Development of an experimental 5G platform as a modular framework being open for emerging applications
Continuous adaptation to the upcoming 5G standards
Fundamental research to significantly shape the state of the art for selected areas in 5G technologies and applications

Objectives

Network Model

Use Cases

Phase 1: Telepresence Scenario

Phase 2: 5G Edge-cloud-based Control and Interaction

Research Directions

Radio Access Network

- Low latency high reliability to support critical application functions
- Radio network slicing for reliable co-existence of different applications
- RAN functions split and its impact on latency and reliability
- Dynamic base station coordination and radio resource management
- Reliability in 5G New Radio

Core Network

- Resource provisioning and isolation of data and control plane incl. network hypervisors
- Function placement and operation in distributed edge cloud environments
- In-network processing to support emerging 5G applications
- Hardware acceleration and offloading of virtualization functions

Telepresence Robot

- 3D 360° immersive experience of the remote scene (with delay compensation)
- HMD and tablet interface for natural remote control
- Semi-autonomous edge-based manipulation and object recognition
- Edge-based real-time motion control and monitoring
- User-in-the-loop real-time haptic & kinesthetic feedback

Related Publications


