

Lily Xu

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| EDUCATION | Harvard University , Cambridge, MA PhD Candidate, School of Engineering and Applied Sciences Advised by Prof. Milind Tambe | 2019 – present |
| | Dartmouth College , Hanover, NH A.B. with Honors in Computer Science, minor in Spanish <i>Magna cum laude</i> | 2014 – 2018 |
| PUBLICATIONS | Getting Followers to Reach Better Equilibria: End-to-End Gradient Descent for Stackelberg Games <i>Under review</i> Kai Wang, Lily Xu , Andrew Perrault, Michael K. Reiter, Milind Tambe | |
| | Robust Reinforcement Learning Under Minimax Regret for Green Security <i>UAI-21: Proc. 37th Conference on Uncertainty in Artificial Intelligence</i> Lily Xu , Andrew Perrault, Fei Fang, Haipeng Chen, Milind Tambe | |
| | Envisioning Communities: A Participatory Approach Towards AI for Social Good <i>AIES-21: Proc. AAAI/ACM Conference on AI, Ethics, and Society</i> Elizabeth Bondi*, Lily Xu* , Diana Acosta-Navas, Jackson A. Killian <i>*Equal contribution</i> | |
| | Dual-Mandate Patrols: Multi-Armed Bandits for Green Security <i>AAAI-21: Proc. 35th AAAI Conference on Artificial Intelligence</i> Lily Xu , Elizabeth Bondi, Fei Fang, Andrew Perrault, Kai Wang, and Milind Tambe Best Paper Award Runner Up | |
| | Stay Ahead of Poachers: Illegal Wildlife Poaching Prediction and Patrol Planning Under Uncertainty with Field Test Evaluations <i>ICDE-20: Proc. IEEE International Conference on Data Engineering 2020</i> 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 <i>*Equal contribution</i> | |
| WORKSHOP PAPERS | Enhancing Poaching Predictions for Under-Resourced Wildlife Conservation Parks Using Remote Sensing Imagery <i>NeurIPS Workshop on Machine Learning for Development 2020</i> Rachel Guo, Lily Xu , Andrew Plumptre, Drew Cronin, Francis Okeke, and Milind Tambe | |
| | Game Theory on the Ground: The Effect of Increased Patrols on Detering Poachers <i>Working paper</i> <i>Appeared at Harvard CRCS Workshop on AI for Social Good 2020</i> | |

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*

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| HONORS AND AWARDS | Harvard University Certificate of Distinction in Teaching | 2021 |
| | AAAI Best Paper Award Runner Up | 2021 |
| | Certificate of Appreciation from the SMART Consortium | 2018 |
| | Five Citations for Academic Excellence at Dartmouth College | 2014 – 2018 |
| | <i>Special distinction rarely awarded by faculty members “for meritorious characteristics not indicated adequately by academic grades.”</i> | |
| | Computational Photography (Wojciech Jarosz, CS 89.15) | |
| | Latin American Film (Silvia Spitta, Spanish 63.01) | |
| | Computer Graphics (Emily Whiting, CS 77) | |
| | Object-Oriented Programming (Travis Peters, CS 10) | |
| | Introduction to Programming and Computation (Hany Farid, CS 1) | |
| | Adobe Women-In-Technology Scholarship – Honorable Mention | 2017 |
| | Rick Angulo World Experience Award | 2016 |
| | <i>For “intellectual openness, enthusiasm, and impressive academic performance” following a study abroad program in Cusco, Peru. Award in \$1,500.</i> | |
| | James O. Freedman Presidential Scholar | 2016 |
| RESEARCH EXPERIENCE | Willis S. Fitch '17 Metropolitan Washington Scholarship | 2015 |
| | Bank of America’s Joe Martin Scholarship | 2014 |
| | Harvard University , Cambridge, MA | |
| | <i>Doctoral Research Assistant</i> | 2019 – present |
| | Advised by Prof. Milind Tambe | |
| | University of Southern California , Los Angeles, CA | |
| | <i>Doctoral Research Assistant</i> | 2018 – 2019 |
| | Advised by Prof. Bistra Dilkina and Prof. Milind Tambe | |
| | Dartmouth College , Hanover, NH | |
| | <i>Undergraduate Senior Thesis Researcher</i> | 2017 – 2018 |
| | Advised by Prof. Amro Farid | |
| | <i>Presidential Scholar Research Assistant</i> | 2016 – 2017 |
| | Advised by Prof. Emily Whiting and Prof. David Kotz | |
| WORK EXPERIENCE | Google , Seattle, WA | |
| | <i>Software Engineering Intern</i> | Summer 2017 |
| TEACHING EXPERIENCE | Dyn, Inc. , Hanover, NH | |
| | <i>Data Analytics Research Intern</i> | Spring 2016 |
| | <i>Guest Lecturer</i> | |
| | University of Pittsburgh, CS 1699. AI for Good: Ethics and Implications | Spring 2021 |
| | University of Michigan, SI 431. Algorithms and Society | Spring 2021 |

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| Harvard University, CS 182. Artificial Intelligence | Fall 2020 |
| Dartmouth College, CS 11. Foundations of Applied Computer Science | Spring 2018 |

Harvard University

Head Teaching Fellow

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| CS 182: Artificial Intelligence | Fall 2020 |
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Dartmouth College

Teaching Assistant, Department of Computer Science

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| 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

