Stephanie Milani

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Education . . . .

2019–Present **Carnegie Mellon University**.
Ph.D. in Machine Learning.
Advisor: Fei Fang.

2019 **University of Maryland, Baltimore County**.
B.S. in Computer Science, B.A. in Psychology. *Cum Laude*. Honors College Certificate.
Advisors: Marie desJardins and Cynthia Matuszek.

Experience . . . .

2019–Present **Carnegie Mellon University**, *Research Assistant*.
Advisor: Fei Fang.

2021 **Research Intern**, *Microsoft Research, Cambridge*.
Offer deferred from summer 2020 to summer 2021 due to COVID-19.

2019 **Carnegie Mellon University**, *Research Assistant*.
Advisor: David Held.

University of Maryland, Baltimore County, *Research Assistant*.
Advisor: Cynthia Matuszek.

2018–2019 **Carnegie Mellon University**, *Research Intern*.
Advisor: Katia Sycara.

2016–2019 **University of Maryland, Baltimore County**, *Research Assistant*.
Advisor: Marie desJardins.

2018 **Carnegie Mellon University**, *Robotics Institute Summer Scholar*.
Advisor: Katia Sycara. *4% acceptance*.

2017 **Carnegie Mellon University**, *Robotics Institute Summer Scholar*.
Advisor: Christoph Mertz. *4% acceptance*.

2014–2016 **University of Maryland, School of Medicine**, *Research Assistant*.
Advisor: Jennifer Wenzel.

Honors and Awards . . . .

2020 **Inclusivity Compute and Conference Grants for MineRL Competition at NeurIPS**
Artificial Intelligence Journal (AIJ), €7,500. Awarded to **S. Milani** and N. Topin.
Top Reviewer Award, ICML (top 33% of all reviewers)

2019 **Travel Awards: NeurIPS, RLDM, ICML, ICML Diversity and Inclusion** (Declined)
Inclusivity Travel Grants for MineRL Competition and Workshop at NeurIPS
Artificial Intelligence Journal (AIJ), €3,000. Awarded to **S. Milani** and N. Topin.
UMBC Honors College Community Service Award
1/4 awarded, for strong academic performance and outstanding community service.

2018–2019 **UMBC Undergraduate Research Award**
1/55 awarded, for work on hierarchical, norm-aware reinforcement learning.

Newman Civic Fellow

1/268 nationally awarded, for leadership and dedication to increasing access to CS.

Rewriting the Code Fellow

Awarded for technically-skilled experience and projects.

2017–2019 **National Academy of Engineering Grand Challenge Scholar**

2018 **NSF Research Experience for Undergraduates**

Awarded to research norm-aware planning and learning at Carnegie Mellon University.

Best Undergrad Poster Presentation, UMBC CSEE Research Symposium

Awarded for work on abstract Markov decision processes.

OurCS Workshop Oracle Scholar

1/102 students chosen to attend workshop for exploring research problems.

Grace Hopper Student Scholar

1/657 awarded, funded by Palo Alto Networks to attend Grace Hopper.

CWIT Grace Hopper Award (Declined)

26% acceptance, funded to attend Grace Hopper.

Inclusion@RSS Scholar

Awarded to attend Robotics: Science and Systems Conference.

2017–2018 **France-Merrick Scholar**

1/7 awarded, for commitment to leadership and service in CS and AI.

2017, 2018 **UMBC Researcher of the Week**

Awarded for work on planning and reinforcement learning.

2017 **Traffic21 Women in Transportation Fellow**

Only student awarded fellowship, for research at Carnegie Mellon University.

UMBC Battlebots Tournament, Third-Place Winner

▬▬▬ Rigorously Refereed Conference Publications . . . .

