



*Real Videos on the FLY, ...accelerating and enhancing your self-driving car training and testing process!*

## Background and need of synthetic data:

As the auto-industry transforms and focuses on the development of autonomous vehicles, testing for safety, while no less critical, is only part of the equation. The autonomous vehicles have a dedicated control and management unit which relies further on trained ML/DL systems that can detect neighbouring vehicles, lanes, traffic signs. These intelligent systems need to be thoroughly trained and tested. Training and testing of these systems need enormous amount of data so that it covers all possible scenarios like driving conditions, traffic conditions, terrains, driving law variations, rare conditions and even facets of defensive driving. Conventionally, healthcare facilities across the globe have measured the hand hygiene compliance of their frontline staff via manual observation. Nevertheless, manual observations have proved to be expensive, labour intensive and inefficient. Furthermore, it can lead to a serious disadvantage of potential to influence the behaviour of those conscious of being observed.

Today we do have quite significant amount of traffic video data captured but even they are not enough to cover rare and boundary conditions. Besides, the data is not annotated/labelled and annotating it is an enormous task particularly with the relevance to the test case. Also, some amount of data synthesis is anyway required to cover wide variety of conditions. Moreover, data synthesis is also required for data hungry training process of various intelligent applications.

Overall, it becomes imperative that there are tools to create real world traffic data and different driving conditions. Today, the tools available are still far from the kind of data synthesis the autonomous cars need. Our product aims to fill this gap for self-driving cars and autonomous technology developers. The systems that control autonomous vehicles first need to be trained. The amount of time, number of miles, and costs associated with training a self-driving car to perceive the objects around it, predict what those objects might do, and respond accordingly is an enormous challenge.

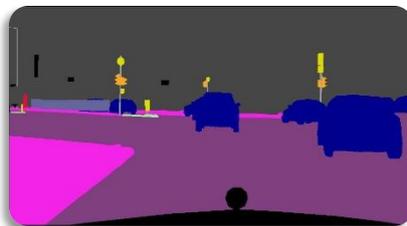
To create the countless situations that a vehicle may encounter on the road—both the rare edge cases and the dangerous situations that a small percentage of cars will encounter—a tremendous amount of data is required—that would be impossible to collect manually. In this case, the synthetic data are the catalyst to create safety measures and training for the vehicle to handle itself properly in almost any circumstance that could arise.

## Salient features of VISARD™ for creating synthetic data and scenarios:

- Create video data for sequence of activities (e.g., change lane, exit highway, enter Burger King)
- Synthesize video for scenarios
- Generate tricky commute conditions (black ice, snow-storm, sand-storm, and wild-fire)
- Generate accident scenarios and its variations
- Ability to generate random continuous feed of traffic and terrain
- Transform video from non-peak to peak hour
- Transform video for different terrains and localities
- Altering the video for different weather conditions
- “What if” analysis (e.g., sudden appearance of wild animal)
- Synthesize video for boundary conditions
- Synthesize video for rare conditions
- Object insertion
- Overlay the current google map/VPS live traffic conditions to simulate drive from point A to B (e.g., I am in Phoenix, Arizona and driving to Las Vegas)



Real Image



Label Image



Synthesised Image



Real Image



Synthesised Image

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