Driver Vehicle Interactions

- Need for definition of levels of automation.
- Must be careful during transition phase in the industry while moving from separate driver assist systems to more fully automated systems
- Hand-off from automated mode to manual control is the key research question

Research Questions

- Can a partially engaged driver be brought back to the driving mode and be expected to be safe (i.e. better than the automated situation) ? If so, how quickly can that happen ? And how does that change with driving situation and driver characteristics ?
- What mental model does the driver bring to the car of how the system works ? How does that map onto actual system design and operation ?
- Is there a need for a dash display that says “Driver is now out of the loop” ? What does that display look like ? Does there need to be standards industry-wide that is intuitive and easy to understand ?

Research Questions

- Should there be outward identification of an automated vehicle so other cars and pedestrians know that it is automated ? Especially important during transition phase. What would that external iconography look like for the car ?
- What unintended consequences of prolonged use are there ? Skill degradation, over-confidence, system abuse, negative transfer
- How can we enhance displays to provide feedback about system state so that user remains aware of what is happening and why system is behaving like it is ? Potential driver training benefit.