

HUMAN FACTORS AND ERGONOMIC STUDIES

Dynamic Research, Inc. (DRI) has diverse skills and resources to support applied research studies involving the general areas of human factors and human-machine interaction. This includes measurement and analysis of driver behavior; including perception, control and decision making, attentional and physical workload, the effects of impairment, and the issues of skill and training. It also includes subjective assessment and evaluation by the driver of the vehicle or the use of in-vehicle devices. DRI's experience in such human factors studies has typically involved automobiles, motorcycles, commercial vehicles, other ground vehicles, and watercraft.

The evaluation methods and resources used can include

- Analysis and simulation
- Laboratory studies
- Operator-in-the-loop driving simulators (moving and fixed-base)
- Actual vehicles at closed-course test site
- Actual vehicles over-the-road
- Accident data analysis and reconstruction
- Risk-benefit assessment

All of the facilities, software and test resources are available in-house.

Typical experimental measurements include

- Driver behavior
 - Response and performance in primary tasks
 - Activity and performance in secondary tasks
- Eye glance behavior
- Video of interior and exterior fields of view
- Subjective assessment and ratings
- Anthropometric measurements

These measures are typically available in the laboratory, the driving simulators, and actual vehicles.

Example study topics and applications include

- Driver use of in-vehicle ITS devices and telematics, such as
 - Navigation systems
 - Night vision
 - Warning systems (forward collision, side collision, etc.)
 - Information systems
 - Communication systems

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- Vehicle control systems, such as
 - Antilock brakes
 - 4 wheel steer
 - Traction control
 - Stability control
 - Adaptive cruise control
 - Steer-by-wire and steering augmentation
 - Radar braking and collision mitigation
- Vehicle response and performance assessment
 - Handling
 - Braking
 - Ride, noise, and vibration
 - Driveability
- Driver/vehicle anthropometry
 - Comfort
 - Reach and use of controls and devices
 - Restraints and occupant protection
 - Child seats and restraints

These studies typically involve or the results apply to

- Human factors evaluations of vehicles, components or devices
 - Concepts and preliminary designs
 - Prototypes
 - Pre-production
 - Production
- Current product problem solving
- Future product marketing evaluations and surveys
- Technical support of the development of vehicle and device standards and guidelines
- Technical consulting in product litigation activities

The professional staff of DRI, together with its resources is both interdisciplinary and multidisciplinary. These are important attributes in human-machine interface and other vehicle-related human factor studies.

DRI specializes in applied research, development, and consulting in the areas of vehicle dynamics and control, man-machine systems, human factors, biomechanics and structural mechanics. For further information please contact us at 310-212-5211, visit our web site at www.dynres.com, or email us at info@dynres.com.