, Grant #N00014-11-1-0139. **\$575,091** total (my group's portion: \$365,337). Duration: Jan. 2011 – Sept. 2013.
- G1. Eric Eaton (PI). *Analysis of Complex Data Using Heterogeneous Relational Models*. Office of Naval Research, Contract #N00014-10-C-0192. **\$300,000** total (my group's portion: \$185,857). Subcontract from Lockheed Martin. Duration: Apr. 2010 – Mar. 2013.

### Other Research Grants

- GO3. Kevin Johnson (PI), Kyra O'Brien (Co-I), and Eric Eaton (Co-I). *Interpretable and Extensible Patient-Provider Clinical Interaction Analysis for Frailty Detection with Compositional Reasoning and Vision-Language Models*. Penn ASSET/IBI. **\$100,000**. Duration: April 2024–March 2025.
- GO2. Hersh Sagreiya (PI), Eric Eaton (Co-I), and Walter Witschey (Co-I). *Multimodal Medical AI for Trustworthy Clinical Diagnosis and Prognostication*. Institute for Translational Medicine and Therapeutics and National Center for Advancing Translational Sciences of the National Institutes of Health under Award Number UL1TR001878. **\$49,737**. Duration: March 2023–February 2025.
- GO1. Eric Eaton (PI). *Temporal Modeling and Prediction using Multi-Task Deep Learning* – Student project

funding. Jacobs Levy Equity Management Center for Quantitative Financial Research. **\$5,000**. Duration: Sept. 2014 – June 2015.

### Non-Research Grants

[Event funding; no funds were allocated for my research]

- GN2. Eric Eaton (PI). *The Seventh Symposium on Educational Advances in Artificial Intelligence (EAAI 2017)*. National Science Foundation, Grant #1650295. **\$22,600** total. Duration: Sept. 2016 – Aug. 2018.
- GN1. Eric Eaton (PI). *Doctoral Mentoring Consortium at the 25th International Joint Conference on Artificial Intelligence (IJCAI 2016)*. National Science Foundation, Grant #1631562. **\$15,000** total. Duration: April 2016 – March 2017.

## PUBLICATIONS

[Names in *italics* are students or postdocs whose work I supervised.]

Google Scholar: <http://goo.gl/jMj8uV>

### Edited Volumes

- V4. Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. (2023). *Computer Science Curricula 2023*. ISBN 979-8-4007-1033-9, ACM Press, IEEE Computer Society Press, and AAAI Press. DOI: <https://doi.org/10.1145/3664191>
- V3. Matteo Leonetti, chair; Eric Eaton and Pooyan Fazli, co-chairs. (2014). *Knowledge, Skill, and Behavior Transfer in Autonomous Robots: Proceedings of the 2014 AAAI Fall Symposium*. AAAI Technical Report FS-14-04, ISBN 978-1-57735-694-3, AAAI Press.
- V2. Eric Eaton, Carla Gomes, and Brian Williams, editors. (2014). *Special issue of AI Magazine on Computational Sustainability*. Volume 35, numbers 2–3 (Summer 2014 and Fall 2014), AAAI Press.
- V1. Eric Eaton, chair. (2013). *Lifelong Machine Learning: Proceedings of the 2013 AAAI Spring Symposium*. AAAI Technical Report SS-13-05, ISBN 978-1-57735-602-8, AAAI Press.

### Journal Articles

- J19. Gilmer Valdes, Jessica Scholey, Tomi F Nano, Efstathios D Gennatas, Pranshu Mohindra, Nasir Mohammed, Jing Zeng, Rupesh Kotecha, Lane R Rosen, John Chang, Henry K Tsai, James J Urbanic, Carlos E Vargas, Y Yu Nathan, Lyle H Ungar, Eric Eaton, Charles B Simone II. “Predicting the Effect of Proton Beam Therapy Technology on Pulmonary Toxicities for Patients With Locally Advanced Lung Cancer Enrolled in the Proton Collaborative Group.” *International Journal of Radiation Oncology, Biology, Physics* 119 (1), 66–77, 2024
- J18. C Ramprasad, D Saini, H Del Carmen, L Krasnovsky, R Chandra, R Mcgregor, RT Shinohara, E Eaton, M Gummadi, S Mehta, JD Lewis. “Text message system for the prediction of colonoscopy bowel preparation adequacy prior to colonoscopy: an artificial intelligence-image classification algorithm based on images of stool output.” *Gastro Hep Advances* (to appear), 2024.
- J17. Andrea Soltoggio, Eseoghene Ben-Iwhiwhu, Vladimir Braverman, Eric Eaton, Benjamin Epstein, Yunhao Ge, Lucy Halperin, Jonathan How, Laurent Itti, Michael A. Jacobs, Pavan Kantharaju, Long Le, Steven Lee, Xinran Liu, Sildomar T. Monteiro, David Musliner, Saptarshi Nath, Priyadarshini Panda, Christos Peridis, Hamed Pirsavash, Vishwa Parekh, Kaushik Roy, Shahaf Shperberg, Hava T. Siegelmann, Peter Stone, Kyle Vedder, Jingfeng Wu, Lin Yang, Guangyao Zheng, and Soheil Kolouri. (2024). “A collective AI via lifelong learning and sharing at the edge.” *Nature Machine Intelligence* 6: 251–264, March. <https://doi.org/10.1038/s42256-024-00800-2>
- J16. Jorge Mendez and Eric Eaton. (2023). “How to Reuse and Compose Knowledge for a Lifetime of Tasks: A Survey on Continual Learning and Functional Composition.” *Transactions on Machine Learning Research*, June.
- J15. Megan M Baker, Alexander New, Mario Aguilar-Simon, Ziad Al-Halah, Sbastien MR Arnold, Ese Ben-Iwhiwhu, Andrew P Brna, Ethan Brooks, Ryan C Brown, Zachary Daniels, Anurag Daram, Fabien Delattre, Ryan Dellana, Eric Eaton, Haotian Fu, Kristen Grauman, Jesse Hostetler, Shariq Iqbal, Cassandra Kent, Nicholas Ketz, Soheil Kolouri, George Konidaris, Dhireesha Kudithipudi, Erik Learned-Miller, Seungwon Lee, Michael L Littman, Sandeep Madireddy, Jorge A Mendez, Eric Q Nguyen, Christine Piatko,

- Praveen K Pilly, Aswin Raghavan, Abrar Rahman, Santhosh Kumar Ramakrishnan, Neale Ratzlaff, Andrea Soltoggio, Peter Stone, Indranil Sur, Zhipeng Tang, Saket Tiwari, Kyle Vedder, Felix Wang, Zifan Xu, Angel Yanguas-Gil, Harel Yedidsion, Shangqun Yu, Gautam K Vallabha. (2023). “A domain-agnostic approach for characterization of lifelong learning systems.” *Neural Networks* 160:274–296.
- J14. Boyu Wang, Jorge Mendez, Changjian Shui, Fan Zhou, Di Wu, Christian Gagné, and Eric Eaton. (2023). “Gap Minimization for Knowledge Sharing and Transfer.” *Journal of Machine Learning Research* 24: 1–57.
- J13. Mohammad Rostami, Soheil Kolouri, Zak Murez, Yuri Owechko, Eric Eaton, Kyunghnam Kim. (2022). “Zero-Shot Image Classification Using Coupled Dictionary Embedding.” *Machine Learning with Applications* 8: 100278.
- J12. Mohammad Rostami, David Isele, Eric Eaton. (2020). “Using Task Descriptions in Lifelong Machine Learning for Improved Performance and Zero-Shot Transfer.” *Journal of Artificial Intelligence Research* 67:673–704.
- J11. Efstathios D. Gennatas, Jerome H. Friedman, Lyle H. Ungar, Romain Pirracchio, Eric Eaton, Lara G. Reichmann, Yannet Interian, José Marcio Luna, Charles B. Simone, Andrew Auerbach, Elier Delgado, Mark J. van der Laan, Timothy D. Solberg, and Gilmer Valdes. (2020). “Expert-augmented machine learning.” *Proceedings of the National Academy of Sciences* 117 (9):4571–4577. DOI:10.1073/pnas.1906831117.
- J10. José Marcio Luna, Efstathios D. Gennatas, Lyle H. Ungar, Eric Eaton, Eric S. Diffenderfer, Shane T. Jensen, Charles B. Simone II, Jerome H. Friedman, Timothy D. Solberg, and Gilmer Valdes. (2019). “Building more accurate decision trees with the additive tree.” *Proceedings of the National Academy of Sciences*, September. DOI:10.1073/pnas.1816748116.
- J9. Julia E. Reid and Eric Eaton. (2019). “Artificial intelligence for pediatric ophthalmology.” *Current Opinion in Ophthalmology* 30(5): 337–346, September. DOI:10.1097/ICU.0000000000000593. Preprint: <https://arxiv.org/abs/1904.08796>
- J8. Mohammad Rostami, Soheil Kolouri, Eric Eaton, and Kyunghnam Kim. (2019). “Deep transfer learning for few-shot SAR image classification.” *Remote Sensing* 11: 1374.
- J7. Pengyuan Shen, William Braham, Yunkyu Yi, and Eric Eaton. (2019). “Rapid multi-objective optimization with multi-year future weather condition and decision-making support for building retrofit.” *Energy* 172: 892–912
- J6. Decebal Constantin Mocanu, Haitham Bou Ammar, Luis Puig, Eric Eaton, Antonio Liotta. (2017). “Estimating 3D trajectories from 2D projections via disjunctive factored four-way conditional restricted Boltzmann machines.” *Pattern Recognition* 69: 325–335, September. DOI 10.1016/j.patcog.2017.04.01.
- J5. Eric Eaton. (2017). “Teaching integrated AI through interdisciplinary project-driven courses.” *AI Magazine* 38(2): 13–21.
- J4. Gilmer Valdes, José Marcio Luna, Eric Eaton, Charles B. Simone II, Lyle H. Ungar, and Timothy D. Solberg. (2016). “MediBoost: a patient stratification tool for interpretable decision making in the era of precision medicine.” *Scientific Reports* 6:37854. DOI 10.1038/srep37854.
- J3. Eric Eaton, Carla Gomes, and Brian Williams. (2014). “Computational sustainability.” *AI Magazine* 35(2): 3–7.
- J2. Eric Eaton, Marie desJardins, and Sara Jacob. (2014) “Multi-view constrained clustering with an incomplete mapping between views.” *Knowledge and Information Systems* 38(1): 231–257. DOI 10.1007/s10115-012-0577-7. Published online November 21, 2012.
- J1. Kiri Wagstaff, Marie desJardins, and Eric Eaton. (2010). “Modeling and learning user preferences over sets.” *Journal of Experimental & Theoretical Artificial Intelligence* 22(3): 237–268.

