

Examining Senior Drivers Adaptation to Mixed-Level Automated Vehicles Naturalistic Driving Study (03-040) Dataset

Dataset available at: <https://doi.org/10.15787/VTTI/VUXYYM>

(This dataset supports report **Examining Senior Drivers Adaptation to Mixed Level Automated Vehicles: A Naturalistic Study**)

This U.S. Department of Transportation-funded dataset is preserved by the Virginia Tech Transportation Institute (VTTI) in their data repository (<https://dataverse.vtti.vt.edu/>), and is available at <https://doi.org/10.15787/VTTI/VUXYYM>

The related final report **Examining Senior Drivers Adaptation to Mixed Level Automated Vehicles: A Naturalistic Study**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/61493>.

Metadata from the VTTI Repository record:

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Title: Examining Senior Drivers Adaptation to Mixed-Level Automated Vehicles Naturalistic Driving Study (03-040)

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Description:

- Project Description:
 - Advances in the development of automated vehicle technologies (AVT) have the potential to benefit senior drivers by reducing exposure to hazards and compensating for diminished cognitive abilities sometimes seen in this population. However, the degree to which such benefits can be realized in this vulnerable population depends largely on the facility with which these drivers adapt to these features. This study investigates the adaptation of eighteen senior drivers to vehicles equipped with Advanced Vehicle Technologies (AVT). Specifically, this research investigates the following questions:
 - How do senior drivers' acceptance of AVT change after extended use?
 - How do senior drivers' attitudes change over a period of exposure to a vehicle equipped with AVT?
 - How do senior drivers perceive the safety benefits of AVT?
 - How do senior drivers adapt to and learn to use AVT?

- How do senior drivers' trust and satisfaction change with accumulated usage?
- What do senior drivers like most and like least about AVT?

Following a study intake session that included an in-depth orientation to the study vehicle and its features, participants were assigned a vehicle to drive for a six-week naturalistic driving experience. Each study vehicle was one of four unique models:

- 2015 Infiniti Q50
- 2016 Volvo XC90
- 2016 Mercedes E350
- 2017 Audi Q7

Each study vehicle was equipped with four AVTs of interest:

- Blind Spot Alert (BSA)
- Lane Alert (LA)
- Lane Keep Assist (LKA)
- Adaptive Cruise Control (ACC)

Researchers measured visual field and cognitive status at intake and assessed participant attitudes and the effect of exposure on driver confidence in and satisfaction with AVT via surveys administered before and after the driving experience, brief weekly check-in surveys during the driving experience, and focus group sessions conducted after the participant returned the study vehicle

- Data Scope:
 - This study collected data from a sample of 18 senior drivers aged 70-77. In addition, researchers collected 5,286 trip files of naturalistic driving video and data via the data acquisition systems installed in the study vehicles. Processing and analysis of these naturalistic data were beyond the scope of the current effort, but such is planned for future efforts.

Subject: Engineering; Other

Keyword: older drivers, safety, transportation, driver behavior, aging, advanced technology, blind spot alert, lane alert, adaptive cruise control, lane keep assist, naturalistic driving, automation

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Dataset description:

This dataset contains 1 file collection, described below.

Examining Senior Drivers Adaptation to Mixed Level Automated Vehicles A Naturalistic Study_Data.zip

- 03-040 Focus Group Transcripts.pdf
- 03-040 Data upload.xlsx

- 03-040 Data Documentation.pdf
- 03-040 Clock Drawings.pdf

File Type Descriptions:

- The .xlsx and .xls file types are Microsoft Excel files, which can be opened with Excel, and other free available software, such as OpenRefine.
- The .pdf file format is an Adobe Acrobat Portable Document Format (PDF) file and can be opened with the Adobe Acrobat software.

National Transportation Library (NTL) Curation Note:

As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (<https://doi.org/10.21949/1503647>) Section 7.4.2 Data, the NTL staff has performed **NO** additional curation actions on this dataset. NTL staff last accessed this dataset at <https://doi.org/10.15787/VTT1/VUXYYM> on 2022-04-29. If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.