



The University of Chicago  
Department of Statistics

Seminar Series

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**JUKKA-PEKKA ONNELA**

Harvard Medical School

**Harnessing Network Science to Reveal Our  
Digital Footprints: Social Networks and Communities**

**MONDAY, February 7, 2011, at 4:00 PM**

133 Eckhart Hall, 5734 S. University Avenue

*Refreshments following the seminar in Eckhart 110.*

**ABSTRACT**

ABSTRACT: Network science is an interdisciplinary endeavor, with methods and applications drawn from across the natural, social, and information sciences. In addition to theoretical developments, electronic databases currently provide detailed records of human communication and interaction patterns, offering novel avenues to map and explore the structure of social networks. I will talk about the structure of a social network based on the cell phone communication patterns of millions of individuals, and what implications it has for diffusion processes on social networks. I will also discuss the algorithmic detection of tightly connected groups of nodes in networks, a prominent problem in network science known as community detection. After introducing the theoretical framework, I will demonstrate how the introduced multi-slice method can be used to detect community structure in a general setting encompassing networks that evolve over time, have multiple types of links, and exhibit structure at multiple scales.

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For further information and about building access for persons with disabilities, please contact Laura Rigazzi at 773.702.8333 or send email ([lrigazzi@galton.uchicago.edu](mailto:lrigazzi@galton.uchicago.edu)). If you wish to subscribe to our email list, please visit the following web site: <https://lists.uchicago.edu/web/info/statseminars>.