institute for pure & applied mathematics

Green Family Lecture Series

Rachel Ward

Prof. Ward is the W.A "Tex" Moncrief Distinguished Professor in Computational Engineering and Sciences — Data Science and Professor of Mathematics at UT Austin. From 2017-2018, she was a visiting research scientist at Facebook AI Research. She is recognized for her contributions to sparse approximation, stochastic optimization, and numerical linear algebra. Prior to joining UT Austin in 2011, Dr. Ward received the PhD in Computational and Applied Mathematics at Princeton in 2009 and was a Courant Instructor at the Courant Institute, NYU, from 2009-2011. She is currently on leave at Microsoft Research.

Dr. Ward's research lies broadly in the mathematics of data science. Motivated by applications in signal and image processing, dynamical systems, and biology, her work often synthesizes tools from optimization, numerical linear algebra, dynamical systems, scientific computing, sparse approximation, random matrix theory, and machine learning.

From Bits to Bots: A Mathematical Perspective on Generative AI

Data science and machine learning have undergone profound transformations in recent years, driven by the exponential growth of computational power and available data. In this talk, we will discuss the evolution from signal processing of 15 years ago to the rise of machine learning and generative AI, highlighting mathematical foundations such as probability theory and linear algebra, and their role in modern techniques like stochastic gradient descent and neural networks. How did we get here, and what comes next?

Cookies and Coffee: TBD

Tuesday. January 14, 2024 4:30 pm

The Bhaumik Collaboratory (Young Hall 4222)

Reception immediately following at IPAM.
This lecture will be accessible to a general public audience.

NSF UCLA

For more information, visit the program webpage:
https://www.ipam.ucla.edu/green-family-lecture-series/