### Highly Refereed Conference Papers

- C41. Eric Eaton, Marcel Hussing, Michael Kearns, Aaron Roth, Sikata Bela Sengupta, Jessica Sorrell. (2025). “Intersectional Fairness in Reinforcement Learning with Large State and Constraint Spaces.” In the *International Conference on Machine Learning (ICML)* [acceptance rate: 26.9%].
- C40. Claas A Voelcker, Marcel Hussing, Eric Eaton, Amir-massoud Farahmand, and Igor Gilitschenski. (2025). “MAD-TD: Model-Augmented Data stabilizes High Update Ratio RL.” In the *International Conference on Learning Representations (ICLR)*. [**Spotlight**; spotlight acceptance rate: 3.26%]

- C39. Long Le, Jason Xie, William Liang, Hung-Ju Wang, Yue Yang, Yecheng Jason Ma, Kyle Vedder, Arjun Krishna, Dinesh Jayaraman, and Eric Eaton. (2025). “Articulate-Anything: Automatic Modeling of Articulated Objects via a Vision-Language Foundation Model.” In the International Conference on Learning Representations (ICLR). [acceptance rate: 31.73%]
- C38. Kyle Vedder, Neehar Peri, Ishan Khatri, Siyi Li, Eric Eaton, Mehmet Kemal Kocamaz, Yue Wang, Zhiding Yu, Deva Ramanan, and Joachim Pehserl. (2025). “Scene Flow as a Partial Differential Equation.” In the International Conference on Learning Representations (ICLR). [acceptance rate: 31.73%]
- C37. Jean Park, Kuk Jin Jang, Basam Alasaly, Sriharsha Mopidevi, Andrew Zolensky, Eric Eaton, Insup Lee, and Kevin Johnson. (2025). “Assessing Modality Bias in Video Question Answering Benchmarks with Multimodal Large Language Models.” In Proceedings of the AAAI Conference on Artificial Intelligence.
- C36. Guiqiu Liao, Matjaz Jogan, Sai Koushik Samudrala Sambasastry, Eric Eaton, Daniel Hashimoto. (2024). “Disentangling spatio-temporal knowledge for weakly supervised object detection and segmentation in surgical video.” In the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2025.
- C35. Marcel Hussing, Claas A Voelcker, Igor Gilitschenski, Amir-massoud Farahmand, Eric Eaton. (2024). “Dissecting Deep RL with High Update Ratios: Combatting Value Overestimation and Divergence.” In the *1st Reinforcement Learning Conference (RLC)*.
- C34. Marcel Hussing, Jorge Mendez-Mendez, Anisha Singrodia, Cassandra Kent, Eric Eaton. (2024). “Robotic Manipulation Datasets for Offline Compositional Reinforcement Learning.” In the *1st Reinforcement Learning Conference (RLC)*.
- C33. Kyle Vedder, Neehar Peri, Nathaniel Eliot Chodosh, Ishan Khatri, Eric Eaton, Dinesh Jayaraman, Yang Liu, Deva Ramanan, James Hays. (2024). “ZeroFlow: Scalable Scene Flow via Distillation.” In the *Twelfth International Conference on Learning Representations (ICLR)*.
- C32. Meghna Gummadi, Cassandra Kent, Karl Schmeckpeper, Eric Eaton. (2024). “A Metacognitive Approach to Out-of-Distribution Detection for Segmentation.” In the *International Conference on Robotics and Automation (ICRA)*.
- C31. Eric Eaton, Susan L. Epstein. (2024). “Artificial Intelligence in the CS2023 Undergraduate Computer Science Curriculum: Rationale and Challenges.” Proceedings of the AAAI Conference on Artificial Intelligence 38 (21), 23078.
- C30. Ashwin De Silva, Rahul Ramesh, Lyle Ungar, Marshall Hussain Shuler, Noah J Cowan, Michael Platt, Chen Li, Leyla Isik, Seung-Eon Roh, Adam Charles, Archana Venkataraman, Brian Caffo, Javier J How, Justus M Kecsichull, John W Krakauer, Maxim Bichuch, Kaleab Alemayehu Kinfu, Eva Yezerets, Dinesh Jayaraman, Jong M Shin, Soledad Villar, Ian Phillips, Carey E Priebe, Thomas Hartung, Michael I Miller, Jayanta Dey, Ningyuan Huang, Eric Eaton, Ralph Etienne-Cummings, Elizabeth L Ogburn, Randal Burns, Onyema Osuagwu, Brett Mensh, Alysson R Muotri, Julia Brown, Chris White, Weiwei Yang, Andrei A Rusu Timothy Verstynen, Konrad P Kording, Pratik Chaudhari, Joshua T Vogelstein. (2023). “Prospective Learning: Principled Extrapolation to the Future.” *Conference on Lifelong Learning Agents (CoLLAs)*, 347–357.
- C29. Eric Eaton, Marcel Hussing, Michael Kearns, Jessica Sorrell. (2023). “Replicable Reinforcement Learning.” In *Neural Information Processing Systems*. [acceptance rate: 26.1%]
- C28. Kyle Vedder, Eric Eaton. (2022). “Sparse PointPillars: Maintaining and Exploiting Input Sparsity to Improve Runtime on Embedded Systems.” In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp.2025–2031.
- C27. Meghna Gummadi, Cassandra Kent, Jorge Mendez, Eric Eaton. (2022). “SHELs: Exclusive feature sets for novelty detection and continual learning without class boundaries.” In *Proceedings of the Conference on Lifelong Learning Agents (CoLLAs)*.
- C26. Marcel Hussing, Jorge Mendez, Meghna Gummadi, Eric Eaton. (2022). “CompoSuite: A compositional reinforcement learning benchmark.” In *Proceedings of the Conference on Lifelong Learning Agents (CoLLAs)*.
- C25. Jorge Mendez, Harm van Seijen, and Eric Eaton. (2022). “Modular lifelong reinforcement learning via neural composition.” In *Proceedings of the International Conference on Learning Representations (ICLR)*. [acceptance rate: 32.3%]
- C24. Seungwon Lee, Sima Behpour, and Eric Eaton. (2021). “Sharing less is more: Lifelong learning in

