Stephanie Milani

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in stephanie-milani
 stephmilani

Education . . . .

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

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

2019 **B.A. in Psychology**, *University of Maryland, Baltimore County*, *Cum Laude*.

Experience . . . .

2019–Present **Research Assistant**, *Carnegie Mellon University*.
Advisor: Fei Fang.
Deep reinforcement learning and game theory for social good.

2019 **Research Assistant**, *Carnegie Mellon University*.
Advisor: David Held.
Reinforcement learning from demonstrations for robotics.

2019 **Research Assistant**, *UMBC*.
Advisor: Cynthia Matuszek.
Norm-aware hierarchical reinforcement learning.

2018–2019 **Research Intern**, *Carnegie Mellon University*.
Advisor: Katia Sycara.
Context-aware normative planning, learning, and reasoning for domestic service robots.

2016–2019 **Research Assistant**, *UMBC*.
Advisor: Marie desJardins.
Hierarchical model-based reinforcement learning.

2018 **Robotics Institute Summer Scholar**, *Carnegie Mellon University*.
Advisor: Katia Sycara. *(1 of 35 selected out of appx. 800 applicants.)*
Norm-aware reinforcement learning.

2017 **Robotics Institute Summer Scholar**, *Carnegie Mellon University*.
Advisor: Christoph Mertz. *(1 of 35 selected out of appx. 800 applicants.)*
Generation of adversarial examples for partially occluded traffic sign detection.

2014–2016 **Research Assistant**, *University of Maryland, School of Medicine*.
Advisor: Jennifer Wenzel.
Role of dopamine and the endocannabinoid system in reward and reinforcement.

Awards . . . .

Research

2019 **NSF Research Experience for Undergraduates**, Carnegie Mellon University.

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

2018	**Best Undergrad Poster Presentation**, UMBC CSEE Research Symposium.
	Awarded for work on abstract Markov decision processes.
2017, 2018	**Researcher of the Week**, UMBC.
2017	**Traffic21 Women in Transportation Fellow**, Carnegie Mellon University.

Service and Leadership

2019	**Honors College Community Service Award**, UMBC *(1/4 awarded)*.
2018–2019	**Newman Civic Fellow**, Newman Civic Foundation *(1/268 awarded nationally)*.
	Awarded for leadership and dedication to spreading and increasing access to CS.
2018–2019	**Rewriting the Code Fellow**, Rewriting the Code.
2017–2018	**France-Merrick Scholar**, UMBC *(1/7 awarded)*.
	Awarded for commitment to leadership and service in CS and AI.

Academic

2019	**Honors College Certificate**, UMBC.
2014	**Golden Key International Honour Society Nomination**, UMBC.
	National Academy of Engineering Grand Challenge Scholar, UMBC.
	Honors Scholar, UMBC.
	Meritus Scholar, UMBC.
	Merit-based scholarship awarded to one student per year to cover books.
	Presidential Scholar, UMBC.
	Merit-based scholarship to cover all of tuition for four years.

Travel

2019	**NeurIPS**, **RLDM**, **ICML**, **ICML Diversity and Inclusion** (Declined).
2018	**Oracle Scholar**, funded to attend OurCS Workshop *(1/102 chosen)*.
2018	**Grace Hopper Student Scholar**, funded by Palo Alto Networks to attend GHC *(1/657 chosen)*.
2018	**CWIT Grace Hopper Award**, funded to attend GHC *(26% acceptance)* (Declined).
2018	**Inclusion@RSS Scholar**, funded to attend RSS.

Publications . . . .

[1] John Winder, **Stephanie Milani**, Matthew Landen, Erebus Oh, Shane Parr, Shawn Squire, Marie desJardins, and Cynthia Matuszek. Planning with Abstract Learned Models (PALM): Learning Transferable Subtasks from Hard Problems. *AAAI Conference on Artificial Intelligence (AAAI)*, 2020. *20.6% acceptance.*

[2] William H. Guss, Cayden Codel*, Katja Hoffman*, 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. *Neural Information Processing Systems (NeurIPS) Competition Track*, 2019.

[3] Brandon Houghton, **Stephanie Milani**, Nicholay Topin, William Guss, Katja Hofmann, Diego

Perez-Liebana, Manuela Veloso, and Ruslan Salakhutdinov. Guaranteeing Reproducibility in Deep Learning Competitions. *NeurIPS Challenges in Machine Learning (CiML) Workshop*, 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] **Stephanie Milani**, Nicholay Topin, and Katia Sycara. Penalty-Modified Markov Decision Processes: Efficient Incorporation of Norms into Sequential Decision Making Problems. *Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, 2019.

[6] Huao Li, **Stephanie Milani**, Vigneshram Krishnamoorthy, Michael Lewis, and Katia Sycara. Perceptions of Domestic Robots' Normative Behavior Across Cultures. In *Conference on Artificial Intelligence, Ethics, and Society (AIES)*, 2019.