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| Tuck FWP: Fundamentals of Web Programming | Spring 2017 |
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| Tuck DSA: Data Structures and Analytics | Spring 2017 |
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| STUDENTS | Ezenia Diaz-Lembert '23, Harvard College | Spring 2021 |
| MENTORED | Emilia Cabrera '21, Harvard College (co-mentored with Haipeng Chen) | Fall 2020 – |
| | Rachel Guo '22, Harvard College | Summer 2020 – |
| | <i>NWIT Collegiate Award Winner</i> | |

PROFESSIONAL SERVICE

Initiative Organization

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|--|---------------------|
| Co-organizer, Mechanism Design for Social Good (MD4SG) | March 2021 – |
| Co-lead, MD4SG Community Engagement | Oct 2020 – Apr 2021 |
| Co-organizer, MD4SG Working Group on Environment | Jan 2020 – Apr 2021 |

Program Organization

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| Co-organizer, Harvard CRCS Rising Stars Speaker Series | March 2021 |
| Co-organizer, CompSust Open Graduate Seminar (COGS) | Spring 2020 |
| Social co-chair, Fourth Workshop on MD4SG | August 2020 |
| Lead organizer, Harvard CRCS Rising Stars Workshop | March 2020 |
| Co-organizer, Computational Sustainability Doctoral Consortium | October 2019 |

Program Committee

Conferences

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| ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS) | 2021 |
| AAAI Emerging Track on AI for Social Impact (AISI) | 2021 |
| AAAI Emerging Track on AI for Social Impact (AISI) | 2020 |

Workshops

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| Data-Driven Humanitarian Mapping @ KDD | 2021 |
| Autonomous Agents for Social Good (AASG) Workshop @ AAMAS | 2021 |
| AI for Social Good Workshop @ IJCAI | 2020 |
| Resistance AI @ NeurIPS | 2020 |
| 4th Black in AI Workshop @ NeurIPS | 2020 |
| Machine Learning for the Developing World (ML4D) @ NeurIPS | 2020 |

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| | Fourth Workshop on Mechanism Design for Social Good (MD4SG) | 2020 |
| | AI for Social Good Workshop @ Harvard CRCS | 2020 |
| | Workshop on Humanitarian Mapping @ KDD | 2020 |
| | Reviewer | |
| | ICML, <i>subreviewer</i> | 2021 |
| | NeurIPS, <i>subreviewer</i> | 2020 |
| | IJCAI Special Track on CompSust and Human Well-being, <i>subreviewer</i> | 2020 |
| | COMPASS, <i>subreviewer</i> | 2019 |
| | Bloomberg Data for Good Exchange (D4GX), <i>subreviewer</i> | 2019 |
| LEADERSHIP | Ledyard Canoe Club at Dartmouth, Secretary, Canoeing Leader | 2014 – 2018 |
| | <ul style="list-style-type: none"> 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 |
| | <ul style="list-style-type: none"> Led a group of fourteen dancers. Choreographed, taught, and performed contemporary and hip-hop dances. | |
| | Dartmouth Sophomore Trips, Co-director | 2015 – 2016 |
| | <ul style="list-style-type: none"> 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 |
| | <ul style="list-style-type: none"> 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. | |
| INVITED TALKS | PAWS: AI to Predict and Plan Against Poaching | |
| | International Congress for Conservation Biology, Kigali, Rwanda | December 2021 |
| | SMART Partnership, Webinar for International Women's Day | March 2021 |
| | Dual-Mandate Patrols: Multi-Armed Bandits for Green Security | |
| | Beijing Academy of Artificial Intelligence | March 2021 |
| | University College London, AI Society journal club | February 2021 |
| | Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21) | February 2021 |
| | CompSust Doctoral Consortium | October 2020 |
| | CRCS AI for Social Good Workshop | July 2020 |
| | AI and Social Good Symposium, Carnegie Mellon University | April 2020 |
| | EconCS Seminar, Harvard University | March 2020 |
| | Poaching Prediction and Patrol Planning Under Uncertainty | |
| | CRCS Rising Stars Workshop | March 2020 |
| | IEEE International Conference on Data Engineering (ICDE-20) | April 2020 |
| | PhD on Tap, Harvard University | February 2020 |
| | CompSust Doctoral Consortium, Carnegie Mellon University | October 2019 |
| | KDD Data Mining and AI for Conservation Workshop | August 2019 |
| | AAMAS Strategic Reasoning for Societal Challenges Workshop | May 2019 |

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| OUTREACH | Public Events | |
| | AI LA Earth Summit | April 2021 |
| | South by Southwest (SXSW), Wildlife AI Panel | March 2021 |
| | World Science Festival, Science and Storytime | June 2019 |
| | Speaking | |
| | Harvard Tech for Social Good, <i>panelist</i> | April 2021 |
| | Harvard SEAS PhD Admitted Students Open House, <i>panelist</i> | March 2021 |
| | 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, <i>panelist</i> | May 2020 |
| | Harvard SEAS Diversity, Inclusivity, and Belonging, <i>panelist</i> | May 2020 |
| | Center for Initiatives in Jewish Education, high school student visit | March 2020 |
| PRESS | 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 – 2020 |
| | 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, <i>technical lead</i> | December 2018 |
| | <i>Hustle N’ Code is a Los Angeles hackathon for youth in public housing.</i> | |
| | <i>My team won first place, and the four students each received a laptop.</i> | |
| | Rethinking Economics NL , Disruptive Technologies series (to appear). | April 2021 |
| PERSONAL | Engadget , PAWS anti-poaching AI predicts where illegal hunters will show up next. | March 2021 |
| | 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 |
| | Residential member , Los Angeles Eco Village | 2018 – 2019 |