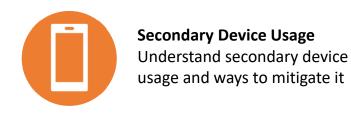


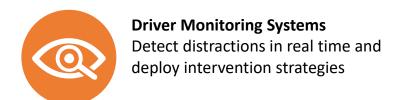
NHTSA's Distraction Research In Progress

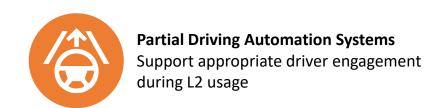
Jeff Dressel, Ph.D.
NHTSA, Human Factors / Engineering Integration Division

Vehicle and technological approaches to reduce distracted driving









In-Vehicle Interface Design



Novel Human-Machine Interfaces (HMI), led by TTI

- Identifies HMI technologies and implementations that have emerged since the 2016 publication of *Human Factors Design Guidance For Driver-Vehicle* Interfaces.*
- Includes a literature review and gap analysis, on-road study, and analytical design criteria evaluation by HF experts and researchers to identify key knowledge and research gaps that have emerged since the release of the 2016 guidance.

^{*}Campbell, J. L., Brown. J. L., Graving, J. S., Richard, C. M., Lichty, M. G., Sanquist, T., ... & Morgan, J. L. (2016). Human factors design guidance for driver-vehicle interfaces (Report No. DOT HS 812 360). National Highway Traffic Safety Administration.

Secondary Device Usage



Secondary Device Use, Needs Analysis, and Prevention Strategies, Led by DSRI

- Identifies the ways in which drivers interact with secondary/personal devices while driving, and what prompts or information needs compel them to do so.
- Further explores the distracting effects of these interactions.
- Identifies hardware and software solutions to minimize or prevent some interactions.
- This effort involves a nationally representative survey and utilizes NHTSA's National Advanced Driving Simulator @ DSRI.

Drive Mode Design Best Practices, led by Exponent

- Reviews state of the art / state of the practice in drive mode implementations (and by that we mean the use of unpaired portable devices while driving), documenting research gaps.
- Collects data to generate a best practices document for design.
- Includes a technology scan and literature review, and the conduct of empirical research on a test track with an occlusion paradigm, and a cones course, to inform best practices.

Driver Monitoring Systems



Updated Exploration of Eye Glance Metrics Associated with Crash Risk and Distraction State Detection Metrics, led by VTTI

- Reviews recent research literature of eye glance-based distraction metrics, with focus on the relation of those metrics to crash risk.
- Analyzes Naturalistic Driving Study data using a selection of these metrics.
- Uses that recent naturalistic driving study data to replicate prior research while also exploring and understanding associations of risk using new eyes-off-road metrics, or combinations of metrics.

Examining Distraction and Driver Monitoring Systems to Improve Driver Safety, led by Westat

- Documents the types of tasks available in modern vehicles.
- Explores alternatives to current common metrics of task-based eyes-on & eyes-off road time, which may include technology-based solutions like DMS.
- Assesses how differences in DMS impact the ability of a system to reliably assess different driver states, including distracted driving.

Partial Driving Automation Systems



Driver Monitoring System (DMS) in SAE L2 Driver Support Systems, Led by TTI

- Characterizes approaches to DMS in current SAE L2 equipped vehicles.
- Particular attention to how such DMS address potential misuse of advanced driver-assist systems.
- Also explores potential driver misuse of DMS.
- Explores relationships between the underlying SAE L2 automation technology, the supporting DMS technology, and the HMI.