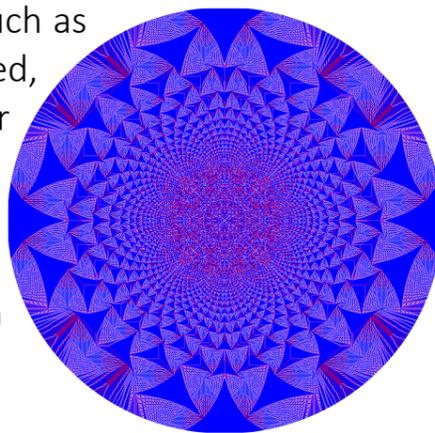


Visual Mathematics: From Fair Division and Graph Partitioning to Cellular Automata

Abstract

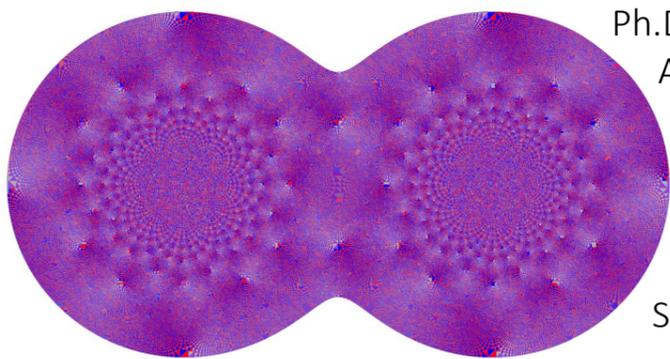
I will survey and present some striking pictures of several mathematical models where visualization has played a key role. How can we find the “community” of an individual in a large network, for instance a social network or the whole web? This is useful when such networks are stored on multiple computers. How can simple rules (such as the celebrated “abelian sandpile”), when iterated, create intricate patterns? What is responsible for scaling behavior in these patterns, in the same way a baby resembles an adult? Finally, we will see the beautiful patterns that arise when we attempt to divide a large area fairly between many people in a decentralized manner.



About the Speaker

Yuval Peres is a Principal Researcher at Microsoft Research in Redmond. He obtained his Ph.D. at the Hebrew University, Jerusalem, in 1990, and later taught there and at the University of California, Berkeley. He has published more than 300 research papers and co-authored books on Brownian motion, Markov chains, probability on networks, fractals, and game theory. Yuval Peres was awarded the Rollo Davidson Prize in 1995, the Loève Prize in 2001, and the David P. Robbins Prize in 2011. He was invited speaker at the 2002 International Congress of Mathematicians and at the 2008 European Congress of Mathematics and plenary lecturer at the Mathematical Congress of the Americas in 2017. He has advised 22

Ph.D. students. He is a fellow of the American Mathematical Society and the Institute of Mathematical Statistics. In 2016 he was elected as a Foreign Associate to the National Academy of Sciences, USA.



Other Upcoming Talks by Yuval Peres

Gravitational Allocation to Uniform Points on the Sphere

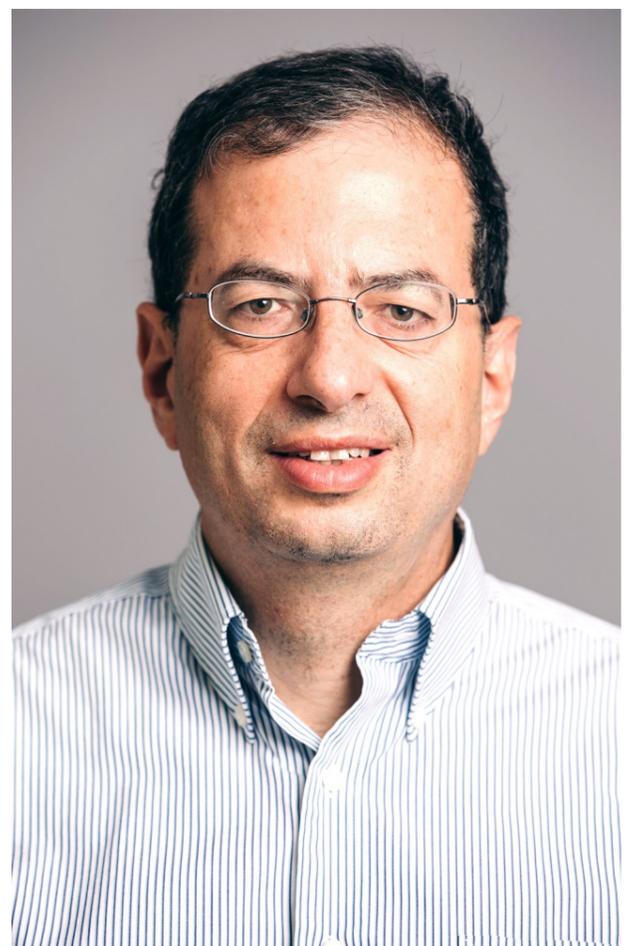
Date : 29 November 2018, 4pm

Venue : S17 #04-06 SR1, 10 Lower Kent Ridge Road, Singapore 119076

Search Games and Keakeya Sets

Date : 30 November 2018, 3pm

Venue : S17 #04-06 SR1, 10 Lower Kent Ridge Road, Singapore 119076



Yuval Peres

Principal Researcher
Machine Learning and Optimization Group
Microsoft Research, Redmond

Free Admission

Wednesday, 28 November 2018

6:30pm—7:30pm

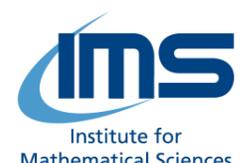
AI Singapore, Innovation 4.0

Seminar Room, Level 1

3 Research Link

Singapore 117602

Organizer



For more information, visit <http://ims.nus.edu.sg>