International Collaboration on Human factors in Automated Driving

■ Project coordinators: Klaus Bengler (Germany, TU Munich) & Satoshi Kitazaki (Japan, AIST)

■ Schedule: Q2 2019 – Q1 2021

Work Packages	Partner in Japan	Partner in Germany
1 External communication • To understand interactive behavior between AVs and other road users such as drivers, pedestrians and cyclists. • To extract interaction and cooperation patterns. • To define recommendations for motion behavior and external HMI of AV as comusication cues. • To investigate how road infrastructure should be taken into account.	Tatsuru Daimon (Keio U) Satoshi Kitazaki (AIST)	Josef Krems (TU Chemnitz) Tibor Petzoldt (TU Dresden) Martin Baumann (Ulm U) Klaus Bengler (TU Munich) Caroline Schießl (DLR)
2 Education and training • To understand mental models of drivers and potential foreseeable misuse. • To understand adequate mental models. • To understand knowledge and training necessary for safe operation of the systems. • To investigate practical methods for education and training.	Makoto Itoh (U of Tsukuba) Satoshi Kitazaki (AIST) Yoshiko Goda (U of Kumamoto)	Jens Schade (TU Dresden) Klaus Bengler (TU Munich)
3 Drivers' interaction with automated systems • To identify internationally valid requirements for the design of automated systems. • To generate a model of the effects of different aspects of driver state on human drivers/passengers interaction behavior. • To define requirements for the driver and the system with respect to the different cultural backgrounds.	Toshihisa Sato (AIST) Satoshi Kitazaki (AIST) Kimihiko Nakano (U of Tokyo)	Klaus Bengler (TU Munich) Martin Baumann (Ulm U)

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- **Objectives of this collaboration**
  - Accelerate successful introduction of safe automated vehicle technology by this collaboration.
  - Increase social acceptance of automated systems for broader international markets based on cross-cultural comparisons and considerations of obtained results.

- **Collaboration scheme**
  - Biannual face-to-face meetings in Germany and Japan in spring and fall.
  - Independent and joint experiments.
  - Annual workshop with industry stakeholders.
  - Exchanging staff/students, and lecturing.
  - Co-authoring publications.

- **Utilization of outcomes obtained from collaboration**
  - Input to ISO/TC22/SC39/WG8.
  - Guidelines/recommendations to OEMs and suppliers in both countries.
  - Scientific contribution in the domain of human factors in automated driving.
  - Share methodologies and database obtained in this collaborative project.
  - Researchers educated in this project will represent a highly sophisticated group of experts to guarantee a deeper understanding that is important for successful adaptation to intercultural aspects.