

- **The Tactile Internet and IEEE P1918.1**

- **Oliver Holland, Mischa Dohler**
- *King's College London*
- **Meryem Simsek, Gerhard Fettweis**
- *Technical University of Dresden*

- **Eckehard Steinbach, Qian Liu**
- *Technical University of Munich*

- **Working group IEEE P1918.1 approved by NesCom on 2 March**

IEEE P1918.1 “Tactile Internet” Working Group

High-profile contributors:



NEC

NOKIA

TOSHIBA



ORACLE®

INTERDIGITAL



Qualcomm is internally discussing to contribute, too, although they decided not to focus on IEEE standardization anymore. They think the Tactile Internet is an emerging technology and they should not miss this trend.

Not to mention numerous academics that are heavily driving forward the Tactile Internet and related technologies (e.g., Haptics codecs, architectures, AI support, etc.)

Currently: 19 voting members

Officers:

- Oliver Holland, King’s College London (Chair);
- Venkatesha Prasad, Technical University of Delft (Vice-Chair);
- Meryem Simsek, Technical University of Dresden (Secretary)

IEEE P1918.1 Baseline Standard:

"Tactile Internet - Application Scenarios, Definitions and Terminology, Architecture, Functions, and Technical Assumptions""

Scope:

Definition of a framework for the Tactile Internet

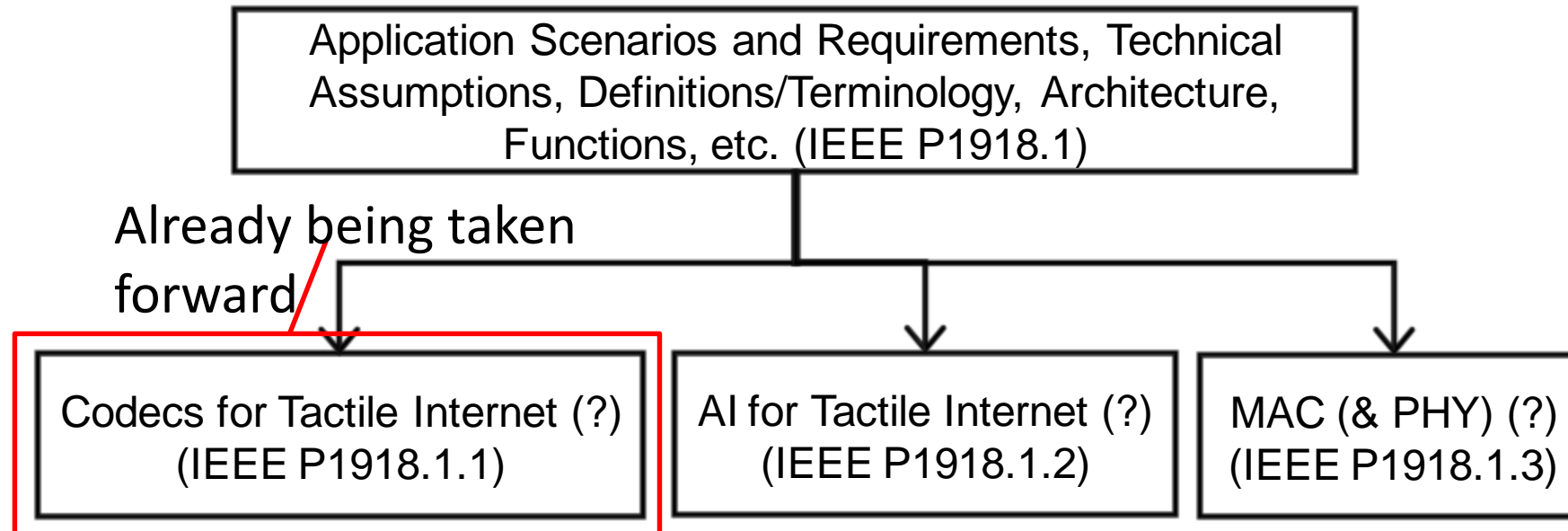
- application scenarios
 - Mission critical applications
 - manufacturing,
 - transportation
 - healthcare
 - mobility
 - ...
 - Non-mission critical applications
 - edutainment
 - events
- definitions and terminology
- functions
- technical assumptions
- reference model and architecture

Purpose:

- facilitates the rapid *realization* of the Tactile Internet.
 - *groundwork* upon which the Tactile Internet will be formed
 - *baseline* for a pioneering range of further standards that will be created under IEEE P1918.1 realizing the key necessary technical
-
- Next f2f meeting 8-9 December in Washington DC!
 - A high number of attendees have already registered.

IEEE P1918.1 Baseline Standard and Working Group in General

A vision we had in the build-up of this work incorporating some possible additional projects in this structure:



IEEE P1918.1.1

“Haptic Codecs for the Tactile Internet”

Scope:

Definition haptic codecs for the Tactile Internet

- address TI application scenarios with
 - human in the loop (teleoperation/remote touch applications)
 - machine remote control
- defines (perceptual) data reduction algorithms and schemes for
 - closed-loop (kinesthetic information exchange)
 - open-loop (tactile information exchange) communication.
- specifies mechanisms and protocols for the exchange of the capabilities
 - workspace,
 - the number of degrees of freedom,
 - amplitude range,
 - temporal and spatial resolution,
 - ...of the haptic devices.

Purpose:


- provides haptic codecs for the Tactile Internet enabling the *interoperability* of different haptic (kinesthetic and tactile) input and output devices.
- required to achieve necessary *market scale* in the realization of Tactile Internet technologies, devices and applications.

Led and driven by:


Prof. Eckehard Steinbach and Dr. Qian Liu
from Technical University of Munich

IEEE P1918.1.1

“Haptic Codecs for the Tactile Internet”



The poster features a blue header with the IEEE Standards Association logo and name on the left, and the IEEE logo on the right. The main body has an orange background with a grid pattern. The text is centered and reads: 'Call for Participation', 'Haptic Codecs for the Tactile Internet', 'Sponsored by IEEE Communications Society/Standards Development Board (COM/SDB)', and 'Within the IEEE Tactile Internet Working Group'.

IEEE STANDARDS ASSOCIATION 

Call for Participation
**Haptic Codecs
for the Tactile Internet**

Sponsored by IEEE Communications Society/Standards Development
Board (COM/SDB)

Within the IEEE Tactile Internet Working Group

The IEEE Standards Association (IEEE-SA) invites all interested parties to actively participate in the standardization of Haptic Codecs for the Tactile Internet.

This standard defines haptic codecs for the Tactile Internet (TI). These codecs address TI application scenarios where the human is in the loop (i.e. teleoperation or remote touch applications) as well as scenarios that rely on machine remote control. The standard defines (perceptual) data reduction algorithms and schemes for both closed-loop (kinesthetic information exchange) and open-loop (tactile information exchange) communication. These codecs are designed such that they can be combined with stabilizing control and local communication architectures for time-delayed teleoperation. Further, the standard also specifies mechanisms and protocols for the exchange of the capabilities (e.g. workspace, the number of degrees of freedom, amplitude range, temporal and spatial resolution, etc.) of the haptic devices. For more information visit the [P1918.1.1 - Haptic Codecs for the Tactile Internet project website](#).