**THE EFFICIENT VIDEO DELIVERY IN DIFFERENT TRANSMISSION CONDITIONS**

Project leader: Dr. Mario Vranješ, Assistant Professor

Owing to the development of video technology and broadband Internet, the users have at their disposal a variety of applications that include watching of network transmitted videos (video conferences, video on demand, IPTV, remote video surveillance, etc.). However, the price of these applications is still too high for most users. In order to save the network resources (lower transmission cost), it is necessary to compress the video; however, it reduces the video quality. User devices (TV, PC, tablet, mobile phone, etc.) have different screen sizes. Subsequently, the same video does not look the same on each of them. Furthermore, the video content can also be very different. In addition, the access to the applications should be provided from any location (different transmission conditions). Therefore, it is necessary to optimize the spatial and temporal resolution of the video and adjust them to the transmission conditions together with the device the video is displayed on. This saves the network resources, reduces the applications price while the video quality remains almost the same.

One of the aims of the project is to create new improved computer algorithms for:

(1) spatial and temporal video rescaling in order to adjust it to the size of the screen where it is displayed and to the current transmission conditions;

(2) quality assessment of rescaled and network transmitted video.

New algorithms will lead to the project’s main goal - optimizing the network resources usage when watching videos on different devices in different transmission conditions (lower costs and lower power consumption). Additionally, the study should result in the reduction of the amount of resources needed for the video transmission to a variety of user devices at different locations, reduction of the costs of such applications and lower power consumption making these applications ​​available to a larger number of users. Simultaneously, the network resources surplus could be used for other purposes.