The Fifth IEEE International Workshop on Network Science for Communication Networks (NetSciCom 2013)
Friday, April 19

8:30-9:45

Opening remarks and Keynote Talk

9:45-10:30

Session I

Robust QoS-Guaranteed Network Engineering in Interference-Aware Wireless Networks
Ali Tizghadam (University of Toronto, Canada); Ali Shariat (University of Toronto, Canada); Alberto Leon-Garcia (University of Toronto, Canada); Hassan Naser (Lakehead University, Canada)

*The Twofold Nature of Autonomous Systems: Evidence Combining Stock Market Data with Topological Properties*

Simone Mainardi (University of Pisa & Italian National Research Council, Italy); Enrico Gregori (CNR-IIT, Italy); Luciano Lenzini (University of Pisa, Italy)

10:30-11:00 Coffee break

11:00-12:30
Session II

Emergence of Equilibria from Individual Strategies in Online Content Diffusion

Eitan Altman (INRIA, France); Francesco De Pellegrini (Create-Net, Italy); Rachid El-Azouzi (LIA/CERI University of Avignon, France); Daniele Miorandi (Create-Net, Italy); Tania Jimenez (University of Avignon, France)

Information Diffusion in Heterogeneous Networks: The Configuration Model Approach

Pavlos Sermpezis (EURECOM, France); Thrasyvoulos Spyropoulos (EURECOM, France)

On the Impact of Global Information on Diffusion of Innovations over Social Networks
Youngmi Jin (KAIST, Korea); Jinwoo Shin (IBM T. J. Watson Research, Korea); Jungseul Ok (Korea Advanced Institute of Science and Technology, Korea); Yung Yi (KAIST, Korea)

_Surviving in a Competitive Market of Information Providers_

Konstantinos Poularakis (University of Thessaly, Greece); Leandros Tassiulas (University of Thessaly, Greece)

12:30-14:00 Lunch break

14:00-15:30
Session III

Exploring Venue Popularity in Foursquare

Yanhua Li (University of Minnesota, USA); Moritz Steiner (Bell Labs / Alcatel-Lucent, USA); Limin Wang (Bell Labs, USA); Zhi-Li Zhang (University of Minnesota, USA); Jie Bao (University of Minnesota, Twin Cities, USA)

Inferring Cellular User Demographic Information Using Homophily on Call Graphs

Yi Wang (University of California, Riverside & Sprint Lab, USA); Hui Zang (Sprint, USA); Michalis Faloutsos (University of California, Riverside, USA)

The Strength of Vicinity Annexation in Opportunistic Networking
Finding critical regions in a network

Stojan Trajanovski (Delft University of Technology, The Netherlands); Fernando A. Kuipers (Delft University of Technology, The Netherlands); Piet Van Mieghem (Delft University of Technology, The Netherlands)

15:30-16:00 Coffee break

16:00-16:45
Session IV

*Ego Networks in Twitter: an Experimental Analysis*

Valerio Arnaboldi (IIT-CNR, Italy); Marco Conti (IIT-CNR, Italy); Andrea Passarella (IIT-CNR, Italy); Fabio Pezzoni (IIT-CNR, Italy)

*Analysis and Applications of Smartphone User Mobility*

Swati Rallapalli (University of Texas at Austin, USA); Wei Dong (University of Texas at Austin, USA); Gene Moo Lee (University of Texas at Austin, USA); Yi-Chao Chen (University of Texas at Austin, USA); Lili Qiu (The University of Texas at Austin, USA)

16:45-17:45
Panel Discussion on "Is Network Science really a science or just a buzzword?"

Panelists:

Dr. Sergey Gorinsky, IMDEA Networks, Madrid, Spain

Dr. Nishanth Sastry, King's College, London, U.K.

Dr. Thrasyvoulos Spyropoulos, EURECOM, Biot Sophia Antipolis, France

Moderator: Dr. Ram Ramanathan, Raytheon BBN Technologies Boston, USA

Keynote

Title: Networks meet Geometry: A hyperbolic journey from the Internet to the Universe

Speaker: Prof. Marián Boguñá (University of Barcelona, Spain)
Abstract

In the age of Information Technology, the Internet has become our primary communication system. One surprising fact about the Internet is that its complex architecture is the result of a self-organized process where individual agents interact locally without any central authority controlling its evolution. This turns the Internet into subject of truly scientific research. The Internet is now facing a serious scalability problem with its routing architecture. To route information packets to a given destination, Internet routers must communicate to maintain a coherent view of the global topology. The constantly increasing size and dynamics of the Internet thus leads to immense and quickly growing communication and information processing overhead, a major bottleneck in routing scalability causing concerns among Internet experts that the existing Internet routing architecture may not sustain even another decade.

We assume that the Internet (and other complex networks) lives in a hidden metric space that shapes its topology. Discovery of this hidden metric space can then be used to greedily route information without detailed global knowledge of the network structure or organization. Interestingly, we find that hyperbolic geometry seems to describe very well the topology of the Internet and other real complex networks and that, in this geometry, greedy routing strategies achieves the optimal performance. In an unexpected turn of events, we find that the very same models that we use to model the Internet topology and evolution describe the causal structure of the de Sitter space-time --the asymptotic limit of our accelerating universe. These findings suggest that unexpectedly similar mechanisms may shape the large-scale structure and dynamics of complex systems as different as the brain, the Internet, and the universe.

Speaker's Bio

Marián Boguñá (Barcelona, 1967) is an associate professor at the Departament de Física Fonamental of the Universitat de Barcelona. He graduated in Physics in 1994 and obtained his PhD also in Physics in 1998. In 1999, he moved to the USA to do a postdoctoral stay with Professor George H. Weiss at the National Institutes of Health, Washington DC. After this period, he moved back to Barcelona where, in 2003, he was awarded a Ramón y Cajal fellowship. He got the tenure position at the end of 2008. During this period, he has also spent several months in the USA as invited guest scientist at Indiana University. M. Boguñá has

Registration