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
AAAI-21: Thirty-Fifth AAAI Conference on Artificial Intelligence
Lily Xu, Elizabeth Bondi, Fei Fang, Andrew Perrault, Kai Wang, and Milind Tambe

**Enhancing Poaching Predictions for Under-Resourced Wildlife
Conservation Parks Using Remote Sensing Imagery**
NeurIPS Workshop on Machine Learning for Development 2020
Rachel Guo, **Lily Xu**, Andrew Plumptre, Drew Cronin, Francis Okeke, 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**
ICDE-20: IEEE International Conference on Data Engineering 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
	Guest Lecturer	
	CS 182: Artificial Intelligence	Fall 2020
	Dartmouth College	
	Teaching Assistant, Department of Computer Science	
	CS 31: Algorithms	Winter 2017
	CS 11: Foundations of Applied Computer Science	Spring 2018
	CS 10: Object-Oriented Programming	Spring 2016
	CS 10: Object-Oriented Programming	Spring 2015
	CS 1: Intro to Programming and Computation	Spring 2018
	CS 1: Intro to Programming and Computation	Fall 2017
	CS 1: Intro to Programming and Computation	Spring 2017
	CS 1: Intro to Programming and Computation	Winter 2016
	CS 1: Intro to Programming and Computation	Fall 2015
	Teaching Assistant, Tuck School of Business	
	Tuck FWP: Fundamentals of Web Programming	Spring 2017
	Tuck DSA: Data Structures and Analytics	Spring 2017

Guest Lecturer
CS 11: Foundations of Applied Computer Science   Spring 2018

<table>
<tr><td>STUDENTS
MENTORED</td><td>Emilia Cabrera '21, Harvard College (co-mentored with Haipeng Chen)</td><td>Fall 2020</td></tr>
<tr><td></td><td>Rachel Guo '22, Harvard College</td><td>Summer 2020, Fall 2020</td></tr>
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PROFESSIONAL SERVICE

Program Organization

Co-lead, MD4SG Community Engagement	October 2020 –
Co-organizer, MD4SG Working Group on Environment and Climate	January 2020 –
Co-organizer, CompSust Open Graduate Seminar (COGS)	Spring 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
AAAI Emerging Track on AI for Social Impact (AISI)	2020

Workshops

IJCAI Workshop on AI for Social Good	2020
Resistance AI @ NeurIPS	2020
4th Black in AI Workshop @ NeurIPS	2020
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

NeurIPS, *subreviewer*	2020
IJCAI Special Track on CompSust and Human Well-being, *subreviewer*	2020
COMPASS, *subreviewer*	2019
Bloomberg Data for Good Exchange, *subreviewer*	2019

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 with five-day outdoor orientation trips for 1,000 incoming students.

OUTREACH	**Speaking**	
	Harvard SEAS Research Labs Open House	November 2020
	GirlsComputingLeague, AInnovation Business Summit	September 2020
	IEEE Computer Society, Women in Computing, Kerala Chapter	September 2020
	Data Science Africa, Tutorial on MD4SG and the Environment	July 2020
	Ledyard Canoe Club, Inclusivity in the Outdoors	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, Dartmouth College	2017 – 2018

Volunteering

	Graduate Council Outreach Committee, Harvard University	2020 –
	A Guide to Your PhD, Harvard SEAS	October 2020
	Project Teach, Harvard University	April 2020
	Cambridge Public Schools STEAM It Up!	October 2019
	Hustle N' Code Hackathon, *technical lead*	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	**Mongabay**, Where to patrol next: 'Netflix' of ranger AI serves up poaching predictions.	November 2020
	Harvard SEAS, Preventing Poaching.	June 2020
	BBC Sounds, How tech is tackling wildlife trafficking.	June 2020
	BBC World Service, Using technology to take on poachers.	August 2019
	USC Viterbi Magazine, AI is for Animals.	April 2019

PERSONAL	Residential member, Los Angeles Eco Village	2018 – 2019