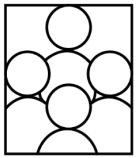
AI-Assisted Decision-Making for Conservation

Harvard CRCS

Lily Xu, Esther Rolf, and Milind Tambe

October 20–21, 2022



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Welcome!

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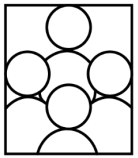

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Outline (for planning purposes only)

Intro: milind [8 min]

- Welcome
- Intro of CRCS and acknowledgment of funding
- intro us

Participants and goals [8 min] - Lily and Esther will make

- Overview of participants; why we brought these people together
- Overarching goals of workshop: interdisciplinary conversations, focus on decision-making

Agenda and Deliverables: [8 min] - Lily and Esther will make

- Workshop Agenda and goals
- Writeup: purpose and logistics of collaborative writing during the workshop

Quick intros around the room: name, institution, what you want to get out of this workshop [6 min]

CRCS Center for Research on Computation and Society

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Computation for conservation and public health, in collaboration with community partners

Basic research and social impact go hand-in-hand

Our website: https://crcs.seas.harvard.edu/, email crcs@seas.harvard.edu, or follow us on Twitter @HCRCS

Community @ CRCS:

- Seminar Series, Workshops, Panels,...
- Postdocs and Fellows: CRCS hosts researchers for 2 years or one semester/summer

CRCS is accepting applications for 2023-2024 Postdoctoral Fellows!
More information is available here: https://crcs.seas.harvard.edu/apply

Organizers

Lily Xu

PhD student
Harvard

Esther Rolf

Postdoctoral Fellow
Harvard CRCS
Harvard HDSI

Milind Tambe

Prof. CS, Director CRCS
Harvard

Director, AI for social good
Google

Journey into AI for Conservation: Global Tiger Initiative

“PAWS” AI to Combat Poaching: Uganda Trip 2014

(with Dr. Andy Plumptre, WCS)

Lessons: AI for Conservation

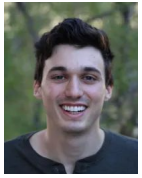
- Teamwork: Embrace partnerships & interdisciplinary collaboration
- “Use inspired research”: Step out of AI lab & understand lessons from the field
- Human-AI collaboration: AI to assist decision-making

Participants

Conservation NGOs

Industry

CS academia



Ecology academia

Esther

Workshop goals

Facilitate **interdisciplinary conversations**

*No one-person is an expert in everything, we have much to learn from our **collective knowledge***

Focus on **decision-making**

*How to leverage/develop AI methodology for real-world **conservation impact** (e.g. planning and policy-making)*

Field defining **challenges and questions**

*How can we promote successful AI for decision-making in conservation? **What are the key limitations, currently**?*

Agenda

Day 1

Challenges and Opportunities in Conservation

Session 1 **Protected area management**

Lunch

Session 2 **Adaptive management**

Break

Session 3 **AI methods for conservation**

Recap, writing

Dinner

Day 2

Methods and Synthesis

Session 4 **Remote sensing + earth observation**

Break

Session 5 **Causality + economics**

Lunch

Writing

Panel **Panel on partnerships**

Recap, writing

Happy hour

Goal output

Collaborative writing → workshop digest to share with the broader community

All participants are authors! (opt-out)

Workshop digest content:

- Summary and key points of each session
  - seeded with collaborative note-taking during panel discussion Q & A of each session
- Synthesis of cross-cutting questions and opportunities
  - collaborative discussion/writing on day 2

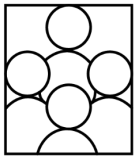
Quick Intros!

Please tell us:

- your name & institution
- what you want to get out of this workshop

AI-Assisted Decision-Making for Conservation

Protected Area Management



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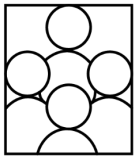
Adaptive Management



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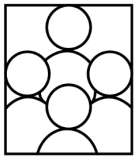
AI Methods for Conservation



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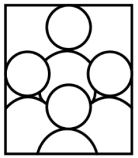
AI-Assisted Decision-Making for Conservation

Remote Sensing and Earth Observation



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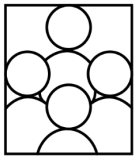
Causality and Economics for Conservation



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