- deep networks with selective layer transfer.” In *Proceedings of the International Conference on Machine Learning (ICML)*. [acceptance rate: 21.5%]
- C23. Jorge Mendez and Eric Eaton. (2021). “Lifelong learning of compositional structures.” *Proceedings of the International Conference on Learning Representations (ICLR)*. [acceptance rate: 28.7%]
- C22. Jorge Mendez, Boyu Wang, and Eric Eaton. (2020). “Lifelong policy gradient learning of factored policies for faster training without forgetting” *Advances in Neural Information Processing Systems (NeurIPS)*. [acceptance rate: 20.1%]
- C21. Boyu Wang, Jorge Mendez, Mingbo Cai, and Eric Eaton. (2019). “Transfer learning via minimizing the performance gap between domains.” *Advances in Neural Information Processing Systems (NeurIPS)*, 10644–10654. [acceptance rate: 21.6%]
- C20. Seungwon Lee, James Stokes, and Eric Eaton. (2019). “Learning shared knowledge for deep lifelong learning using deconvolutional networks.” In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*. [acceptance rate: 13.6%]
- C19. Jorge Mendez, Shashank Shivkumar, and Eric Eaton. (2018). “Lifelong inverse reinforcement learning.” In *Neural Information Processing Systems (NIPS-18)*. [acceptance rate: 20.8%]
- C18. Mohammad Rostami, Soheil Kolouri, Kyungnam Kim, and Eric Eaton. (2018). “Multi-agent distributed lifelong learning for collective knowledge acquisition.” In *Proceedings of the Conference on Autonomous Agents and Multi-Agent Systems. (AAMAS-18)*. [full paper]
- C17. Christopher Clinger and Eric Eaton. (2017). “Lifelong machine learning with Gaussian processes.” In *Proceedings of the European Conference on Machine Learning & Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD-17)*. [acceptance rate: 27%]
- C16. David Isele, José Marcio Luna, Eric Eaton, Gabriel V. de la Cruz, James Irwin, Brandon Kallagher, and Matthew E. Taylor. (2016). “Lifelong learning for disturbance rejection on mobile robots.” In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016)*.
- C15. David Isele, Mohammad Rostami, and Eric Eaton. (2016). “Using task features for zero-shot knowledge transfer in lifelong learning.” In *Proceedings of the 2016 International Joint Conference on Artificial Intelligence (IJCAI-16)*. [oral presentation; acceptance rate: 25.0%. **Best paper award: sole “IJCAI-16 Distinguished Student Paper”.**]
- C14. Haitham Bou Ammar, Rasul Tutunov, and Eric Eaton. (2015). “Safe policy search for lifelong reinforcement learning with sub-linear regret”. In *Proceedings of the 2015 International Conference on Machine Learning (ICML-15)*. [oral presentation; acceptance rate: 26.0%]
- C13. Haitham Bou Ammar, Eric Eaton, José Marcio Luna, and Paul Ruvolo. (2015). “Autonomous cross-domain knowledge transfer in lifelong policy gradient reinforcement learning”. In *Proceedings of the 2015 International Joint Conference on Artificial Intelligence (IJCAI-15)*. [long oral presentation; acceptance rate: 28.8%. **Finalist for Distinguished Paper award.**]
- C12. Haitham Bou Ammar, Eric Eaton, Matthew Taylor, and Paul Ruvolo. (2015). “Unsupervised cross-domain transfer in policy gradient reinforcement learning via manifold alignment.” In *Proceedings of the 29th AAAI Conference on Artificial Intelligence (AAAI-15)*, Jan. 25–29, Austin, TX, AAAI Press. [acceptance rate: 26.67%]
- C11. Paul Ruvolo and Eric Eaton. (2014). “Online multi-task learning using sparse dictionary optimization.” In *Proceedings of the 28th AAAI Conference on Artificial Intelligence (AAAI-14)*, July 27–31, Québec City, Canada, AAAI Press. [oral presentation; acceptance rate: 28%]
- C10. Haitham Bou Ammar, Eric Eaton, Paul Ruvolo, and Matthew Taylor. (2014). “Online multi-task learning for policy gradient methods.” In *Proceedings of the 2014 International Conference on Machine Learning (ICML-14)*, JMLR W&CP 32 (1) : 1206–1214, June 21–26, Beijing, China. [oral presentation; acceptance rate for cycle II: 22.3%, overall acceptance rate: 25%]
- C9. Paul Ruvolo and Eric Eaton. (2013). “Active task selection for lifelong machine learning.” In *Proceedings of the 27th AAAI Conference on Artificial Intelligence (AAAI-13)*, pp. 862–868, July 14–18, Bellevue, WA, AAAI Press. [oral presentation; acceptance rate: 29%]
- C8. Paul Ruvolo and Eric Eaton. (2013). “ELLA: an efficient lifelong learning algorithm.” In *Proceedings of the 2013 International Conference on Machine Learning (ICML-13)*, Journal of Machine Learning Research - Proceedings Track 28(1): 507–515, June 16–21, Atlanta, GA. [acceptance rate for cycle I:

17.5%, overall acceptance rate: 26%]

- C7. Eric Eaton and *Rachael Mansbach*. (2012) “A spin-glass model for semi-supervised community detection.” In *Proceedings of the 26th AAAI Conference on Artificial Intelligence (AAAI-12)*, pp. 900–906, Toronto, Canada, AAAI Press. [acceptance rate: 26%]
- C6. Douglas Fisher, Bistra Dilkina, Eric Eaton, and Carla Gomes. (2012) “Incorporating computational sustainability into AI education through a freely-available, collectively-composed supplementary lab text.” In the 3rd International Conference on Computational Sustainability (CompSust-12), July 5–6, Copenhagen, Denmark. [oral presentation]
- C5. Eric Eaton and Marie desJardins. (2011). “Selective transfer between learning tasks using task-based boosting.” In *Proceedings of the 25th AAAI Conference on Artificial Intelligence (AAAI-11)*, pp. 337–342, August 7–11, San Francisco, CA, AAAI Press. [oral presentation; acceptance rate: 24.8%]
- C4. Eric Eaton, Marie desJardins, and Sara Jacob. (2010). “Multi-view clustering with constraint propagation for learning with an incomplete mapping between views.” In *Proceedings of the 2010 Conference on Information and Knowledge Management (CIKM-10)*, pp. 389–398, October 26–30, Toronto, Canada, ACM Press. [oral presentation; acceptance rate: 13.4%]
- C3. Eric Eaton, Gary Holness, and Daniel McFarlane. (2010). “Interactive learning using manifold geometry.” In *Proceedings of the 24th AAAI Conference on Artificial Intelligence (AAAI-10)*, pp. 437–443, July 11–15, Atlanta, GA, AAAI Press. [oral presentation; acceptance rate: 26.9%]
- C2. Eric Eaton, Marie desJardins, and Terran Lane. (2008). “Modeling transfer relationships between learning tasks for improved inductive transfer.” In *Proc. of the 2008 European Conference on Machine Learning (ECML-08)*, pp. 317–332, September 15–19, Antwerp, Belgium, Springer-Verlag. [oral presentation; acceptance rate: 20%]
- C1. Marie desJardins, Eric Eaton, and Kiri Wagstaff. (2006). “Learning user preferences for sets of objects.” In *Proceedings of the 23rd International Conference on Machine Learning (ICML-06)*, June 25–29, Pittsburgh, PA, ACM Press. [oral presentation; acceptance rate: 20%; awarded recognition as a NASA Tech Brief in 2008.]

### Editorials

- E1. Eric Eaton, Tom Dietterich, Maria Gini, Barbara J. Grosz, Charles L. Isbell, Subbarao Kambhampati, Michael Littman, Francesca Rossi, Stuart Russell, Peter Stone, Toby Walsh, and Michael Wooldridge. (2015). “Who speaks for AI?” *AI Matters* 2(2): 4–14. <http://doi.acm.org/10.1145/2847557.2847559>.

### Preprints

- U2. *Decebal Constantin Mocanu*, Maria Torres Vega, Eric Eaton, Peter Stone, Antonio Liotta. (2016). “Online contrastive divergence with generative replay: experience replay without storing data.” <https://arxiv.org/abs/1610.05555>.
- U1. Rasul Tutunov, *Haitham Bou Ammar*, Ali Jadbabaie, and Eric Eaton. (2014). “On the degree distribution of Pólya urn graph processes.” <http://arxiv.org/abs/1410.8515>.

### Refereed Workshops, Symposia, and Less-Selective Conferences

- W33. Mary Lou Maher, Razvan Bunescu, Stephanie August, Eric Eaton, Douglas Fisher, Christina Gardner-McCune, Ashok Goel, Yolanda Gil, Mehran Sahami, Reid Simmons, David Touretzky, Pat Yongpradit. (2023). “Expanding Capacity and Diversity in Lifelong AI Education”, <https://sites.google.com/uncc.edu/ai-education-workshop/>.
- W32. Boya Zeng, Marcel Hussing, Eric Eaton. (2024). “Learning source domain representations for electro-optical to SAR transfer.” In the ICLR 2024 Machine Learning for Remote Sensing (ML4RS) Workshop.
- W31. C Servin, BA Becker, E Eaton, A Kumar. (2023). Fuzzy Logic++: Towards Developing Fuzzy Education Curricula Using ACM/IEEE/AAAI CS2023. North American Fuzzy Information Processing Society Annual Conference, 184-193 [**Awarded ”Best Paper”**]
- W30. T. Nano, G. Valdes, J. Scholey, A. Comas-Leon, E. Gennatas, W. Hartsell, J. Zeng, M. Chuong, M. Mishra, L. Rosen, J. Chang, H. Tsai, J. Urbanic, C. Vargas, L. Ungar, E. Eaton, C. Simone. (2023). “PD-0173 Proton center variations in predicting pulmonary toxicities from proton radiotherapy of lung cancer.” *Radiotherapy and Oncology* 182: S134. 10.1016/S0167-8140(23)08817-5.

