

Using Simulation to Assess Conflicts Between Bicyclists and Right-Turning Vehicles Dataset

Dataset available at: <https://doi.org/10.7910/DVN/9LNBUB>

(This dataset supports report **Using Simulation to Assess Conflicts Between Bicyclists and Right-Turning Vehicles**, http://safersim.nads-sc.uiowa.edu/final_reports/UM%20C%201%20Y1%20report_Final.pdf)

This U.S. Department of Transportation-funded dataset is preserved by the SAFER-SIM University Transportation Center in the Harvard Dataverse Repository (<https://dataverse.harvard.edu/>), and is available at <https://doi.org/10.7910/DVN/9LNBUB>

The related final report **Using Simulation to Assess Conflicts Between Bicyclists and Right-Turning Vehicles**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/42282>

Metadata from the Harvard Dataverse Repository record:

Dataset Persistent ID: doi:10.7910/DVN/9LNBUB

Publication Date: 2019-04-02

Title: Using Simulation to Assess Conflicts Between Bicyclists and Right-Turning Vehicles

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Description: Protected bike lanes, or cycle tracks, are increasing in popularity across the nation. However, despite the documented benefits of protected bike lanes, including safer cycling and increased ridership among differing populations of bicyclists, there remain ongoing concerns about potential conflicts between bicycles and vehicles when they merge back together at an intersection. The fear is that following a period of separation, drivers are less likely to anticipate and scan for the presence of bicycles. This research examines how transitions from fully separated to mixed-traffic environments and vice versa affect driver behavior. The goal is to assess whether certain segment-intersection treatment combinations can alert drivers of the presence of bicyclists and thus encourage them to scan for bicyclists prior to a right turn, reducing potential right-hook conflicts. Driving simulation is utilized in this study, and driver performance for rightturning vehicles is recorded under the presence of various bicycle infrastructure treatments along segments and at intersections. The experimental design includes two types of bike lanes and two intersection configurations, namely conventional and protected bike lanes and intersections with through bike lanes and protected intersections. Results show that the presence of the bicyclist as well as the presence of protected bike lanes reduce average speed on the segment. Additionally, the presence of the bicyclist significantly reduces the intersection speed when non-protected intersection design has been implemented. The presence

of the bicyclist was also found to significantly affect participants' glancing behavior at the intersection approach, triggering more of them to place a right glance regardless of the intersection configuration. In addition, participants were found to be less likely to glance for the bicyclist when riding on a segment with protected bike lanes compared to scenarios with conventional bike lanes. This research can be used to guide decisions on bicycle infrastructure implementation for safer multimodal operations.

Subject: Engineering

Depositor: Heiden, Jacob

Deposit Date: 2019-04-01

Recommended citation:

Christofa, Eleni; Knodler Jr., Michael; Deliali, Aikaterini, 2019, "Using Simulation to Assess Conflicts Between Bicyclists and Right-Turning Vehicles", <https://doi.org/10.7910/DVN/9LNBUB>, Harvard Dataverse, V1, UNF:6:KmhvPe1NU9aCd9ENFPJh9A== [fileUNF]

Dataset description:

This dataset contains 1 zip file collection described below.

Eye Tracking Scoring Description.docx:

This file serves as a data dictionary for the data found in Eye Tracking Scoring.csv. The .docx file is a Microsoft Word file, which can be opened with Word and other free word processor programs, such as Kingsoft Writer, OpenOffice Writer, and ONLYOFFICE.

Eye Tracking Scoring.csv:

This file contains the data taken from the participants for the study. The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit <https://www.file-extensions.org/csv-file-extension>).

Participants.xlsx:

This file contains some basic information about the participants in the study. The .xlsx file is a Microsoft Excel file, which can be opened with Excel, and other free available software, such as OpenRefine.

Simulator Data (participant-drive).rar:

The .rar file contains a single folder with the same name, with a single file in that folder titled _DS_Store. A .rar file is a compressed archive format that can be opened with WinRAR, and other available software (for more information on .rar files and software, please visit <https://www.file-extensions.org/rar-file-extension>).

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://ntl.bts.gov/public-access>) 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/10.7910/DVN/9LNBUB> on 2019-09-05. 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.