

## Highway Safety & Automotive Research

### Project 1

**Title:** *The Effects of Multi-Modal Information Presentation on Timesharing and Attention Management in the Modern Car Cockpit*

**Principal Investigator:** Nadine B. Sarter

**Funding Source:** CAR Industrial Consortium

**Funding Period:** 10/01/02 - 09/30/03

**Award Amount:** \$86,235

#### Description

The focus of this CAR-funded research project was to examine the effects of distractions and of concurrent and sequential multi-modal information presentation on time-sharing (i.e., the concurrent performance of the driving and any secondary tasks) and attention management in modern car cockpits. In particular, a simulator study was

conducted to compare participants' driving performance and their responses to unexpected, potentially hazardous, events while they interacted with a navigation



system, a cell phone, a car stereo, and a warning system. These systems presented information via three modalities - vision, hearing, and touch. The main findings from this study indicate reduced phase delay effects for driving errors with tactile navigation cues and increased response times to the various tasks and systems in case of concurrent multi-modal presentation of information.

## Information Processing Research

### Project 1

**Title:** *Adaptive Aiding using Physiological Operator Functional State Assessment*

**Principal Investigator:** Philip J. Smith

**Funding Source:** Dayton Area Grad. Studies Institute

**Funding Period:** 07/01/01 - 12/31/03

**Award Amount:** \$18,739

#### Description

This joint project with faculty at Wright State U. is exploring the use of neurophysiological data to monitor the attentional demands placed on a mission coordinator during surveillance and bombing missions, and to use these data, combined with a model of the current task environment, to adaptively activate decision support resources when needed.

### Project 2

**Title:** *Self-Evolving Adaptive Interfaces*

**Principal Investigator:** Philip J. Smith

**Funding Source:** Dayton Area Graduate Studies Institute

**Funding Period:** 07/01/01 - 12/31/03

**Award Amount:** \$33,000

#### Description

This collaborative project with faculty at Wright State University has been exploring analogies between strategies implicit in the functioning of biological systems and performance on distributed military planning tasks.

### Project 3

**Title:** *Maximizing Visualization Effectiveness*

**Principal Investigator:** David D. Woods

**Funding Source:** Aegis Research Corp.

**Funding Period:** 09/15/02 - 09/30/04

**Award Amount:** \$205,000

#### Description

The goal of this project is to analyze how leading-edge visualizations support practitioner decision making.

