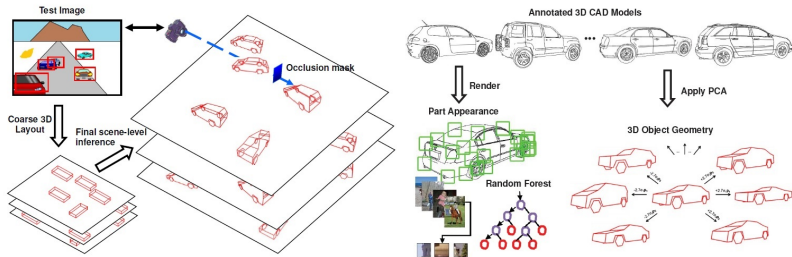# Towards Scene Understanding with Detailed 3D Object Representations
M. Z. Zia, M. Stark and K. Schindler (IJCV 2015)

- Simple object representations such as bounding boxes used so far for semantic image and scene understanding
- Propose to base scene understanding on a high-resolution object representation
- Object class (cars) are modeled as a deformable 3D wireframe
- Viewpoint-invariant method for 3D reconstruction of severely occluded objects
- From single view joint estimation of the shapes and poses of multiple objects
- Reconstruct scenes in a single inference framework including geometric constraints between the objects
- Leverage rich detail of the 3D representation for occlusion reasoning at the individual vertex level
- Ground plane is estimated by consensus among different objects
- Systematic evaluation on KITTI dataset