- W29. *Marcel Hussing, Jorge Mendez, Cassandra Kent, Eric Eaton.* (2022). “Robotic Manipulation Datasets for Offline Compositional Reinforcement Learning.” In the CoRL 2022 Workshop on Pre-training Robot Learning.
- W28. *Marcel Hussing, Karen Li, Eric Eaton.* (2022). “Land Use Prediction using Electro-Optical to SAR Few-Shot Transfer Learning.” In the *NeurIPS 2022 Workshop on Tackling Climate Change with Machine Learning*.
- W27. Efstathios Gennatas, Jerome Friedman, Eric Eaton, Charles Simone II, Lyle Ungar, Lei Xing, Gilmer Valdes. (2020). “The linear additive tree.” In the *13th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics)*. [Oral presentation]
- W26. *Jorge Mendez and Eric Eaton.* (2020). “Lifelong learning of factored policies via policy gradients.” In the *4th Lifelong Learning Workshop at ICML 2020*. [**Awarded “Best Paper” at the workshop**; featured as oral presentation]
- W25. *Jorge Mendez and Eric Eaton.* (2020). “A general framework for continual learning of compositional structures.” In the *Continual Learning Workshop at ICML 2020*.
- W24. *Seungwon Lee, Sima Behpour, and Eric Eaton.* (2020). “Sharing less is more: Lifelong learning in deep networks with selective layer transfer.” In the *4th Lifelong Learning Workshop at ICML 2020*.
- W23. *Mohammad Rostami, Soheil Kolouri, Eric Eaton, and Kyungnam Kim.* (2019). “SAR image classification using few-shot cross-domain transfer learning.” In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*.
- W22. Eric Eaton. (2019). “A Lightweight Approach to Academic Research Group Management Using Online Tools: Spend More Time on Research and Less on Management.” In *Proceedings of the AAAI Symposium on Educational Advances in Artificial Intelligence (EAAI)* within the Proceedings of the AAAI Conference on Artificial Intelligence (AAAI) 33, 9644-9647.
- W21. *David Isele, Eric Eaton, Mark Roberts, and David Aha.* (2018). “Modeling consecutive task learning with task graph agendas.” In *Proceedings of the Conference on Autonomous Agents and Multi-Agent Systems (AAMAS-18)*. [extended abstract]
- W20. José Marcio Luna, Eric Eaton, Lyle H. Ungar, Eric Diffenderfer, Shane T. Jensen, Efstathios D. Gennatas, Mateo Wirth, Charles B. Simone II, Timothy D. Solberg, Gilmer Valdes. (2017). “Tree-Structured Boosting: Connections Between Gradient Boosted Stumps and Full Decision Trees.” In *NIPS 2017 Symposium on Interpretable Machine Learning*.
- W19. Eric Eaton, *Caio Mucchiani, Mayumi Mohan, David Isele, Jose Marcio Luna, and Christopher Clinger-man.* (2016). “Design of a low-cost platform for autonomous mobile service robots.” In the IJCAI-16 Workshop on Autonomous Mobile Service Robots, July.
- W18. *David Isele, José Marcio Luna, Eric Eaton, Gabriel V. de la Cruz, James Irwin, Brandon Kallaher, and Matthew E. Taylor.* (2016). “Work in progress: Lifelong learning for disturbance rejection on mobile robots.” In the *AAMAS-16 Adaptive Learning Agents workshop*, May.
- W17. Eric Eaton, *Haitham Bou Ammar, Paul Ruvolo, José Marcio Luna, and Matthew E. Taylor.* (2015). “Lifelong machine learning for robotic control and coordination.” [Poster Presentation] In the Northeast Robotics Colloquium, November.
- W16. *Haitham Bou Ammar, Eric Eaton, Matthew E. Taylor, Decebal Mocanu, Kurt Driessens, Gerhard Weiss, Karl Tuyls.* (2014). “An automated measure of MDP similarity for transfer in reinforcement learning.” In *Proceedings of the AAAI 2014 Workshop on Machine Learning for Interactive Systems: Bridging the Gap between Perception, Action and Communication*, July 27–28.
- W15. *Vishnu Purushothaman Sreenivasan, Haitham Bou Ammar, and Eric Eaton.* (2014) “Online multi-task gradient temporal-difference learning.” [Student Abstract]. In *Proceedings of the 28th AAAI Conference on Artificial Intelligence (AAAI-14)*, July 27–31.
- W14. *Paul Ruvolo and Eric Eaton.* (2013). “Online multi-task learning based on K-SVD.” In *Proceedings of the ICML 2013 Workshop on Theoretically Grounded Transfer Learning*, Atlanta, GA, June.
- W13. *Paul Ruvolo and Eric Eaton.* (2013). “Scalable lifelong learning with active task selection.” In *Proceedings of the AAAI 2013 Spring Symposium on Lifelong Machine Learning*, pp. 33–39, Stanford, CA, March 25–27, AAAI Press.
- W12. Douglas Fisher, Bistra Dilkina, Eric Eaton, and Carla Gomes. (2012) “Incorporating computational sus-



tainability into AI education through a freely-available, collectively-composed supplementary lab text.” In *Proceedings of the Third AAI Symposium on Educational Advances in Artificial Intelligence (EAAI-12)*, Toronto, Canada, July.

- W11. Diane Oyen, Eric Eaton, and Terran Lane. (2012) “Inferring tasks for improved network structure discovery.” [Poster Presentation] In the *Snowbird Learning Workshop*, Snowbird, Utah, April 3–6.
- W10. Eric Eaton and Terran Lane. (2011). “The importance of selective knowledge transfer for lifelong learning.” In *Working Notes of the AAI-11 Workshop on Lifelong Learning from Sensorimotor Experience*.
- W9. *Samantha Wood*, Michelle Mills Strout, David G. Wonnacott, and Eric Eaton. (2011) “SMORes: Sparse Matrix Omens of Reordering Success.” [Poster Presentation] In *Proceedings of the 32nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI-11)*, June 4–8, San Jose, CA, ACM Press. [Awarded 1st place in the PLDI Student Research Competition, Undergraduate Category.]
- W8. Eric Eaton and Marie desJardins. (2009). “Set-based boosting for instance-level transfer.” In *Proceedings of the IEEE International Conference on Data Mining Workshop on Transfer Mining*, December 6, Miami, FL, IEEE Press.
- W7. Eric Eaton, Gary Holness, and Daniel McFarlane. (2009). “Interactive learning using manifold geometry.” In *Proceedings of the AAI Fall Symposium on Manifold Learning and Its Applications*, November 5–7, Arlington, VA. AAI Technical Report FS-09-04, AAI Press.
- W6. Eric Eaton. (2008). “Gridworld search and rescue: A project framework for a course in artificial intelligence.” In *Proceedings of the AAI-08 AI Education workshop*, pp. 34–39, July 13–14, Chicago, IL, AAI Press.
- W5. Eric Eaton, Marie desJardins, and Terran Lane. (2008). “Using functions on a model graph for inductive transfer.” In the *Northeast Student Colloquium on Artificial Intelligence (NESCAI-08)*, May 2–4, Ithaca, NY.
- W4. Eric Eaton, Marie desJardins, and *John Stevenson*. (2007). “Using multiresolution learning for transfer in image classification.” [Student Abstract] In *Proceedings of the 22nd AAI Conference on Artificial Intelligence (AAI-07)*, July 22–26, Vancouver, British Columbia, Canada, AAI Press.
- W3. Eric Eaton. (2006). “Multi-resolution learning for knowledge transfer.” In *Proceedings of the 21st AAI Conference on Artificial Intelligence (AAI-06)* [Doctoral Consortium], July 16–20, Boston, MA, AAI Press.
- W2. Eric Eaton and Marie desJardins. (2006). “Knowledge transfer with a multiresolution ensemble of classifiers.” In *Proceedings of the ICML-06 Workshop on Structural Knowledge Transfer for Machine Learning*, June 29, Pittsburgh, PA.
- W1. Marie desJardins, Eric Eaton, and Kiri Wagstaff. (2005). “A context-sensitive and user-centric approach to developing personal assistants.” In *Proceedings of the AAI Spring Symposium on Persistent Assistants*, March 21–23, Stanford, CA, AAI Press.

### Magazine Reports

- M1. Vita Markman, Georgi Stojanov, Bipin Indurkha, Takashi Kido, Keiki Takadama, George Konidaris, Eric Eaton, Naohiro Matsumura, Renate Fruchter, Don Sofge, William F. Lawless, Omid Madani, and Rahul Sukthankar. (2013). “Reports of the 2013 AAI Spring Symposium Series.” In *AI Magazine* 34(3): 93–98.

### Technical Reports and Non-Refereed Publications

- R8. Katherine Guo and Eric Eaton. (2013) “Multi-agent, cooperative, lifelong transfer learning for target classification.” Lockheed Martin ATL Technical Report, 6 pages, October.
- R7. Karen Heigh, Fusun Yaman, and Eric Eaton. (2012). “Self-improving automatic machine learning.” Raytheon/ BBN Technologies Technical Report #W12006-BBN, 9 pages, January.
- R6. Martin Hofmann, Honglak Lee, Eric Eaton, Brian Kettler, Katherine Guo, and Sergey Malinchik. (2012). “An automatic interactive machine learning tool.” Lockheed Martin ATL Technical Report #DS-105-421-1798RFI, 10 pages, January.
- R5. Eric Eaton, Dan McFarlane, and Martin Hofmann. (2009). “Analysis of complex data using heterogeneous relational models.” Lockheed Martin ATL Technical Report #DS-104-421-1610WP, 6 pages,

March.

- R4. Eric Eaton, Gary Holness, and Dan McFarlane. (2009). “Situational awareness through interactive learning.” Lockheed Martin ATL Technical Report #DS-104-421-1607WP, 4 pages, March.
- R3. Meghann Lomas, Daniel McFarlane, Eric Eaton, Robert Szczerba, and Jerry Franke. (2009). “Dynamic ensemble planning for tactical hierarchies.” Lockheed Martin ATL Technical Report #DS-104-421-1604WP, 4 pages, March.
- R2. Eric Eaton, Katherine Guo, and Martin Hofmann. (2009). “Predicting and verifying effects of cyber operations from indirect observations.” Lockheed Martin ATL Technical Report #DS-105-421-1598WP, 5 pages, January.
- R1. Eric Eaton, Katherine Guo, and Martin Hofmann. (2008). “Multimodal and temporal learning using relational networks.” Lockheed Martin ATL Technical Report #DS-105-421-1583RFI, 7 pages, November.

### Theses

- T2. Eric Eaton. (2009). *Selective Knowledge Transfer for Machine Learning*. Ph.D. dissertation, University of Maryland, Baltimore County.
- T1. Eric Eaton. (2005). *Clustering with Propagated Constraints*. Master’s Thesis, University of Maryland, Baltimore County.

### Online Educational Materials

- O1. Douglas H. Fisher, Eric Eaton, Bistra Dilikina, and Carla Gomes (eds.) *Artificial Intelligence for Computational Sustainability: A Lab Companion*. Available online at [http://en.wikibooks.org/wiki/Artificial\\_Intelligence\\_for\\_Computational\\_Sustainability:\\_A\\_Lab\\_Companion](http://en.wikibooks.org/wiki/Artificial_Intelligence_for_Computational_Sustainability:_A_Lab_Companion). [This is an ongoing experiment in crowd-sourced creation of open educational materials. The wikibook is designed to supplement an existing AI course with sustainability-related exercises, and was featured at EAAI-12 and CompSust-12.]

