



École des sciences avancées de Luchon **School for advanced sciences of Luchon**

Networks and data mining **Session II, June 27 - July 11 2015**

School Organizers:

[Debora Donato \(San Francisco\)](#), [Dima Shepelyansky \(Toulouse\)](#), [Victor Solovyev \(KAUST\)](#)
Secretary: [Malika Bentour](#)

Scope: In past ten years, modern societies developed enormous communication and social networks and in parallel an enormous amount of information became available from genetic sequences. New characterization tools of complex networks and data mining provide possibilities for information analysis in social networks, communication, economy, gene, protein and other networks. The interdisciplinary approaches based on complex networks and Markov chains allow to obtain advanced results in physics, computer science, economy and bioinformatics. The school will present lectures of world leading experts in these fields.

Topics: Scale-free networks; Markov chains and ranking algorithms; Data mining methods; Google matrix analysis; Recommendation systems; Information retrieval and search engines; Temporal Web analysis; Machine learning; Big data analysis for Web, Wikipedia, genomics and proteomics; Reconstruction of biological networks from gene data; Networks in economics.

List of lecturers and main topics:

- [András Benczúr \(Budapest\)](#) - *Ranking algorithms, distributed frameworks and data stream processing*
- [Debora Donato \(San Francisco\)](#) - *Recommendation systems from a complex network perspective*
- [Klaus Frahm \(U Toulouse\)](#) - *Google matrix analysis of directed networks*
- [Alex Gammerman \(Royal Holloway U London\)](#) - *Hedging predictions in machine learning*
- [Andrei Rodin \(Beckman Research Institute LA\)](#) - *Systems biology data analysis methodology*
- [Victor Solovyev \(KAUST\)](#) - *Computational methods for large-scale biological data analysis*
- [Evimaria Terzi \(Boston U\)](#) - *Algorithms for finding teams of experts in social networks*
- [Panayiotis Tsaparas \(U Ioannina\)](#) - *Diffusion on networks*

Special topics:

- [Luca Maria Aiello \(Yahoo! Barcelona\)](#) - *Popularity and quality in social networks*
- [Aris Anagnostopoulos \(Sapienza Roma 1\)](#) - *Network effect on the wisdom of crowds*
- [Leonardo Ermann \(Buenos Aires\)](#) - *Multiproduct world trade network*
- [Marco Fiore \(CNR-IEIIT Torino\)](#) - *Mining cellular traffic collected at mobile operator network probes*
- [Katia Jaffres-Runser \(ENSEEIH Toulouse\)](#) - *Crowdsourcing mobile networks from Macaco project*
- [Luciano Milanesi \(CNR Milano\)](#) - *Integrating multi-omics data*
- [Mikhail Moshkov \(KAUST\)](#) - *Dynamic programming for design and analysis of decision trees*
- [Andrey Ptitsin \(SIDRA\)](#) - *The structure of biological networks in time dimension*
- [Dima Shepelyansky](#) - *Ulam networks, fractal Weyl law and Anderson localization*
- [Tatiana Tatarinova \(USC Los Angeles\)](#) - *From genes to geography*

Web page: <http://www.quantware.ups-tlse.fr/ecoleluchon2015/>