

Project Title: Low-Cost 3D model acquisition for rapid accident investigation

Principal Investigator: Christoph Mertz

Data Management Plan

Data Description

The primary data for this project consists of large collections of images of staged vehicle collisions. The collisions are staged during conferences or seminars and images of the vehicles have no restrictions. The images are taken with common cameras (e.g. smartphones). The purpose for the images is to use 3D reconstruction software to create accurate 3D models of the scene. The derived data are 3D models of the vehicles and the collision scene. These can be point clouds or colorized meshes.

Most of the data already exists. It was taken during seminars and conferences in the past few years. If more data is necessary, we will attend more seminars/conferences where collisions are staged. These opportunities happen about once a year.

The data might be useful for researchers who want to test their 3D reconstruction software on challenging models or for researchers who want to better understand vehicle collisions.

The PI will be responsible for managing the data. Students who will use the data will be instructed on how to use the data.

Data format and metadata standards

The images are in standard JPEG format, point cloud and meshes will be in open standards which can be read, displayed, or converted to other formats by free software like CloudCompare or MeshLab.

The metadata will be in plain text format, describing the scenarios and other relevant information.

The metadata will be stored with the images and 3D models.

Policies for access and sharing

The data will be deposited on KiltHub. KiltHub (kilthub.cmu.edu) is the comprehensive institutional repository and research collaboration platform for research data and scholarly outputs produced by members of Carnegie Mellon University and their collaborators. KiltHub

collects, preserves, and provides stable, long-term global open access to a wide range of research data and scholarly outputs created by faculty, staff, and student members of Carnegie Mellon University in the course of their research and teaching.

There are no restrictions on the data, the collisions were staged in front of a general audience and therefore there are no privacy or confidentiality concerns.

[Policies for re-use, redistribution, derivatives](#)

As mentioned above, the data will be deposited in KiltHub. The project will adhere to the rules set forth by UTC regarding archiving, preservation, and IP.

[Plans for archiving and preservation](#)

In the field the images are taken with digital cameras. Immediately after taking the images of a scene the data will be backed up onto a laptop or an external hard drive. Back at CMU copies will be retained on at least two separate hard drives. Lastly, a copy will be uploaded to KiltHub. KiltHub is safe for long term storage and protected from accidental or malicious deletion. KiltHub conforms with DOT Public Access Plan.