[1] Nicholay Topin, **Stephanie Milani**, Fei Fang, and Manuela Veloso. Iterative Bounding MDPs: Learning Interpretable Policies via Non-Interpretable Method. *Proceedings of the 35th AAAI Conference on Artificial Intelligence*, 2021. *21% acceptance.*

[2] **Stephanie Milani**, Weiran Shen, Kevin S. Chan, Sridhar Venkatesan, Nandi O. Leslie, Charles Kamhoua, and Fei Fang. Harnessing the Power of Deception in Attack Graph Games. *Proceedings of the 11th Conference on Decision and Game Theory for Security*, 2020.

[3] **Stephanie Milani**, Nicholay Topin, Brandon Houghton, William H. Guss, Sharada P. Mohanty, Keisuke Nakata, Oriol Vinyals, and Noboru (Sean) Kuno. A Retrospective Analysis of the 2019 MineRL Competition on Sample-Efficient Reinforcement Learning Using Human Priors. *Proceedings of the NeurIPS 2019 Competition and Demonstration Track*, 2020.

[4] John Winder, **Stephanie Milani**, Matthew Landen, Erebus Oh, Shane Parr, Shawn Squire, Marie desJardins, and Cynthia Matuszek. Planning with Abstract Learned Models While Learning Transferable Subtasks. *34th AAAI Conference on Artificial Intelligence*, 2020. *20.6% acceptance.*

[5] Huao Li, **Stephanie Milani**, Vigneshram Krishnamoorthy, Michael Lewis, and Katia Sycara. Perceptions of Domestic Robots' Normative Behavior Across Cultures. *Proceedings of the 3rd AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society (AIES)*, 2019.

Refereed Workshop Papers and Extended Abstracts

[1] **Stephanie Milani***, Zhou Fan*, Saurabh Gulati, Thanh Nguyen, Fei Fang, and Amulya Yadav. Intelligent Tutoring Strategies for Students with Autism Spectrum Disorder: A Reinforcement Learning Approach. *The 34th AAAI Conference on Artificial Intelligence (AAAI) Workshop on AI for Education*, 2020. Also accepted for lightning talk at the *CMU Symposium on AI and Social Good*, 2020.

[2] Brandon Houghton, **Stephanie Milani**, Nicholay Topin, William Guss, Katja Hofmann, Diego Perez-Liebana, Manuela Veloso, and Ruslan Salakhutdinov. Guaranteeing Reproducibility in Deep Learning Competitions. *The 33rd Conference on Neural Information Processing Systems (NeurIPS) Challenges in Machine Learning (CiML) Workshop*, 2019.

[3] **Stephanie Milani**, Nicholay Topin, and Katia Sycara. Penalty-Modified Markov Decision Processes: Efficient Incorporation of Norms into Sequential Decision Making Problems. *The 4th Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, 2019.

[4] John Winder, **Stephanie Milani**, Matthew Landen, Erebus Oh, Shane Parr, Shawn Squire, Marie desJardins, and Cynthia Matuszek. Planning with Abstract, Learned Models. *Do Good Robotics Symposium*, 2019.

[5] John Winder, Shawn Squire, Matthew Landen, **Stephanie Milani**, and Marie desJardins. Towards Planning with Hierarchies of Learned Markov Decision Processes. *The 27th International Conference on Automated Planning and Scheduling (ICAPS) Integrated Execution of Planning and Acting (IntEx) Workshop*, 2017.

[6] Shawn Squire, John Winder, Matthew Landen, **Stephanie Milani**, and Marie desJardins. R-AMDP: Model-based Learning for Abstract Markov Decision Process Hierarchies. *The 3rd Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, 2017.

Other Refereed Publications

[1] William H. Guss, Mario Ynocente Castro*, Sam Devlin*, Brandon Houghton*, Noboru Sean Kuno*, Crissman Loomis*, **Stephanie Milani***, Sharada Mohanty*, Keisuke Nakata*, Ruslan Salakhutdinov*, John Schulman*, Shinya Shiroshita*, Nicholay Topin*, Avinash Ummadisingu*, and Oriol Vinyals*. NeurIPS 2020 Competition: The MineRL Competition on Sample Efficient Reinforcement Learning using Human Priors. *The 34th Conference on Neural Information Processing Systems (NeurIPS) Competition Track*, 2020.

