**Approach:**

A pipeline consisting of synthetic scene creation integrating with CNN is needed to answer the open questions to create the general quality requirement.

**Section 1:**

* Publicly available synthetic datasets like Virtual Kitti, Synthia, and Richter(GTA) datasets can be used to train the semantic segmentation models.

**Section 2:**

* 3D world to be created with parameter access to all the objects in a scene.

Register the objects placement with position eg. All buildings and roads position should be known to operate the pedestrian under constraint of no collision with these objects.

**Section 3:**

* Parameters example: weather conditions, lighting conditions, pedestrian speed.

**Section 4:**

* Images with ground truth labels are rendered with parameter variation, different camera models and render engines.

**Section 5:**

* For inference on models trained on synthetic datasets, generated synthetic images with parameter variation are used to understand the behavior of a multitude of factors like model’s behavior based on the parameters chosen.