

Tanya Berger-Wolf

AI for Conservation: AI and Humans Combatting Extinction Together



Dr. Tanya Berger-Wolf is a Professor of Computer Science at the University of Illinois at Chicago, where she heads the Computational Population Biology Lab. 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 behaviors 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. As a legitimate part of her research she gets to fly in a super-light airplane over a nature preserve in Kenya, taking a hyper-stereo video of zebra populations and learning how to identify each one of them by the unique stripe pattern.

Berger-Wolf holds a Ph.D. in Computer Science from the University of Illinois at Urbana-Champaign. She has received numerous awards for her research and mentoring, including UIC Distinguished Researcher of the Year Award, US National Science Foundation CAREER Award, Association for Women in Science Chicago Innovator Award, and the UIC Mentor of the Year Award.

Photographs, taken by field scientists, tourists, automated cameras, and incidental photographers, are the most abundant source of data on wildlife today. I will show how computational methods can be used to turn massive collections of images into high resolution information database, enabling scientific inquiry, conservation, and citizen science. I will demonstrate how computational data science methods are used to collect images from online social media, detect various species of animals and even identify individuals. I will present data science methods to infer and counter biases in the ad-hoc data to provide accurate estimates of population sizes from those image data.

I will show how it all can come together to a deployed system, [Wildbook](#), a project of tech for conservation non-profit [Wild Me](#). We have built Wildbooks for over 20 species of animals, including whales ([flukebook.org](#)), sharks ([whaleshark.org](#)), giraffes ([giraffespottter.org](#)), and working on elephants. In January 2016, 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 and we repeated the effort in 2018, becoming the first certified census from an outside organization accepted by the Kenyan government. Wildbook is becoming the data foundation for wildlife science, conservation, and policy. Read more: <https://www.nationalgeographic.com/animals/2018/11/artificial-intelligence-counts-wild-animals/>

Tuesday, April 2, 2019

2:00pm to 3:00pm

4405 Gates Hillman Center