Road Scene Segmentation from a Single Image
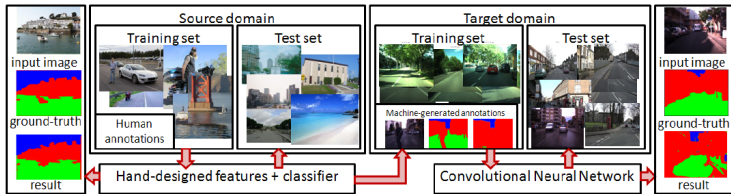
J. M. Alvarez, T. Gevers, Y. LeCun and A. M. Lopez (ECCV 2012)

- Recovering the 3D structure of the road scenes
- Convolutional neural network to learn features from noisy labels to recover the 3D scene layout
- Generating training labels by applying an algorithm trained on a general image dataset
- Train network using the generated labels to classify on-board images (offline)
- Online learning of patterns in stochastic random textures (i.e. road texture)
- Texture descriptor based on a learned color plane fusion to obtain maximal uniformity in road areas
- Offline and online information are combined to detect road areas in single images
- Evaluation on a self-recorded dataset and CamVid