

## Department of Electrical and Computer Engineering

Title: «*Directed Information for real time communication*»

Christos Kourtellaris  
ECE Department, University of Cyprus

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Room KENTP. E116, Old Campus – University of Cyprus

### **Abstract:**

Traditional information theoretic measures for capacity and lossy compression are defined via mutual information. For memoryless communication channels and sources these measures have been successfully applied to compute the operation capacity of channels and lossy compression of sources, respectively. For channels with memory and real-time feedback and real-time lossy compression of sources with memory the valid information measure is the directed information defined via nonanticipative conditional distributions. Directed information is also extensively utilized in networks, communication for real-time stochastic control applications, and in biological system analysis. This presentation investigates, via directed information, capacity of channels with memory and feedback, lossy real time data compression and Joint Source Channel Coding based on real time transmission.

### **Biography:**

Christos Kourtellaris received a diploma degree from the department of Electrical and Computer Engineering at Aristotle University of Thessaloniki in 2006, followed by an M.Sc. degree, with distinction, in Communications and Signal Processing from Bristol University. In 2007 he moved to Cyprus, where he began his doctoral studies under the supervision of Professor Charalambos D. Charalambous at the Department of Electrical and Computer Engineering, University of Cyprus. His doctoral dissertation was focused on real time communication systems for sources and channels with memory. Having been awarded his Ph.D. degree he continued his research, as a post-doctoral fellow, at Texas A&M University at Qatar. From September 2015, he is a research associate at the University of Cyprus. His research interests span topics in Information Theory, Coding theory, robust real-time information theory for channels and sources with memory and feedback and game theory.