### Patents

- P1. Gilmer Valdes, Timothy D. Solberg, Charles B. Simone II, Lyle H. Ungar, Eric Eaton, Jose Marcio Luna. (2025). *System and Methods for Generating Improved Decision Trees* (Patent # US-12229226-B2). U.S. Patent and Trademark Office.

### Software

- S3. Alex Baucom and Eric Eaton. (2017). *Robust Indoor Navigation for Low-Cost Service Robots*. [Code and framework for low-cost robots used to facilitate educational courses on service robots. Available at <https://github.com/GRASP-ML/ServiceRobots>.]
- S2. Eric Eaton. (2008). *Gridworld search and rescue: A project framework for a course in artificial intelligence*. [This educational software allows students to develop an intelligent agent for a Search and Rescue application in a partially observable gridworld. It allows students to focus on high-level AI issues for solving the problem rather than low-level robotic navigation. It was used as the AI semester project at UMBC (CMSC 471, Fall 2007) and Swarthmore College (CPSC 063, Fall 2009), and has since been used at several other universities. The simulation framework is freely available for educational and not-for-profit research purposes at <http://seas.upenn.edu/~eeaton/searchandrescue/>.]
- S1. Eric Eaton, Marie desJardins, and Kiri Wagstaff. (2006). *DDPref: Learning preferences for sets of objects*. [A Java implementation of the DDPref language for expressing preferences over sets of objects, and an algorithm for learning those preferences from example sets, as described in the ICML-06 paper “Learning user preferences for sets of objects.” The library is available under the GPL at <http://seas.upenn.edu/~eeaton/software/DDPref.zip>.]

## INVITED TALKS

[Excludes conference paper presentations]

### Invited Talks at Conferences, Workshops, and Symposia

- *Confessions of a Continual Learning Researcher: I Don’t Study Causality...But Maybe I Should?* Continual Causality Bridge Program at AAAI’25, Philadelphia, PA, February 2025.

- *Composable Representations for Lifelong Learning in Autonomous Systems*. CogSIMA, Philadelphia, PA, October 2023.
- *The Artificial Intelligence Knowledge Area for the CS 2023 Curriculum*, NSF Workshop on AI Education, Charlotte, NC, August 2023.
- *Composable Representations for Lifelong Learning in Autonomous Systems*, ICRA 2023 Transferability in Robotics Workshop. June 2023.
- *Factorized and Composable Representations for Lifelong Learning*, NeurIPS 2021 4th Robot Learning Workshop: Self-Supervised and Lifelong Learning, December 2021.
- *Factorized and Composable Representations for Lifelong Learning*, ICDM 2021 Workshop on Continual Learning and Adaptation for Time Evolving Data, December 2021.
- *Factorized and Composable Representations for Lifelong Learning*, CVPR 2021 Workshop on Continual Learning in Computer Vision, June 2021.
- *Machine Learning: Dispelling the Hype*, Society for Healthcare Innovation Conference, October 2020.
- *Lifelong Machine Learning via Factorized Knowledge*, ICML-18 Workshop on Lifelong Learning: A Reinforcement Learning Approach, July 2018.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at the NIPS-16 Workshop on Continual Learning and Deep Networks, Barcelona, Spain, December 2016.

### Invited Talks at Universities, Research Labs, and Companies

- *Machine Learning for Video Analysis* (Co-presented with Dr. Daniel Hashimoto). Society of University Surgeons' "Office Hours", April 2025.
- *Adaptive AI for Long-Term Applications*. AI for Executives, Penn Engineering, May 2024.
- *Lifelong Learning for Autonomous Systems: Progress and Challenges*. Presented at the University of Pennsylvania, ASSET seminar, May 2024.
- Ignite Talk on *Lifelong Machine Learning*. Institute for Biomedical Informatics, Penn Medicine, Oct. 2023.
- *Factorized and Composable Representations for Lifelong Learning*. Drexel AI Seminar, February 2023.
- *Lifelong Learning of Perception and Action in Autonomous Systems*. Presented at the University of Pennsylvania, November 2020.
- *Lifelong Learning of Perception and Action in Autonomous Systems*. DARPA Electronics Resurgence Initiative (ERI) Summit, August 2020.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at the University of Southern California, March 2018.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at Oregon State University, March 2018.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at the University of Maryland, Baltimore County, March 2018.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at Northeastern University, February 2018.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at Virginia Tech, February 2018.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at the University of North Carolina, Chapel Hill, February 2018.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at Rutgers University, February 2018.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at TU Darmstadt, August 2017.
- *Efficient Lifelong Machine Learning: a Consecutive Task Learning Perspective*. Presented at the University of Washington, April 2017.
- *Efficient Lifelong Machine Learning*. Presented at Olin College, November 2015.
- *Efficient Lifelong Machine Learning*. Presented at Worcester Polytechnic Institute, April 2015.
- *Advances in Machine Learning: Toward Big Data and Lifelong Learning*. Presented at the University of Pennsylvania, April 2015.
- *Efficient Lifelong Machine Learning*. Presented at Google DeepMind, March 2015.
- *Efficient Lifelong Machine Learning*. Presented at the College of William & Mary, February 2015.
- *Efficient Lifelong Machine Learning*. Presented at Georgia Tech, February 2015.
- *Efficient Lifelong Machine Learning*. Presented at the Naval Research Lab, AI Seminar Series, January 2015.
- *Efficient Lifelong Machine Learning*. Presented at the University of Pittsburgh, March 2014.
- *Efficient Lifelong Machine Learning*. Presented at Lockheed Martin Advanced Technology Labs, July 2013.

- *Efficient Lifelong Machine Learning*. Presented at Wesleyan University, March 2013.
- *Continual Learning Agents: From transfer learning to lifelong machine learning*. Presented at the Naval Research Lab, Artificial Intelligence Seminar Series (Host: David Aha), March 2012.
- *Continual Learning Agents: From transfer learning to lifelong machine learning*. Presented at the University of Massachusetts, Lowell, February 2012.
- *Continual Learning Agents: From transfer learning to lifelong machine learning*. Presented at Towson University, March 2011.
- *Spectral clustering: Identifying groups in relational networks*. Presented at Bryn Mawr College, July 2010.
- *Interactive learning using manifold geometry*. Presented at Villanova University, April 2010.
- *Improving machine learning through knowledge transfer*. Presented at Rutgers University, CS Colloquium Series (Host: Michael Littman), February 2009.
- *Improving machine learning through knowledge transfer*. Presented at Lockheed Martin ATL, April 2008.

## PANEL MEMBER

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- Panelist at the Continual Causality Bridge Program at AAAI 2025.
- Panelist at the “Continuous Collaborative Learning in the Spectrum” workshop, DARPA ERI Summit, Aug. 2023.
- Panelist at the debate in the “Lifelong Learning and Personalization in Long-Term HRI” workshop, ACM/IEEE Int. Conf. on Human-Robot Interaction, March 2023.
- Panelist at the Hack@Brown “Sustainable Tech Panel,” Brown University. Jan 2022.
- Panelist at the ICLR-21 Workshop “A Roadmap to Never-Ending RL,” Virtual Conference. May 2021.
- Panel at the ICML-20 Workshop on Lifelong Learning. July 2020.
- Panel at the ICML-18 Workshop on Lifelong Learning: A Reinforcement Learning Approach, Stockholm, Sweden. July 2018.
- AAAI-17 Doctoral Consortium Panel on *Launching and Managing Your Career*, San Francisco. Feb. 2017.
- Panel at the NIPS-16 Workshop on Continual Transfer and Deep Networks, Barcelona, Spain. Dec. 2016.
- AAAI-15 Doctoral Consortium Panel on *Launching and Managing Your Career*, Austin, TX. January 2015.
- AAAI-14 Doctoral Consortium Panel on *Launching and Managing Your Career*, Québec, Canada. July 2014.
- Educational Advances in Artificial Intelligence (EAAI-12) Symposium at AAAI-12, panel on *AI and Sustainability*, Toronto, Canada. July 2012.
- Educational Advances in Artificial Intelligence (EAAI) Symposium at AAAI-11, panel on *Teaching challenges in the classroom*, San Francisco, CA. August 2011.

## STUDENT RESEARCH ADVISING

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### Postdoctoral Fellows

The list below includes postdocs who have worked in my research group. In all cases, I served as each postdoc’s sole research advisor and they were supported entirely by my grants.

- Shenbagaraj Kannapiran (2025–present at Penn): multi-robot navigation and perception for triage
- Cassandra Kent, Ph.D. (2021–2022 at Penn): lifelong learning for robotics
- Jorge Mendez, Ph.D. (2022 at Penn): compositional and multi-agent lifelong learning
  - Continued to a postdoc at MIT; now an assistant professor at Stony Brook.
- Sima Behpour, Ph.D. (2019–2020 at Penn): deep lifelong learning
  - Continued to a second postdoc at Carnegie Mellon Univ.; now at Apple
- Boyu Wang, Ph.D. (2018–2019 at Penn): theoretical aspects of lifelong learning
  - Continued to a tenure-track position at University of Western Ontario.
- James Stokes, Ph.D. (2017–2018 at Penn): deep lifelong learning
  - Continued on to be a research scientist at the startup Tunnel; now at the Flatiron Institute.
- José Marcio Luna Castaneda, Ph.D. (2014–2016 at Penn): lifelong learning for robotics and medicine
  - Continued on to be a research scientist at Penn Medicine; now an assistant professor at WashU
- Haitham Bou Ammar, Ph.D. (2013–2015 at Penn): lifelong reinforcement learning
  - Completed a second postdoc at Princeton; now at Huawei/UCL
- Paul Ruvolo, Ph.D. (2012–2013 at Bryn Mawr College): lifelong learning, community detection
  - Continued to a faculty position at Olin College; now an associate professor at Olin.
- Steven Gutstein, Ph.D. (2011–2012 at Bryn Mawr College): lifelong learning
  - Continued on to work at JPMorgan; now at the Army Research Laboratory.

