This course will focus on traffic analysis and cross layer optimization in mobile networks. Due to their structure, mobile networks have multiple dimensions for optimizations. In contrast to classic lectures on this topic we will focus less on mathematical optimization methods but rather on how to make use of the radio link properties, protocol structures and understand the close coupling between the data- and signaling-plane.

Day 1: Basics in UMTS/Protocols/Traffic Measurements

- UMTS in a nutshell
- Traffic Measurement (understanding raw data)
- Example of Layer(ed) Interaction in mobile networks

Day 2: Cross Layer Optimization: Link Layer

- "Simple" parameters in stacked networks
- Optimizing Video Streaming
- Link Layer Error Predictions
- Cross Layer Optimization: Online Gaming

Day 3: Cross Layer Optimization: Core Network

- QoS in UMTS, Multiple PDP Streams
- Delay optimization via time synchronization
- Cross Layer Aware Scheduling

Nota: El curso se impartirá en inglés.

Philipp Svoboda

Philipp Svoboda is a well-known expert on wireless traffic measurement and analysis. He received the Master’s degree in Electrical Engineering in 2004 from the Vienna University of Technology, Austria and he finished his Ph.D work on traffic generation in mobile cellular networks there in 2008.

He did his PhD within the METAWIN (Measurement and Traffic Analysis in Wireless Networks) and later in the DARWIN (Data Analysis and Reporting in Wireless Networks) project focusing his research on the user behavior in the GPRS and UMTS core network of the Mobilkom Austria. He is involved in EU WP7 project LoLa (Achieving Low Latency in Wireless Networks) extending his work from METAWIN. In his spare time he is investigating traffic models for online games and measuring service performance in 3G networks. His current research interest include simple traffic generation, statistical analysis of IP level information and modeling of new services, specifically on all kind of mobile networks.