[2] William H. Guss, Cayden Codel*, Katja Hofmann*, Brandon Houghton*, Noboru (Sean) Kuno*, **Stephanie Milani***, Sharada Mohanty*, Diego Perez-Liebana*, Ruslan Salakhutdinov*, Nicholay Topin*, Manuela Veloso*, and Phillip Wang*. The MineRL Competition on Sample Efficient Reinforcement Learning using Human Priors. *The 33rd Conference on Neural Information Processing Systems (NeurIPS) Competition Track*, 2019.

* *denotes equal contribution.*

Technical Reports

[1] **Stephanie Milani**. Penalty-Modified Abstract Markov Decision Processes. *Technical Report for Undergraduate Research Award, UMBC*, 2019.

Professional Service

Reviewing

2020   ICLR-21, AAAI-21, Game Theory and Machine Learning for Cyber Security (book chapter reviewer), ICML-20, AAAI-20 Workshop on Diversity in Artificial Intelligence

2019   ICML-19 Workshop on AI for Social Good, ICLR-19 Workshop on AI for Social Good

2017, 2018   RISS Working Papers Journal

2020 ICML, ICLR
2019 RLDM
2017 ICAPS
2016 Maryland Computing Education Summit

Invitation-only Meetings

2018 **CCC AI Roadmap Workshop: Integrated Intelligence**.
Resulted in *A 20-Year Community Roadmap for AI Research in the US*.

Other

2019-Present **MineRL Competition on Sample-Efficient Reinforcement Learning**, Organizer.
2020 **Carnegie Mellon University RISS Admissions Committee**.
2017, 2018 **RISS Working Papers Journal**, Assistant Managing Editor.
2017 **UMBC Department of IT**, Machine Learning Consultant.

Outreach . . . .

2020–Present **CMU Graduate Application Support Program (GASP)**, Mentor.
2019–Present **CMU AI Mentorship Program**, Mentor.
2020 **The Campus Laboratory School at Carlow University Career Day**, Presenter.
2019 **Steel City Showdown FIRST Robotics Competition**, Referee and Volunteer.
Robotics Institute Summer Scholars Program, Presenter at Orientation.
Rewriting the Code Alumni Office Hours.
Dedicated 30 min/week to provide career and academic advice to female undergrads.
2016-2019 **UMBC Computer Science Education**, Vice President, President, Treasurer.
2017–2018 **Creative Coders**, Curriculum Development Coordinator.
Developed curriculum for middle-school students to learn CS concepts.
2017 **Creative Coders**, Co-founder.
Co-founded program to introduce middle-school students to CS.
QuHacks Hackathon at UMBC, Organizer.
Organized day-long hackathon for appx. 100 high-school and middle-school students.
North County High School Computer Science Classes, Co-presenter.
2016–2017 **Computer Science Matters in Maryland**, Curriculum Developer.
2016, 2017 **Hour of Code at UMBC**, Organizer and Volunteer.
Organized and volunteered during two-day-long Hour of Code events on CS and AI.

Affiliations . . . .

Rewriting the Code Alumni, AAAI, ACM.

Selected Media Coverage . . . .

- "Security games reveal how networks can fool cyber attackers." U.S. Army DEVCOM Army Research Laboratory Public Affairs. November 2020.
- "MineRL sample-efficient reinforcement learning challenge—back for a second year—benefits organizers, as well as larger research community," by Noboru Sean Kuno. Microsoft Research Blog. August 2020.
- "Project Malmo competition returns with student organizers and a new mission: To democratize reinforcement learning," by Noboru Sean Kuno. Microsoft Research Blog. August 2019.

- "Traffic21's Women in Transportation Awardee Joining CMU's Machine Learning Ph.D. Program." Mobility21. April 2019.
- "Stephanie Milani named Newman Civic Fellow for expanding access to CS education," by Catalina Sofia Dansberger Duque. UMBC News. April 2018.
- "The Hour of Code Arrives at UMBC," by Declan Keefe. The Retriever. December 2017.