### Graduated PhD Students

The list below includes doctoral students who have graduated from my research group. Unless otherwise noted, I served as their primary research advisor. *Italics* indicates students that were supported by my grants.

- *Meghna Gummadi*, Penn CIS (August 2019–Dec 2024): Dissertation: Knowing What We Don't Know! Detecting and Learning Out-of-Distribution Data in the Open World
  - Now an industrial researcher/scientist at Burro
- *Seungwon Lee*, Penn CIS (July 2017–May 2024): Dissertation: Deep Lifelong Learning with Factorized Knowledge Transfer
  - Continued to a postdoc at Harvard.
- *Jorge Mendez*, Penn CIS (April. 2017–May 2022): Dissertation: Lifelong Machine Learning of Functionally Compositional Structures
  - Third place award of the Two Sigma Diversity PhD Fellowship 2021.
  - MIT School of Engineering Postdoctoral Fellowship, 2022.
  - Continued to a postdoc at MIT in Sept. 2022, now an assistant professor at Stony Brook University.
- *Mohammad Rostami*, Penn ESE (Sept. 2014–July 2019). Dissertation: Learning Transferable Knowledge Through Embedding Spaces. Graduated 2019. Co-advisor: Daniel Lee.
  - Co-recipient of the 2019–20 Joseph, D'16, and Rosaline Wolf Award for the best dissertation in electrical and systems engineering at Penn.
  - Continued on to be a research scientist at HRL Labs, now at USC ISI.
- *David Isele*, Penn CIS (Sept. 2014–December 2018). Dissertation: Lifelong Reinforcement Learning on Mobile Robots. Graduated May 2019. Co-advisor: CJ Taylor.
  - Continued on to be a research scientist at Honda Research.

### Current PhD Students

The list below includes doctoral students who have worked in my research group. Unless otherwise noted, I served as their primary research advisor. *Italics* indicates students that were supported by my grants.

- *Kyle Vedder*, Penn CIS (August 2019–May 2025): perception
- *Marcel Hussing*, Penn CIS (August 2020–present): reinforcement learning
- *Long Le*, Penn CIS (August 2022–present): object affordance learning
- *Edward Zhang*, Penn CIS (August 2024–present): clinical/surgical ML (Co-advisor: Daniel Hashimoto, MD)

### Visiting PhD Students

The list below includes doctoral students from other institutions who worked in my research group for short time periods. *Italics* indicates students that were supported by my grants.

- *Decebal Mocanu*, PhD student at Technische Universiteit Eindhoven. Visiting Scholar at Penn (Sept.–Dec. 2014): deep learning, robotics
- *David Cooper*, PhD student at UMass. Lockheed Martin ATL Summer Intern (May–Aug. 2009): multivariate motif discovery in time series

### Independent PhD Student Studies

The list below includes doctoral students who completed independent studies in my research group. *Italics* indicates students that were supported by my grants.

- *Kuk Jang*, Penn ESE. (Fall. 2020–2021): transfer learning for heart arrhythmia detection
  - Primary advisor: Rahul Mangharam
- *Caio Mucchiani*, Penn MechE. (Jan.–May. 2016): design of a low-cost service robot and modular arm
  - Primary advisor: Mark Yim

### Dissertation Committees

- Yishan Shen. (in progress). *Enhancing real-world data utilization through distributed algorithms: addressing systemic bias and multi-source challenges in healthcare research*. PhD Dissertation, Applied Mathematics and Computational Science, University of Pennsylvania. (Yong Chen, advisor)
- Yiwen Lu. (in progress). *From Data to Digital Twins: Integrating Statistical Models and Generative AI in Clinical Research*. PhD Dissertation, Applied Mathematics and Computational Science, University of Pennsylvania. (Yong Chen, advisor)
- Bingyu Zhang. (in progress). *Leveraging Real-World Data for Optimal Treatment Eligibility in Clinical Trials and Robust Evidence Generation*. PhD Dissertation, Applied Mathematics and Computational Science, University of Pennsylvania. (Yong Chen, advisor)

- Oleksiy Ostapenko. (2024). *Towards maintainable machine learning development through continual and modular learning*. Ph.D. Dissertation, University of Montreal. (Laurent Charlin and Irina Rish, advisors)
- Austin Chen. (2023). Topic: multi-agent systems. University of Pennsylvania. (Vijay Kumar and George Pappas, advisors)
- Sydney Pugh. (2023). Topic: Weakly supervised machine learning. University of Pennsylvania. (Insup Lee and James Weimer, advisors)
- Joel Hypolite. (2020). Topic: Fast and slow reasoning for malicious software attacks. University of Pennsylvania. (Jonathan M. Smith and Andre DeHon, advisors)
- Pengyuan Shen. (2018). *Development of a Methodology for Fast Optimization of Building Retrofit and Decision Making Support*. Ph.D., Department of Architecture, University of Pennsylvania. (William Braham, advisor)
- Boyu Wang. (2016). *Transfer and Multitask Learning Methods for Improving Brain Signal Analysis*. Ph.D. Dissertation, McGill University. (Joelle Pineau, advisor)
- Diane Oyen. (2013). *Interactive Exploration of Multitask Dependency Networks*. Ph.D. Dissertation, University of New Mexico. (Terran Lane, advisor)

### Master's Thesis Research

This list includes master's students who worked on theses in my group. This research was performed for salaried or hourly pay, for independent study credit, or on a volunteer basis. For each student, I was the primary research advisor unless otherwise noted.

- Xijie Jiao. Master's Thesis, 2024.
- Rong Fan, Penn Masters in Electrical and Systems Engineering. Master's Thesis: Semantic segmentation of laparoscopic cholecystectomy images based on deep learning and class-incremental learning. (Co-advised by Daniel Hashimoto).
- Wenxuan Zhang, Penn AMCS 2021 (Co-advised by Pratik Chaudhari)
- Nicole Chiou, Penn RoboMSE 2021 (Advised by Rahul Mangharam; served as co-advisor)
- Christopher Painter, Penn RoboMSE 2019 (Advised by Brian Litt; served as co-advisor)

### Research Associates

This list includes research associates who worked on research projects in my group. This research was performed for salaried or hourly pay. For each person, I was the primary research advisor unless otherwise noted.

- Grace Boatman, Penn MSE 2020 (May 2020–Sept 2020): evaluation of lifelong learning algorithms

### Non-Thesis Master's Research

This list includes master's students who worked on research projects in my group. This research was performed for salaried or hourly pay, for independent study credit, or on a volunteer basis. For each student, I was the primary research advisor unless otherwise noted.

- Tenzi Zhuoga (2024): visual language models for robotic perception and triage
- Luying Zhang (2024): robotic perception for remote triage
- Jeyanth Siddharth Seeka Chitti (2024): robotic perception for remote triage
- Michaela Feehery (2024): robotic perception for remote triage
- Daudi Zein (2024): robotics for triage
- Xijie Jiao (2023): machine learning
- Anisha Singrodia (2023): machine learning
- Parimal Mehta (2023): perception for clinical environments
- Sharon Shaji (2022–2023): service robots
- Aadit Patel (2022): service robotics
- Rashmi Phadnis (2022): out-of-distribution detection for continual learning
- Adam Alavi (2021–2022): out-of-distribution detection for continual learning
- Thomas Greening (April 2021–2022): biomarker benchmark creation for machine learning
- Abdullah Zaini (Dec. 2020–2021): survival analysis with interpretable models
- Grace Boatman (Sept. 2019–May 2020): meta-learning
- Daoqi Zhang (Jan. 2020–May 2020): low-cost manipulation for service robots
- Sailalitha Gupta (June. 2019–May 2020): machine learning for ophthalmology
- Srinath Rajagopalan (Sept. 2018–Dec 2019): lifelong machine learning
- Carter Burn (Sept. 2018–June 2019): lifelong learning in relational networks
- Benjamin Kramer (Jan. 2019–2019): service robotics
- Meghna Gummadi (Jan.–May 2018): robust navigation for service robots

