



Stockholm Resilience Centre
Sustainability Science for Biosphere Stewardship



Human-Machine-Ecology: A Workshop on the Emerging Risks, Opportunities, and Governance of Artificial Intelligence Princeton University Friday-Saturday, January 11-12

Friday January 11th

Location: Louis A. Simpson Intl. Building (20 Washington Road), Room A71

8:30 - Breakfast and Coffee

9:00 - **Introduction**

- Introduction to the topic, goals, end product, structure of panel discussions
 - Miguel Centeno - PIIRS Global Systemic Risk
 - Victor Galaz - Stockholm Resilience Centre (Stockholm University) and Beijer Institute of Ecological Economics (Royal Swedish Academy of Sciences).
 - Thayer Patterson & Peter Callahan - Examples of AI & automation in agriculture and the environment

10:00 - Coffee Break

10:30 - **Panel #1**

- **Presentations on history, current state, and future of artificial intelligence, machine learning, and algorithmic management in environmental and agricultural fields.**
 - Where are we now, how did we get here, and where are we going?
 - Exploring some examples, case studies, and potential of this technology.
 - Brian King
 - Machine learning and solving agricultural problems
 - Paul Larcey
 - Engineering artificial intelligence
 - Daniel Jimenez
 - “Data-Driven Agriculture to support rice farmers in Colombia”
 - Chloé Bakalar & Ben Zevenbergen
 - Case Studies in ethics in AI
- Moderated Q&A with the panelists
 - Victor Galaz, Moderator

12:00 - Lunch

13:00 - **Panel #2**

- Presentations on the new risks/threats, concerns, and opportunities these new technologies potentially bring about.
 - Can we trust AI with these tasks?
 - What constraints exist in terms of monitoring, measurement, and data processing?

- What are some of the concerns surrounding data biases, gaps, corruption, access, and ownership?
- What are some distributional issues of access and equality associated with these technologies?
 - Karen Levy
 - "Farm to Table: Data-Intensive Technologies in Agriculture"
 - Solon Barocas
 - "Reap What You Sow: The Distributional Effects of Information Flow on the Farm"
 - Darryl Farber
 - "Applying more intelligence to understand the interdependencies among critical infrastructure sociotechnical systems"
 - Jonathan Tannen
 - "Algorithmic Fairness and its Relevance to Facebook"
- Moderated Q&A with the panelists
 - Chloé Bakalar, Moderator

14:30 - Coffee Break

15:00 - **Panel #3**

- Presentations on what we can learn from similar ongoing discussions about AI in other sectors?
 - What guiding governance principles, and mechanisms should AI-systems follow to avoid creating new systemic risks?
 - Cybersecurity, data privacy, globalization, governance, GDPR
 - Ed Felten
 - Public policy issues related to AI
 - David Garcia
 - "Shadow profiles and systemic risks of social inference"
 - Sarah Brayne
 - "Policing Algorithms"
 - Danit Gal
 - Cybersecurity and AI Safety
- Moderated Q&A with the panelists
 - Miguel Centeno, Moderator

16:30 - Break Until Dinner

18:30 - Dinner

- An informal buffet-style catered dinner will be served at Miguel Centeno's home located at 60 Pine Street near the Princeton campus. This is a 10-minute walk from the Nassau Inn.

Saturday January 12th

Location: Wallace Hall, Room 300

8:30 - Breakfast & Coffee

9:00 - **Panel #4**

- What (if anything) makes environment and agriculture unique in this space?
 - How can academics, policymakers, and technologists work together to recommend safe and productive implementation of these technologies in environmental and agricultural fields?
 - Seth Baum
 - "The role of environmental expertise in understanding and addressing AI issues"
 - Irina Brass
 - "Governing AI: How meaningful coordination between policy and technical experts can effectively redraw system boundaries"
 - Joanna Bryson

- Discussion on her work in AI regulation, how it relates to ordinary regulation of industry, the transnationality of ICT (more than AI itself) and how that impacts inequality and sustainability
- Michael Veale
 - “The use of certification to regulate the social impacts of machine learning: Lessons from sustainability certification”
- Moderated Q&A with the panelists
 - Edward Felten, Moderator

10:30 - Coffee Break

11:00 - **Workshop Session (Moderated by Miguel Centeno and Victor Galaz)**

- Meet in groups
- Workshop and outline possible papers and workshop output
- The format of this session will be tailored to compliment the main points that came about through the panel discussions

12:30 - Lunch

- A catered lunch will be provided in Wallace Hall, Room 300 after the final session.
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