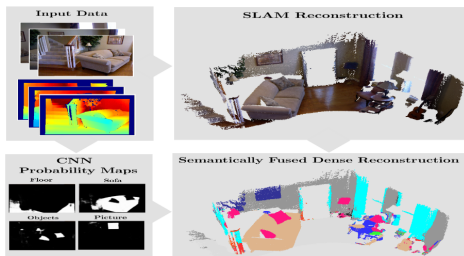# SemanticFusion: Dense 3D Semantic Mapping with Convolutional Neural Networks
J. McCormac, A. Handa, A. Davison, S. Leutenegger (ARXIV 2016)

- Extends SLAM system to contain semantics in addition to geometry and appearances.

- Pipeline is composed of three separate units:
    - A real-time SLAM system ElasticFusion to provide correspondences between frames, and a globally consistent map of fused surfels
    - A Convolutional Neural Network recieves a 2D image (RGBD), and returns a set of per pixel class probabilities
    - Bayesian update scheme to update the class probability distribution for each surfel, obtained from the CNNs predictions using the correspondences provided by the SLAM system

- Evaluates on NYUv2 dataset