

Stephanie Milani

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Education

- 2019 **B.S. in Computer Science**, *University of Maryland, Baltimore County, Cum Laude.*
- 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–Present **Research Assistant**, *Carnegie Mellon University.*
Advisor: David Held.
Learning from demonstrations and reinforcement learning 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 **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] **Stephanie Milani**, Nicholay Topin, and Katia Sycara. Penalty-modified Markov decision processes: Efficient incorporation of norms into sequential decision making problems. In *Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, 2019.
- [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. In *Neural Information Processing Systems (NeurIPS) Competition Track*, 2019.
- [3] 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.
- [4] Shawn Squire, John Winder, Matthew Landen, **Stephanie Milani**, and Marie desJardins. R-

AMDP: Model-based learning for abstract Markov decision process hierarchies. In *Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, 2017.

- [5] John Winder, Shawn Squire, Matthew Landen, **Stephanie Milani**, and Marie desJardins. Towards planning with hierarchies of learned Markov decision processes. In *International Conference on Automated Planning and Scheduling (ICAPS) - Integrated Execution of Planning and Acting (IntEx) Workshop*, 2017.

* denotes equal contribution.

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 Positive Examples via Adversary for Occluded Traffic Sign Detection. *Robotics Institute Summer Scholars Working Papers Journal*, 2017.

Professional Service

- 2019–Present **NeurIPS MineRL Competition on 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**.

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 Yujie Lu (undergraduate research - summer project)

Outreach

- 2019 **Steel City Showdown FIRST Robotics Competition**, Referee and Volunteer.
- 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.