Lily Xu

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lily-x.github.io

EDUCATION

Harvard University, Cambridge, MA   2019 – present
PhD Candidate, School of Engineering and Applied Sciences
Advised by Prof. Milind Tambe

Dartmouth College, Hanover, NH   2014 – 2018
A.B. with Honors in Computer Science, minor in Spanish
Magna cum laude

PUBLICATIONS

Dual-Mandate Patrols: Bandit-Based Learning for Green Security
In submission to AAAI 2021
Appeared at Harvard CRCS Workshop on AI for Social Good 2020
Lily Xu, Elizabeth Bondi, Fei Fang, Andrew Perrault, Kai Wang, and Milind Tambe

Game Theory on the Ground: The Effect of Increased Patrols on Deterring Poachers
Working paper
Appeared at Harvard CRCS Workshop on AI for Social Good 2020
Lily Xu, Andrew Perrault, Andrew Plumptre, Margaret Driciru, Fred Wanyama, Aggrey Rwetsiba, and Milind Tambe

A High-Performance Graph Model for Near-Optimal Payments for Ecosystem Services
Working paper
Appeared at Mechanism Design for Social Good (MD4SG) Workshop 2020
Florian Berlinger*, **Lily Xu***, Yiling Chen
*Equal contribution

Stay Ahead of Poachers: Illegal Wildlife Poaching Prediction and Patrol Planning Under Uncertainty with Field Test Evaluations
IEEE International Conference on Data Engineering (ICDE) 2020
Lily Xu*, Shahrzad Gholami*, Sara Mc Carthy, Bistra Dilkina, Andrew Plumptre, Milind Tambe, Rohit Singh, Mustapha Nsubuga, Joshua Mabonga, Margaret Driciru, Fred Wanyama, Aggrey Rwetsiba, Tom Okello, Eric Enyel
*Equal contribution

HONORS AND
AWARDS

Certificate of Appreciation from the SMART Consortium   2018
Five Citations for Academic Excellence at Dartmouth College   2014 – 2018
    Special distinction rarely awarded by faculty members "for meritorious
    characteristics not indicated adequately by academic grades."
        Computational Photography (Jarosz, CS 89.15)
        Latin American Film (Spitta, Spanish 63.01)
        Computer Graphics (Whiting, CS 77)
        Object-Oriented Programming (Peters, CS 10)
        Introduction to Programming and Computation (Farid, CS 1)
Adobe Women-In-Technology Scholarship – Honorable Mention   2017
Rick Angulo World Experience Award   2016
    For "intellectual openness, enthusiasm, and impressive academic performance"

following a study abroad program in Cusco, Peru. Award in $1,500.

James O. Freedman Presidential Scholar	2016
Willis S. Fitch '17 Metropolitan Washington Scholarship	2015
Bank of America's Joe Martin Scholarship	2014

RESEARCH EXPERIENCE	**Harvard University**, Cambridge, MA	
	Doctoral Research Assistant	2019 – present
	Advised by Prof. Milind Tambe.	
	University of Southern California, Los Angeles, CA	
	Doctoral Research Assistant	2018 – 2019
	Advised by Prof. Bistra Dilkina and Prof. Milind Tambe.	
	Dartmouth College, Hanover, NH	
	Undergraduate Senior Thesis Researcher	2017 – 2018
	Advised by Prof. Amro Farid.	
	Presidential Scholar Research Assistant	2016 – 2017
	Advised by Prof. Emily Whiting and Prof. David Kotz.	

