

A Video Analytics Infrastructure Platform for Connected Vehicles and Transportation Planning

Introduction

Many DMPs include an introduction. If your DMP includes an introduction, add it here.

All data associated with the proposed research project are covered by this data management plan. The PI and co-PI assume responsibility for data storage, integrity, and dissemination for the entirety of the award duration. We will adhere to IRB requirements and guidelines for the dissemination and sharing of data generated from this project. The PI and co-PIs have a proven track record of prompt publication and have actively shared the results within the scientific community.

Types of data produced

Types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project. Click on box size (small | medium | full) for detailed guidance.

Data and metadata will be produced from software, hardware designs, data collection for algorithm development, educational materials, policy/guidelines, and experiments for publication. For any data involving human subjects, including educational work, privacy will be protected and restrictions put in place by IRB agreements will be observed. Data from this project falls into four general categories: computer software, hardware design, image collections, and educational materials.

Computer software consists of any source code developed for collecting images. Software will be written in a programming language and provided in a format that encourages others to build upon our work. Software source code will be adequately commented to describe lines of code and for automatic documentation generation.

Hardware design includes information required for replication of the system including schematics, list of materials, documentation, etc.

Image collections include any images or sequence of images collected for the purpose of conducting experiments or developing algorithms. We expect that these images will comprise a unique data set not currently available to automotive researchers and developers and will serve as sample data for use in the educational program. Collections will be made available via a website for open download and use.

Educational materials include data created for and by individuals as a result sharing the platform with other researchers. Examples of data created for education purposes include presentations, digital media, tutorials, and example computer software and hardware designs. To provide support for computer software and hardware design data, user and technical manuals will be created.

Data and metadata standards

Standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies). Click on box size (small | medium | full) for detailed guidance.

Any stored image data will be stored as either video files or image files. Video files will be H.264 compressed in the MP4 format. This is a common format for video files with a good compression to quality ratio. Image files will be stored as compressed and uncompressed files. Compressed files will be stored as JPG for use where quality is less important. JPEG is a well known, well-supported format. Uncompressed files will be stored as BMP for use where quality is more important. BMP is also a well-known, well-supported format.

Meta-data describing image data will be saved in a CSV file. This is a common format currently used by the PIs and co-PIs.

Policies for access and sharing

Policies for access and sharing; Provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements. Click on box size (small | medium | full) for detailed guidance.

Members of the research team will systematically manage Data. All data will be secured on password-protected computers and/or data servers that are redundantly backed up and supported by the PI's institutional department with careful attention to issues of privacy, confidentiality, and security.

During development, we will establish an internal data-sharing (IDS) repository with a versioning and revision control system to help participants collaborate more effectively. The IDS repository will ensure proper data tracking, backup, and archiving for software and hardware. The progression of software and hardware development will be recorded in handwritten research notebooks as well as in digitally generated documents. The IDS repository will be used for concurrent document authoring and a Wiki will be setup to consolidate digital documents.

Significant research findings will be promptly prepared and submitted for publication in the form of peer-reviewed journal articles, conference proceedings, dissertations, book chapters, etc. The associated data will then be made publicly available within a reasonable time after it stabilizes or the end of the project. Data will be shared via an open-access repository and/or public web page for wide access and distribution. An open source philosophy is adopted to share data to promote evolution through community cooperation. A policy will be developed for distribution of data subject to restricted access through collaboration, intellectual property, copyright, etc.

Policies for re-use, redistribution

Policies and provisions for re-use, re-distribution, and the production of derivatives. Click on box size (small | medium | full) for detailed guidance.

Data for the collection software may be modified and disseminated by any non-profit or for-profit entity. Software developed for specific hardware components or applications will be subject to the sharing and access policy of the development and collaboration parties involved. Published data will be accessible from publishers or upon request to the researcher involved, subject to the sharing and access policy of the individual publisher.

Plans for archiving & preservation

Plans for archiving data, samples, and other research products, and for preservation of access to them. Click on box size (small | medium | full) for detailed guidance.

All data affiliated through this project will be deposited in a repository supported by Computing Services at Carnegie Mellon University. All of the necessary data will be submitted to ensure accessibility for future users.

Data will be preserved for at least five years upon completion of the project. However, we intend to preserve the data indefinitely. Data will be backed up regularly (at least monthly) with data redundancy including off-site storage in the office of the PI. Any physical data will be secured in a fire/water proof location within the PI's campus office. If the PI is no longer available, the co-PIs are responsible for preserving the data.

Software Sharing Plan

Some NSF solicitations require software sharing plans in the DMP. Please check with your specific solicitation for this requirement.

Software developed for specific hardware components or applications will be subject to the sharing and access policy of the development and collaboration parties involved. Sharing of source code for algorithms developed will be subject to intellectual and copyright claims.