Vulnerable User Density Exposure Risk Dashboard Dataset
Dataset available at: https://github.com/umdcxiong/MDOT_SHA_Safety_Data_Initiative

(This dataset supports report **A Data-Driven Safety Dashboard Assessing Maryland Statewide Density Exposure of Pedestrians, Bicycles, and E-Scooters**)

This U.S. Department of Transportation-funded dataset is preserved in the GitHub Repository (https://github.com/), and is available at https://github.com/umdcxiong/MDOT_SHA_Safety_Data_Initiative

The related final report **A Data-Driven Safety Dashboard Assessing Maryland Statewide Density Exposure of Pedestrians, Bicycles, and E-Scooters**, is available from the National Transportation Library's Digital Repository at https://rosap.ntl.bts.gov/view/dot/61218.

Metadata from the GitHub Repository record:
Below is the attached README, that can be found in the GitHub Repository:

Vulnerable User Density Exposure Risk Dashboard

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The Vulnerable User Density Exposure Risk Dashboard provides data and insight on volumes and exposure to transportation safety risks of vulnerable road users, e.g., pedestrians, bicycles, and e-scooters at intersections and roadway segments within Maryland. In this repository, we provide some demo codes of three functions in the dashboard.

Functions

1. Crash frequency modeling.

- Check the folder "Crash_model". Frequency of pedestrian and bicyclist crashes at Maryland intersections and road segments have been estimated using one of the most commonly used crash frequency modeling methodology: Zeroinflated Negative Binomial (ZINB) regression techniques. Please try to run the STATA codes.

2. Crash model applying.

- Check the folder "Crash_predict". After the model training process, we may expand and apply the model on all the intersections and roadway segments in Maryland. Try to copy and paste the coefficients into "coef_int_v1.0.csv" and "coef_link_v1.0.csv" (please keep the original format), then run the python scripts to apply the model and predict.
- "zinb_intersec_apply_v1.0.py": apply the intersection model.
- "zinb_link_apply_v1.0.py": apply the link model.

3. Volume visualization.

- Vehicle Volume and Pedestrian/Bike Volume is visualized by several steps execution of python scripts. Please run the scripts in the order below:
- "1-VolumeToGeohash.py": Convert volume data into count data of all geohash boxes in Maryland.
- "2-GeohashToImage.py": Convert geohash counts into images.

Reference

- For more information about the dashboard, please click: https://mti.umd.edu/SDI

Recommended citation:
Chenfeng Xiong, Jina Mahmoudi, Mofeng Yang, Weiyu Luo, 2021, "Vulnerable User Density Exposure Risk Dashboard", https://github.com/umdcxiong/MDOT_SHA_Safety_Data_Initiative

Dataset description:
This dataset contains 1 .zip file collection described below.

MDOT_SHA_Safety_Data_Initiative-main.zip:
MDOT_SHA_Safety_Data_Initiative-main Folder

- README.Rmd
- MDOT SHA Safety Data Initiative Final Report.pdf
- Visualize Folder
    - 2-GeohasgToImage.py
    - 1-VolumeToGeohash.py
    - popup_data Folder
        - CountyFullList Folder
            - link Folder
                - Baltimore City Folder
                - Spring Folder
                - Weekday Folder

        - AM Folder
            - Link.csv
    - output_data
        - Vehicle Volume Folder
            - Geohash_Spring_Weekday_AM_1.0.csv
- Crash_predict Folder
    - zinb_link_apply_v1.0.py
    - zinb_intersec_apply_v1.0.py
    - input_data Folder
        - coef_link_v1.0.csv
        - coef_int_v1.0.csv
- Crash_model Folder
    - link_STATA_code.txt
    - link_data.csv
    - Link-level Model.txt
    - intersection_data.csv
    - Int. -level Model.txt

File Type Descriptions:

- File extension md is among others related to texts and source codes in Markdown markup language. Markdown is a lightweight markup language, to write using an easy-to-read, easy-to-write plain text format, then convert it to structurally valid XHTML or HTML (for more information on .md files and software, please visit https://www.file-extensions.org/md-file-extension).
- The .pdf file format is an Adobe Acrobat Portable Document Format (PDF) file and can be opened with the Adobe Acrobat software.
- The .txt file type is a common text file, which can be opened with a basic text editor. The most common software used to open .txt files are Microsoft Windows Notepad, Sublime Text, Atom, and TextEdit (for more information on .txt files and software, please visit https://www.file-extensions.org/txt-file-extension).
- 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).
- The .py file extension is commonly used for files containing source code written in Python programming language. Python is a dynamic object-oriented programming language that can be used for many kinds of software development (for more information on .py files and software, please visit https://www.file-extensions.org/py-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://github.com/umdcxiong/MDOT_SHA_Safety_Data_Initiative on 2022-03-29. 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.