WORK EXPERIENCE	**Google**, Seattle, WA	
	Software Engineering Intern	Summer 2017
	Dyn, Inc., Hanover, NH	
	Data Analytics Research Intern	Spring 2016

TEACHING EXPERIENCE	**Harvard University**	
	Head teaching fellow, CS 182: Artificial Intelligence	Fall 2020

Dartmouth College

Teaching assistant for 11 courses. Helped design assignments and course material for the first offering of CS 11 and delivered a guest lecture to 70 students.
- CS 1: Intro to Programming and Computation — Fall 2015, Winter 2016, Spring 2017, Fall 2017, Spring 2018
- CS 10: Object-Oriented Programming — Spring 2015, Spring 2016
- CS 11: Foundations of Applied Computer Science — Spring 2018
- CS 31: Algorithms — Winter 2017
- Tuck FWP: Fundamentals of Web Programming — Spring 2017
- Tuck DSA: Data Structures and Analytics — Spring 2017

STUDENTS MENTORED	Emilia Cabrera '21, Harvard College	Fall 2020
	Rachel Guo '22, Harvard College	Summer 2020, Fall 2020

PROFESSIONAL SERVICE	**Program Organization**	
	Co-organizer, MD4SG Working Group on Environment and Climate	January 2020 –
	Co-organizer, CompSust Open Graduate Seminar (COGS)	January 2020 –
	Social co-chair, Fourth Workshop on MD4SG	August 2020
	Lead organizer, Harvard CRCS Workshop on AI for Social Impact	March 2020
	Co-organizer, Computational Sustainability Doctoral Consortium	October 2019

Program Committee

Conferences

AAAI Emerging Track on AI for Social Impact (AISI)   2021
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Workshops
NeurIPS Workshop on Machine Learning for the Developing World (ML4D)   2020
Fourth Workshop on Mechanism Design for Social Good (MD4SG)   2020
Harvard CRCS Workshop on AI for Social Good   2020
KDD Workshop on Humanitarian Mapping   2020

Reviewer
IJCAI Special Track on CompSust and Human Well-being, subreviewer   2020

LEADERSHIP   **Ledyard Canoe Club at Dartmouth**, *Secretary, Canoeing Leader*   2014 – 2018
- Co-governed club functions for over 100 undergraduates. Managed club assets that include $1M in endowments, a student-run rental business with annual revenues of $50K, and boats and equipment valued at $150K.
- Co-organized an Explorers Symposium featuring ten notable speakers, including Olympic racers and members of National Geographic–sponsored expeditions.
- Led a group of twenty-eight students on a nine-day, 220-mile canoe expedition.
- Voted by my peers to receive the Jay Evans '49 Award for service and commitment to the club.

Fusion Dance Ensemble, *Director*   2014 – 2018
- Led a group of fourteen dancers. Choreographed, taught, and performed contemporary and hip-hop dances.

Dartmouth Sophomore Trips, *Co-director*   2015 – 2016
- Planned the Sophomore Trips program for 130 undergraduates across 14 three-day outdoor trips throughout New Hampshire and Vermont.

Dartmouth First-Year Trips, *Grant Crew Volunteer*   Summer 2015
- Served on a nine-person crew for a 21-day, round-the-clock commitment to assist 300 students in five-day outdoor orientation trips.

OUTREACH   **Speaking**
GirlsComputingLeague, AInnovation Business Summit   September 2020
MD4SG and the Environment, Data Science Africa   July 2020
Inclusivity in the Outdoors, Ledyard Canoe Club   July 2020
Dartmouth Women in Computer Science, panelist   May 2020
Harvard SEAS Diversity, Inclusivity, and Belonging, panelist   May 2020
Center for Initiatives in Jewish Education, high school student visit   March 2020
World Science Festival, Science and Storytime   June 2019
L.A. Unified School District (LAUSD), African American Family Day   May 2019
Zoo Magnet High School, College and Career Day   November 2018

Mentoring
InTouch Peer Mentor, Harvard University   2020 –
Women in STEM Mentor, Harvard University   2019 –
Women in Computer Science panelist and mentor, Dartmouth College   2017 – 2018

Volunteering
Graduate Council Outreach Committee, Harvard University   2020 –
Project Teach, Harvard University   April 2020

Presenter, Cambridge Public Schools STEAM It Up!   October 2019

Technical lead, Hustle N' Code hackathon   December 2018

> *Hustle N' Code is a Los Angeles hackathon for youth in public housing.*
> *My team won first place, and the four students each received a laptop.*

PRESS   **Harvard SEAS**, Preventing Poaching.   June 2020

            USC Viterbi Magazine, AI is for Animals.   April 2019