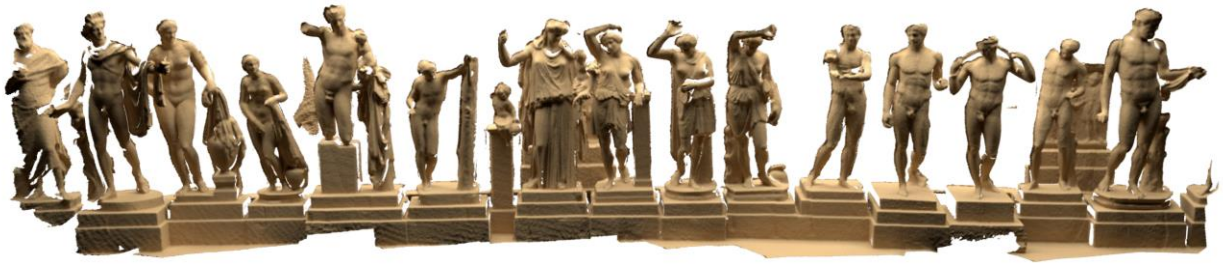
Master Thesis in Visual Computing:
Robust 3D Reconstructions with Commodity RGB-D Sensors

The goal of this thesis leverage commodity RGB-D sensor such as the Microsoft Kinect to obtain dense-high-quality 3D reconstructions that can be used for graphics applications (e.g., Augmented and Virtual Reality). The specific focus here is to efficiently combine RGB and range input for efficient and accurate tracking, as well as for surface reconstruction.

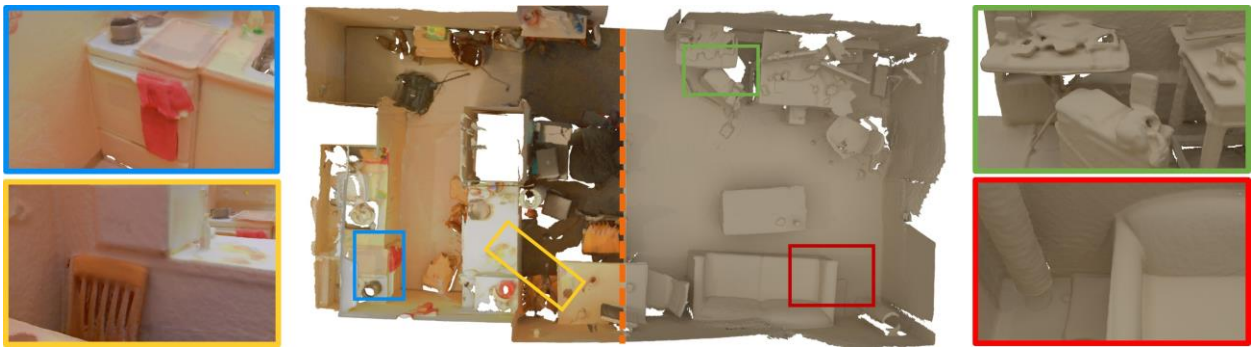


[Niessner et al. 13] VoxelHashing: Real-time 3D Reconstruction at Scale

Milestones:
1) Setup volumetric fusion framework (offline)
2) Simple geometry-based tracker (variation of iterative-closest point)
3) Combine RGB and range data for high-quality reconstruction and tracking

Pre-requisites: Strong C++, graphics and vision background, highly self-motivated ☺

References:
VolumetricFusion: https://graphics.stanford.edu/papers/volrange/volrange.pdf
KinectFusion https://www.youtube.com/watch?v=quGhaggn3cQ
VoxelHashing http://www.graphics.stanford.edu/~niessner/niessner2013hashing.html
BundleFusion: http://graphics.stanford.edu/projects/bundlefusion/



[Dai et al. 16/17] BundleFusion: Globally-consistent 3D Reconstruction

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