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

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

Technical Reports . . . .

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

[2] **Stephanie Milani**. Creating a Scalable Framework for Model-Free Reinforcement Learning in Norm-Rich Environments. *Robotics Institute Summer Scholars Working Papers Journal*, 2018.

[3] **Stephanie Milani** and Christoph Mertz. Generating Hard Positve Examples via Adversary for Occluded Traffic Sign Detection. *Robotics Institute Summer Scholars Working Papers Journal*, 2017.

Professional Service . . . .

2019–Present	**NeurIPS MineRL Competition on Sample-Efficient Reinforcement Learning**, Organizer.
2019	**RLDM at McGill University**, Volunteer.
2019	**ICML Workshop on AI for Social Good**, Reviewer.
2019	**ICLR Workshop on AI for Social Good**, Reviewer.
2017, 2018	**RISS Working Papers Journal**, Reviewer.
2017, 2018	**RISS Working Papers Journal**, Assistant Managing Editor.
2017	**UMBC Department of IT**, Machine Learning Consultant.
2017	**ICAPS at Carnegie Mellon University**, Volunteer.
2016	**Maryland Computing Education Summit at UMBC**, Volunteer.

Invitation-only Meetings . . . .

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

Grant Support . . . .

[1] **Stephanie Milani** and Nicholay Topin. Inclusivity Travel Grants for MineRL Competition and Workshop at NeurIPS 2019 (2019), *Artificial Intelligence Journal (AIJ)*, €3,000, 2019.

Selected Presentations . . . .

[1] **Stephanie Milani**. "A Hierarchical Framework for Norm-Aware Planning and Reinforcement Learning," poster presentation at the UMBC Undergraduate Research and Creative Achievement Day, 2019.

[2] Jessie Chen$^{\alpha-\beta}$, Hailey James$^{\alpha-\beta}$, **Stephanie Milani**$^{\alpha-\beta}$, Marjorie Wenjun Wu$^{\alpha-\beta}$, and Hanlin Zhou$^{\alpha-\beta}$. "Online Learning for Decision Making," oral presentation at Hello Research Closing Presentations, 2018.

[3] **Stephanie Milani** and Katia Sycara. "Creating a Scalable Framework for Reinforcement Learning in Norm-Rich Environments," poster presentation at the Robotics Institute Summer Scholars Research Showcase, 2018.

[4] Khalil Anderson$^{\alpha-\beta}$, **Stephanie Milani**$^{\alpha-\beta}$, Puja Trivedi$^{\alpha-\beta}$, Matthew Landen, John Winder, Shawn Squire, and Marie desJardins. "Learning Abstracted Models and Hierarchies of Abstract Markov Decision Processes," poster presentation at the UMBC CSEE Research Symposium, 2018.

[5] **Stephanie Milani** and Christoph Mertz. "A-Faster R-CNN: Generating Hard Positive Examples via Adversary for Traffic Sign Detection," poster presentation at the Robotics Institute Summer Scholars Research Showcase, 2017

$^{\alpha-\beta}$ *denotes alphabetical order.*

Teaching and Mentoring . . . .

Curriculum Development

2017–2018 **Creative Coders**, Curriculum Development Coordinator.
Developed curriculum for middle-school students to learn CS concepts.

2016–2017 **Computer Science Matters in Maryland**, Curriculum Developer.

Tutoring

2017 **QuHacks Hackathon at UMBC**.

2016, 2017 **Hour of Code at UMBC**.
Introduced UMBC and middle-school students to CS and AI via hands-on activities.

Mentoring

2019–Present **CMU AI Mentorship Program**.

2019 **Rewriting the Code Alumni Office Hours**.
Dedicated 30 min/week to provide career and academic advice to female undergrads.

Outreach

2019	**Steel City Showdown FIRST Robotics Competition**, Referee and Volunteer.
2019	**Robotics Institute Summer Scholars Program**, Presenter at Orientation.
2019	**UMBC Computer Science Education**, Treasurer.
2017–2018	**UMBC Computer Science Education**, President.
2017	**Creative Coders**, Co-founder.
	Co-founded program to introduce middle-school students to CS.
2017	**QuHacks Hackathon at UMBC**, Organizer.
	Organized day-long hackathon for appx. 100 high-school and middle-school students.
2017	**North County High School Computer Science Classes**, Co-presenter.
2016–2017	**UMBC Computer Science Education**, Vice President.
2016, 2017	**Hour of Code at UMBC**, Organizer.
	Organized two-day-long Hour of Code events.

Affiliations

2019–Present	Rewriting the Code, Alumni.
2019–Present	Association for the Advancement of Artificial Intelligence (AAAI), Member.
2018–Present	Association for Computing Machinery (ACM), Member.
2017–2019	Center for Women in Technology (CWIT), Affiliate.

Selected Media Coverage

"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.