- Karl Schmeckpeper (Jan.–May 2018): robust navigation for service robots
- Kuan-Chen Chiu (Jan. 2018–2018): lifelong deep reinforcement learning
- Chi Zhang (Jan. 2018–2018): deep learning for robot navigation and vision
- Obinna Asinugo (July 2017–2018): robotic navigation and deep learning for vision
- Varun Gupta (Jan. 2017–2018): cross-paradigm lifelong learning
- Shashank Shivkumar (Nov. 2016–2017): lifelong inverse reinforcement learning
- William Bradbury Thompson (Sept. 2016–Aug. 2017): RL for dynamic stabilization
- Jorge Mendez (Sept. 2016–May. 2017): lifelong learning for service robotics
- Alex Baucom (Jan. 2017–May 2017): robust long-term deployment of service robots
- Sakthivel Sivaraman (Jan. 2017–May 2017): robust long-term deployment of service robots
- Rakshita Tandon (Jan. 2016–May 2016): automatic basis dimensionality selection for ELLA
- Ishan Srivastava (Jan. 2016–May 2016): hybrid generative and experience replay for online deep learning
- Yanwei Du (Sept. 2014–April 2015): lifelong learning for quadrotor control
  - Primary advisor: Insup Lee
- Yuncai Cui (Sept.–Dec 2014): multi-task learning for control of modular robots
  - Primary advisor: Mark Yim
- Levi Cai (Sept.–Dec 2014): multi-task learning for control of modular robots
  - Primary advisor: Mark Yim
- Chenyang Zhao (Sept.–Dec 2014): multi-task learning for control of modular robots
  - Primary advisor: Mark Yim
- Neha Kakkar, Penn SE (June–Aug. 2014): object recognition via lifelong learning
- Vishnu P. Sreenivasan, Penn CIS (Sept. 2013–May 2014): online multi-task reinforcement learning
- Tyler Rush, Bryn Mawr R.A. (May–Aug. 2011): Gaussian process models for community detection

#### Undergraduate Theses and Senior Projects (primary advisor)

- Khye Facey-Marshall. (2025). Undergraduate Senior Thesis, University of Pennsylvania.
- Sarah Batta, Selassie Berhane, Shivani Ganesh, Michael O'Farrell. (2024). PassR. Undergraduate Senior Project, University of Pennsylvania.
- Sacha Best, Nova Fallen, Scott Freeman, Sebastian Lozano. (2017). Interactive debate with Amazon Echo. Undergraduate Senior Project, University of Pennsylvania.
- Rachel Adducci, Lauren Datz, Harrison Huh, and Anastasiya Kravchuk-Kirilyuk. (2017). Personalized modeling of wellness from FitBit data. Undergraduate Senior Project, University of Pennsylvania.
- Fangyu Panda Xiong. (2015). Topic: combining active querying with task selection in multi-task learning. Undergraduate Thesis, Haverford College.
- Hunter Schlacks. (2015). Topic: lifelong learning. Undergraduate Senior Project, University of Pennsylvania.
- Trisha Kothari, Charu Jangid, Edward Wadsworth, and Jarred Spear. (2014). Multi-task Learning of Customer Valuation Models. Undergraduate Senior Project, University of Pennsylvania.
- Caitlyn Clabaugh. (2013). *PartyBot: Learning to Create Computational Music Mashups*. Undergraduate Thesis, Bryn Mawr College.
  - Continued to PhD studies at the University of Southern California
- Rose Abernathy. (2013). *Social-Network-Based Guided Emergent Narrative*. UG Thesis, Haverford College.
- Meagan Neal. (2013). *Reproducing Kernel Hilbert Spaces in Multi-Task Machine Learning*. Undergraduate Thesis, Bryn Mawr College. (Co-advised by Leslie Cheng, Bryn Mawr Math Dept.)
- Leila Zilles. (2012). *A Framework for Improving Statistical Machine Translation Between Languages with Scarce Bilingual Resources*. Undergraduate Thesis with Honors, Bryn Mawr College.
  - Continued to PhD studies at the University of Washington
  - Awards: NSF Graduate Research Fellowship; BMC Gertrude Slaughter Fellowship
- Emily Levine. (2012). *Learning Models to Detect Early Onset Parkinson Disease*. Undergraduate Thesis with Honors, Bryn Mawr College.
- Benjamin Cutilli. (2012). *Computer Vision and its Application in Self-Driving Cars*. Undergraduate Thesis, Haverford College. (Co-advised by David Wonnacott, Haverford College.)

#### Undergraduate Research (in addition to undergraduate theses listed above)

- Justin Monchais (Penn'27). Topic: robotics for triage.
- Boya Zeng (Penn'25). Topic: multi-modal learning.
- Shannon Dooley (Penn'27). Topic: robotic perception for triage.
- Karen Li (Penn'25). Topic: multi-model transfer for land use classification from satellite imagery.
- Ahmed Abdellah (Penn'25). Topic: measuring computational cost of multi-agent lifelong learning.

- Spencer Solit. (Penn '23). Topic: benchmarks for compositional learning.
- Gregory Zhu. (Penn '22). Topic: deep transfer learning for ptosis grading.
- Dhruv Iyer. (Penn '21). Topic: deep learning.
- Zach Hay. (Penn '18). Topic: lifelong reinforcement learning.
- Yizhang Lin. (Penn 19). Topic: facial expression imitation.
- Monica Vyavahare. (Penn '19). Topic: learning from demonstration.
- Tamir H. Frank. (Penn '19). Topic: machine learning.
- Woonki Jeon. (Penn '15). Topic: multi-task learning of object recognition.
- Kruesit Upatising. (Penn '15). Topic: multi-task learning of object recognition.
- Lisa Seung-Yeon Lee (Princeton '15; GRASP REU student): online multi-task reinforcement learning
- Fangyu Panda Xiong (Haverford '15): object recognition
- Gabriel Ryan (Swarthmore '13): lifelong learning using the Horde architecture
- Jacy Li (Bryn Mawr '14): online multitask learning
- Yinxuan Rachel Li (Bryn Mawr '14): semi-supervised community detection
- Meagan Neal (Bryn Mawr '13): interactive multi-task learning (also sr. thesis, as described above)
- David Wilikofsky (Swarthmore '12): human-agent transfer for reinforcement learning
- Leila Zilles (Bryn Mawr '12): active transfer learning (also sr. thesis, as described above)
- Kerstin Baer (Bryn Mawr '11): continual knowledge transfer using sparse coding
  - Continued to PhD studies in theoretical mathematics at Stanford
  - Awards: NSF Graduate Research Fellowship
- Samantha Wood (Bryn Mawr '11): machine learning for a priori matrix reordering algorithm selection
  - Continued to PhD studies in computer science at UC San Diego
  - Awards: NSF Graduate Research Fellowship
  - Secondary advisor for honors thesis (primary advisors: David Wonnacott, Michelle Mills Strout).
- Alexandra Lee (Bryn Mawr '11): constrained community detection
  - Continued to graduate studies in applied math at the University of Washington
- Stephanie Tran (Bryn Mawr '13): learning for search and rescue in USARsim
- Rachael Mansbach (Swarthmore '11): community discovery in relational networks
  - Continued to PhD studies in physics at the University of Illinois, Urbana Champaign
- John Stevenson (UMBC '08): multiresolution learning
- Eric Hamilton (UMBC '07): multiscale image processing
- Craig Cambias (UMBC '05): annotated constrained clustering
  - Continued to graduate studies at Georgia Tech

## HONORS AND AWARDS

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### Best Paper Awards

- Best paper award at the North American Fuzzy Information Processing Society Annual Conference for “Fuzzy Logic++: Towards Developing Fuzzy Education Curricula Using ACM/IEEE/AAAI CS2023.” 2023.
- Best paper award at the ICML 2020 Workshop on Lifelong Machine Learning for “Lifelong learning of factored policies via policy gradients” with my PhD advisee: Jorge Mendez. July 2020.
- Best Student Paper Award at IJCAI-16 for “Using task features for zero-shot knowledge transfer in lifelong learning” with my two PhD advisees: David Isele and Mohammad Rostami. July 2016.
- Finalist for best paper award at IJCAI-15 for “Autonomous cross-domain knowledge transfer in lifelong policy gradient reinforcement learning.” July 2015.

### Other Honors and Awards

- Winner, NASA Entrepreneur’s Challenge 2020. October 2020. [1 of 5 total awards]
- Elected “Councilor of the AAAI” (2018–2021) for a three-year term on the AAAI Executive Council by a vote of the AAAI general membership.
- Elected to Senior Member status in the Association for the Advancement of Artificial Intelligence (AAAI) “in recognition of [my] achievements and long-standing efforts in the field of artificial intelligence and [my] long-term participation in AAAI.” January 2019.
- Distinguished Senior Program Committee Member for IJCAI-18. July 2018.
- First place in PLDI-11 Student Research Competition, Undergraduate Category for poster by Samantha Wood. June 2011.
- Lockheed Martin SPOT Awards (2): for research and proposal leadership. December 2009, May 2010.



- NASA Tech Brief Award for “Learning user preferences for sets of objects.” February 2008.
- Verizon Graduate Fellowship. Duration: August 2005 – January 2006.
- Goddard Earth Sciences and Technology Graduate Fellowship, \$60,000 plus tuition and benefits. Duration: August 2003 – August 2005.

## TEACHING

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**Courses Taught** (\* denotes new courses I created; † denotes co-taught courses. Undergraduate courses are numbered below 499; graduate courses are numbered 500 and above.)

