



Day One – 7th July

From 08:00 – Welcome Coffee

08:45 – Agenda Overview

09:00 – Tutorial V2X: Introduction – Hybrid [Frank Hofmann]

- ▶ Safety/Non-Safety Applications
 - ▶ Communication Technologies
 - ▶ Protocol Stack and Standardization
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10:00 - Coffee Break

10:30 – Tutorial V2X: Research on next Applications with CPM + MCM – Hybrid [Ignacio Llaster]

- ▶ Overview and State-of-the-Art
- ▶ Collective Perception Message
- ▶ Manoeuvre Coordination Message

11:30 - Tutorial V2X: Channel Access Mechanisms and Congestion Control – Hybrid [Frank Hofmann]

- ▶ Overview Channel Access Mechanisms
 - ▶ Semi-Persistent Scheduling
 - ▶ Decentralized Congestion Control
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12:30 - Lunch Break

13:30 – Tutorial V2X: Simulation – Hybrid [Hugues Tchouankem]

- ▶ Performance Evaluation Methods
 - ▶ Coupled Simulation Platform
 - ▶ Hands-on Sessions
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15:00 - Coffee Break

15:30 – DEMO: Tele-operated Driving [Johannes Morgenroth]

- ▶ System Overview (Vehicle + Tele-operation Hub)
- ▶ Demo with a Model Car
- ▶ Impact of Connectivity Performance

16:15 – DEMO: Automated guided Vehicle with 5G [Oscar Ramos]

- ▶ Real deployment on 5G Campus
 - ▶ Synopsys on automated guided Vehicles
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17:00 – Wrap Up

18:00 – Dinner

Day Two – 8th July

From 08:00 – Welcome Coffee

09:00 – Tutorial V2X: Physical Layer and Channel Models – Hybrid [Frank Hofmann]

- ▶ Wireless Channel Characterization
 - ▶ Overview Channel Models
 - ▶ OFDM and single-carrier FDMA
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10:00 - Coffee Break

10:30 – DEMO: Infrastructure-based V2X Communication [Tobias Frye]

- ▶ System Monitoring
- ▶ Collective Perception with optical Sensors

11:15 – Tutorial V2X: AI for Mobile Communication – Hybrid [Maximillian Stark]

- ▶ Machine Learning Methods
 - ▶ Machine Learning and Wireless Communication
 - ▶ Capacity achieving Communication
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12:30 - Lunch Break

13:30 – Tutorial V2X: Security + Privacy – Hybrid [Christian Zimmermann]

- ▶ Security Objectives
- ▶ Security and Privacy Requirements
- ▶ Public Key Infrastructure

15:00 – DEMO: Bike2Car Communication + Cooperative Driving [Florian Wildschütte / Nico Ostendorf]

- ▶ System Overview (Hardware Platform)
 - ▶ Scenario with VRU Protection
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15:45 – Closing Remarks
