

**EngTech Group Seminar**  
**Department of Business Development and Technology, Aarhus University**

Maximizing our own Centrality in Complex Networks

Gianlorenzo D'Angelo and Lorenzo Severini  
GSSI, L'Aquila, Italy and ISI Foundation, Torino, Italy

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**Abstract**

Determining what are the most important nodes in a network is one of the main problems in the field of complex network analysis. Several so-called centrality indices have been defined in the literature to try to quantitatively capture the notion of importance (or centrality) of a node within a network. It has been experimentally observed that being central for a node, according to some centrality index, leads to several benefits to the node itself. We study the problem of maximizing the centrality index of a given node by adding a limited number of edges incident to it and we show our recent results on this problem by focusing on two well-known centrality indices, namely harmonic centrality and betweenness centrality.

**Info on the speakers**

Dr. Gianlorenzo D'Angelo obtained his B.Sc., M.Sc. and Ph.D. from the University of L'Aquila, Italy in 2004, 2006 and 2010, respectively. Before joining GSSI, where he is currently an assistant professor (tenure-track), he has been a post-doc at the University of L'Aquila, at INRIA Sophia-Antipolis (France), at the University of Perugia (Italy), and at the University of Pisa (Italy). He is (co-)author of more than 80 papers in international journals and peer-reviewed conference proceedings. In 2016 he received the annual EATCS award for the best Italian young researcher in theoretical computer science. His research interests include combinatorial algorithms, computational complexity, combinatorial optimization, scheduling, network analysis, distributed computing, and algorithm engineering.

Dr. Lorenzo Severini is a Postdoctoral Researcher at ISI Foundation, Italy in the Algorithmic Data Analytics group. He obtained his B.Sc. and M.Sc. from the University of Bologna, Italy in 2011 and 2013, respectively. In 2013, he also got a Master 2 from University of Nice-Sophia Antipolis, France. In 2017, he obtained his Ph.D in Computer Science from GSSI, L'Aquila and IMT Lucca supervised by Prof. Pierluigi Crescenzi and Dr. Gianlorenzo D'Angelo. His research interests include Complex network analysis, Graph mining and Approximation algorithms.