University of Pennsylvania

*CIS 700 Integrated Intelligence for Robotics	Fa2020, Fa2019, Fa2018, Fa2017, Fa2016, Fa2015
ESE 5420 Statistics for Data Science	Su2021 <sup>†</sup>
*CIS 419/519 Applied Machine Learning	Sp2020 <sup>†</sup> , Sp2019, Fa2017, Fa2016, Fa2015, Fa2014
CIS 121 Data Structures and Algorithms	Fall 2018
CIS 110 Introduction to Computer Programming	Fa19 <sup>†</sup> , Sp18, Sp17, Sp16, Sp15, Sp14 <sup>†</sup> , Fa13 <sup>†</sup>

Bryn Mawr College

*CMSC 380 Computational Sustainability & Assistive Computing	Fall 2010
*CMSC 380 Machine Learning	Spring 2011
*CMSC 380 Social Network Analysis	Spring 2013
CMSC 372 Artificial Intelligence	Spring 2012
CMSC 312 Computer Graphics	Fall 2010
CMSC 246 Programming Paradigms in C/C++	Spring 2013
CMSC 206 Data Structures	Fall 2012, Spring 2012, Fall 2011
CMSC 110 Introduction to Computing	Fall 2012 <sup>†</sup> , Fall 2011, Spring 2011

Swarthmore College

CPSC 063 Artificial Intelligence	Fall 2009
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University of Maryland, Baltimore County

CMSC 471 Artificial Intelligence	Fall 2007
CMSC 203 Discrete Mathematics	Spring 2005
CMSC 121 Introduction to UNIX	Fall 2006 (2 sections), Fall 2005

### Other Teaching and Mentoring Activities

- Chair of AAAI Education Committee (2018–2021).
- Mentor, AAAI Doctoral Consortium (2014, 2015, 2017, 2020, 2021).
- Honors Examiner for “Adaptive Robotics” and CS Caucus Leader, Swarthmore College (2019).
- Honors Examiner for “Artificial Intelligence”, Swarthmore College (2016).
- Primary “Major Advisor” for Bryn Mawr College computer science majors (2012–2013).
- Faculty co-advisor for Bryn Mawr College RoboCup Soccer Team (2012–2013).
- Lecture on AI to middle-school students as part of the Summer Institute for the Gifted @ Bryn Mawr (2011).
- “Customer” for software development teams, CMSC 345: Software Design and Development, UMBC (Spring 2007, Spring 2006, Spring 2005, Fall 2004, Spring 2004).
- Academic adviser for incoming UMBC undergraduates and transfer students (2004–2005).
- Graduate student mentor for the UMBC CSEE Department (2004–2005).

## PROFESSIONAL SERVICE

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### International Leadership

- Associate General Chair, AAAI Conference on Artificial Intelligence, Singapore (2026).
- Program Chair (lead), CoLLAs Conference on Lifelong Learning Agents 2025, Philadelphia, PA. (2024–2025)
- Chair of the Artificial Intelligence curriculum subcommittee and member of the steering committee, ACM/IEEE-CS/AAAI CS2023 Undergraduate Curriculum Revision (2020–2024). <https://csed.acm.org/> — The latest version of computer science curricular guidelines for undergraduates, used by institutions worldwide.
- Executive Board, CoLLAs Conference on Lifelong Learning Agents (2022–present).
- Member, *Break Through AI* Curriculum Committee – outreach program for undergraduate women and non-binary students (2021–2023).

- Councilor of the AAAI – elected to a three-year term on the AAAI Executive Council by a vote of the AAAI general membership (2018–2021).

### Conference and Symposium Organization

- Associate general chair, AAAI Conference on Artificial Intelligence (2026). [duplicate]
- Program chair (lead), CoLLAs Conference on Lifelong Learning Agents (2025). [duplicate]
- Steering Committee, CoLLAs Conference on Lifelong Learning Agents (2022).
- Co-chair, EAAI Symposium on Educational Advances in Artificial Intelligence (2018).
- Co-chair, EAAI Symposium on Educational Advances in Artificial Intelligence (2017).
- Co-chair, IJCAI-16 Doctoral Consortium (2016).
- Co-chair, AAAI-15 Workshop on Knowledge, Skill, and Behavior Transfer in Autonomous Robots (2015).
- Co-chair, AAAI Fall Symposium on Knowledge, Skill, and Behavior Transfer in Autonomous Robots (2014).
- Co-chair, AAAI-14 Workshops Program, the 28th AAAI Conference on Artificial Intelligence (2014).
- Organizing Committee, EAAI Symposium on Educational Advances in Artificial Intelligence (2014).
- Chair, AAAI Spring Symposium on Lifelong Machine Learning (2013).
- Co-chair, AAAI-13 Workshops Program, the 27th AAAI Conference on Artificial Intelligence (2013).
- Organizing Committee, EAAI Symposium on Educational Advances in Artificial Intelligence (2013).

### Professional Committees

- Advisory board member, LEVEL UP AI (2025–present)
- Chair, AAAI Education committee (2018–2021).
- Member, AAAI Membership committee (2018–2021).
- Member, AAAI/EAAI Outstanding Educator Award committee (2016).

### Journal Editing

- Action editor, Transactions on Machine Learning Research (2023–present).
- Associate editor, International Journal of Robotics Research (2023–present).
- Editor-in-chief (joint with A. McGovern), *AI Matters: the ACM SIGAI Quarterly Newsletter* (2015–2018).
- Guest co-editor (with Carla Gomes and Brian Williams), special issues of *AI Magazine* on Computational Sustainability (2014).

### Journal Reviewing

- Journal of Machine Learning Research: 2014, 2016, 2020
- Machine Learning: 2012–2013
- Artificial Intelligence: 2014–2015
- Journal of Artificial Intelligence Research: 2011–2013, 2018, 2022
- Autonomous Agents and Multi-Agent Systems: 2012
- IEEE Transactions on Neural Networks and Learning Systems: 2012
- Data Mining and Knowledge Discovery: 2009
- IEEE Transactions on Knowledge and Data Engineering: 2008–2009

### Conference Committees

#### *Area Chair*

- NeurIPS Neural Information Processing Systems: 2020, 2021, 2025
- ICML International Conference on Machine Learning: 2021, 2023, 2024, 2025
- ICLR International Conference on Learning Representations: 2021, 2022
- AAAI Conference on Artificial Intelligence: 2018
- IJCAI International Joint Conference on Artificial Intelligence: 2021
- RLC Reinforcement Learning Conference: 2025

#### *Senior Program Committees*

- AAAI Conference on Artificial Intelligence: 2013, 2016, 2017, 2019, 2020
- CoLLAs Conference on Lifelong Learning Agents: 2022, 2023, 2024
- IJCAI International Joint Conference on Artificial Intelligence: 2015, 2016, 2017, 2018, 2020
- AAMAS International Conference on Autonomous Agents and Multiagent Systems: 2018

#### *Program Committees*

- AAAI Conference on Artificial Intelligence:
  - Main technical program: 2012, 2014, 2015

- Computational Sustainability track: 2011–2013, 2015
- Integrated Intelligence track: 2010–2011
- AI and the Web track: 2013
- EAAI Symposium on Educational Advances in Artificial Intelligence: 2012, 2016
- ICCV International Conference on Computer Vision: 2025
- ICML International Conference on Machine Learning: 2009, 2018, 2019
- IJCAI International Joint Conference on Artificial Intelligence: 2011, 2019
- IROS International Conference on Intelligent Robots and Systems: 2018
- NeurIPS Neural Information Processing Systems: 2018, 2019
- Workshops:
  - AAMAS-17 Workshop on Transfer in Reinforcement Learning

#### **Other Conference, Reviewing, and Outreach Activities**

- Reviewer, ICRA International Conference on Robotics and Automation (2020).
- NSF grant review panelist, Robust Intelligence program (2015, 2017).
- Reviewer, COLT Conference on Learning Theory (2015).
- Invited participant, DARPA ISAT Workshop on the “Training of Things” (2014).
- Judge, Indoor Aerial Robotics Competition, Drexel University (2012).
- Conference paper co-reviewer:
  - AAAI-05, the 20th Conference on Artificial Intelligence (2005).
  - ICML-05, the 22nd International Conference on Machine Learning (2005).
  - IJCAI-05, the International Joint Conference on Artificial Intelligence (2005).
  - ICML-04, the 21st International Conference on Machine Learning (2004).
- Judge, the 26th Annual UMB/UMBC Graduate Research Conference (2004).

#### **University of Pennsylvania Service**

- Co-organizer, GRASP 2025 Summit: What’s Next for Robotics? (2025).
- Co-organizer, GRASP 2024 Industry Day (2024).
- Co-organizer, GRASP 2023 Industry Day (2023).
- Member, GRASP Large-Scale Collaborative Project Committee (2021–present).
- Member, Penn Data Science Building Design Feedback committee (2019–2021).
- Member, CIS Lecturer and Professor of Practice Search Committee (2018–2019).
- Member, CIS Computing Infrastructure committee (2018).
- Member, CIS Machine Learning Curriculum committee (2017).
- Advisor, CIS 400 Senior Project teams (2013, 2014, 2015, 2016, 2017).
- Coordinator of Teaching Assistants for CIS core courses (Spring 2015).

#### **Bryn Mawr College Service**

- Member, Computer Science Lecturer search committee (2013).
- Clare Boothe Luce scholarship committee (2013).
- Primary “Major Advisor” for computer science majors (2012–2013).
- Member, Computer Science System Administrator / Lab Coordinator search committee (2012).
- Coordinator of guest speakers for FLICS Fantastic Lectures in Computer Science series (2011–2012).
- Organized showcase and discussion of SIGGRAPH videos (2010).
- Bryn Mawr organizer for student research showcase at Haverford College (2010).

#### **UMBC Service**

- Revised CS Graduate Student Handbook and Progress Checklists (2007).
- Member, Provost’s Student Advisory Committee (2004–2005).
- Student Member, CSEE Department Promotion and Tenure Committee (2004, 2003).
- Co-Organizer, CSEE Department “Hi-Tea” Weekly Social Forum (S’2007, F’2006, F’2004, S’2004).
- CSEE Representative, Graduate School Horizons program (Summer 2004, Summer 2003).
- Panelist, College of Engineering and Information Technology Summer Preview Days (Summer 2004).
- Sole Student Member, CSEE Department Chair Search Committee (Fall 2003).