CCT Colloquium Series

Demystifying Levy Walk Patterns in Human Walks -- Why Do Humans Walk Like Monkeys?

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Abstract:
Recent literatures report heavy-tail flight patterns in human mobility over various scales covering meters to several hundred kilometers – a similar pattern observed in animals such as spider monkeys. After studying GPS walk traces of over a hundred people observed over several months, we report two highly probable causes of this pattern, namely the fractal waypoints (i.e., destination) and least-action tendency of humans. This result facilitates the construction of a realistic human mobility model for many applications including civil engineering for planning roads and pathways in cities, public parks, etc.; disease control for studying virus outbreak spread; telecommunication for planning cell-phone towers and understanding hand-off patterns; animal biology for understanding animal foraging patterns; and sociology for studying the interaction and social network patterns of humans.

Speaker's Bio:
Injong Rhee is Associate Professor of Computer Science at North Carolina State University. He works primarily on network protocols for the Internet. His major contributions in the field include the development of congestion control protocols, called BIC and CUBIC. Since 2004, these protocols have been the default TCP algorithms for Linux and are currently being used by more than 40% of Internet servers around the world. He also has invented several multimedia streaming and multicast technologies licensed to companies for commercial applications. He started a company based on these technologies in 2000 where he developed and launched the world's first video streaming products and push-to-talk (PTT) VoIP products for cell phones. His recent research topics include wireless networks, delay/disruption tolerant networks and P2P systems. He received the NSF Career Award in 1999, and NCSU New Inventor's award in 2000.

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