



DGAZE: Driver Gaze Mapping on Road

DRIVER GAZE MAPPING

Accurate eye gaze prediction is important in advanced driver assistance systems for ensuring driver safety by monitoring driver attention and fatigue. Previous approaches rely on expensive eye tracking devices which are cumbersome, hence they are not suited for monitoring driver gaze in day-to-day scenarios, as they require wearing of these devices during test time. We introduce a driver eye gaze dataset which does not require any expensive hardware during deployment. Only a dashboard-mounted mobile phone is required.



DGAZE collection lab setup

DGAZE DATASET

We created a new public dataset called DGAZE to address driver gaze mapping. The dataset was collected in a lab setting by projecting a road video in front of the participant and asking them to look at an annotated green dot.. Dataset statistics:

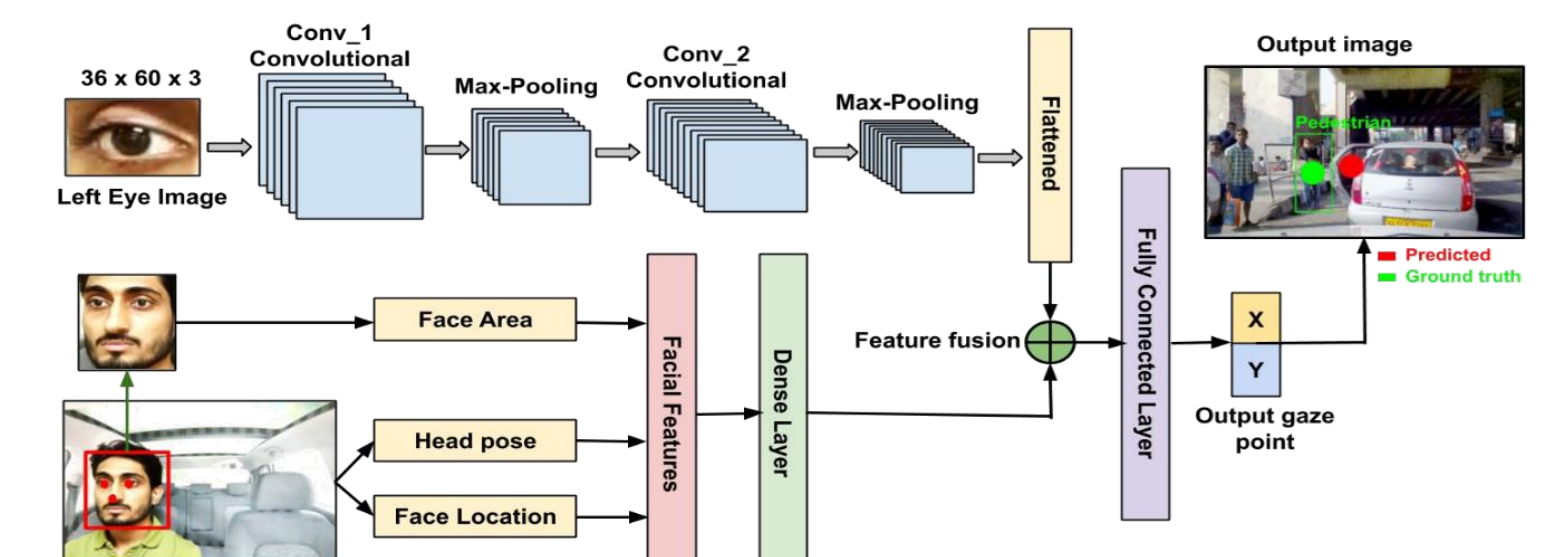
- Annotated 7 object classes on road.
- Annotated 103 such objects for each driver on road.
- Both Point and Object annotations are provided.
- Collected dataset of 20 unique drivers.
- Overall, we collected over 100,000 image pairs.
- Point and object level annotations are available.



DGAZE dataset samples

I-DGAZE ARCHITECTURE

We present I-DGAZE, a deep model for the point prediction of driver eye gaze which is trained on the DGAZE dataset. Accurate gaze estimation requires the knowledge of the position and angle of the head and the direction of eye gaze. Hence, we design our model as a two-branch late-fusion network. The first branch takes as input facial features such as face location and head pose. The second branch takes in the left eye image as input. The output of the network is the x, y location of the eye gaze on the road video. Our architecture gives state-of-the-art results on the DGAZE dataset..



I-DGAZE Architecture for mapping driver gaze on road.

Visit <http://cvit.iiit.ac.in/research/projects/cvit-projects/dgaze> for more details