Data Science Seminar Series

Trustworthy AI for Wildlife Conservation: AI and Humans Combating Extinction Together

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Increasingly, AI is the foundation of decisions big and small, affecting lives of individuals and the wellbeing of our planet, the source of income for corporations and the foundation of resource distribution for populations. Data-driven, AI-enabled decisions are also the hope of solving our planet's biggest challenges, from climate change and poverty to pandemics and global crime. But if these solutions are to be trusted by those for whom they are intended, those who they affect the most, then the entire process of decision-making must be fair, just, inclusive, and participatory. The intended beneficiaries of the solutions must be more than mere data points or data providers but rather active partners every step of the way, from data to solution. I will show how this can work in the context of conservation. I will present an example of how data-driven, AI-enabled decision process becomes trustworthy by opening a wide diversity of opportunities for participation, supporting community-building, addressing the inherent data and computational biases, and providing transparent measures of performance. The community becomes the decision-maker, and AI scales the community, as well as the puzzle of data and solutions to the planetary scale, turning massive collections of images into high resolution information database, enabling scientific inquiry, conservation, and policy decisions.I will show how it all can come together to a deployed system, Wildbook, a project of tech for conservation non-profit Wild Me, with species including whales (flukebook.org), sharks (whaleshark.org), giraffes (giraffespotter.org), and many more. Wildbook enabled the first ever full species (the endangered Grevy's zebra) census using photographs taken by ordinary citizens in Kenya.The resulting numbers are now the official species census used by IUCN Red List. Read more: https://www.nationalgeographic.com/animals/2018/11/artificial-intelligence-counts-wild-animals/

Dr. Tanya Berger-Wolf is a Professor of Computer Science Engineering, Electrical and Computer Engineering, and Evolution, Ecology, and Organismal Biology at the Ohio State University, where she is also the Director of the Translational Data Analytics Institute. As a computational ecologist, her research is at the unique intersection of computer science, wildlife biology, and social sciences. She creates computational solutions to address questions such as how environmental factors affect the behavior of social animals (humans included). Berger-Wolf is also a director and co-founder of the conservation software non-profit Wild Me, home of the Wildbook project, which enabled the first ever full census of the entire species, the endangered Grevy's zebra in Kenya, using photographs from ordinary citizens. Wildbook has been featured in media, including The New York Times, CNN, and National Geographic. She has received numerous awards for her research and mentoring, including University of Illinois Scholar, UIC Distinguished Researcher of the Year, US National Science Foundation CAREER, Association for Women in Science Chicago Innovator, and the UIC Mentor of the Year.