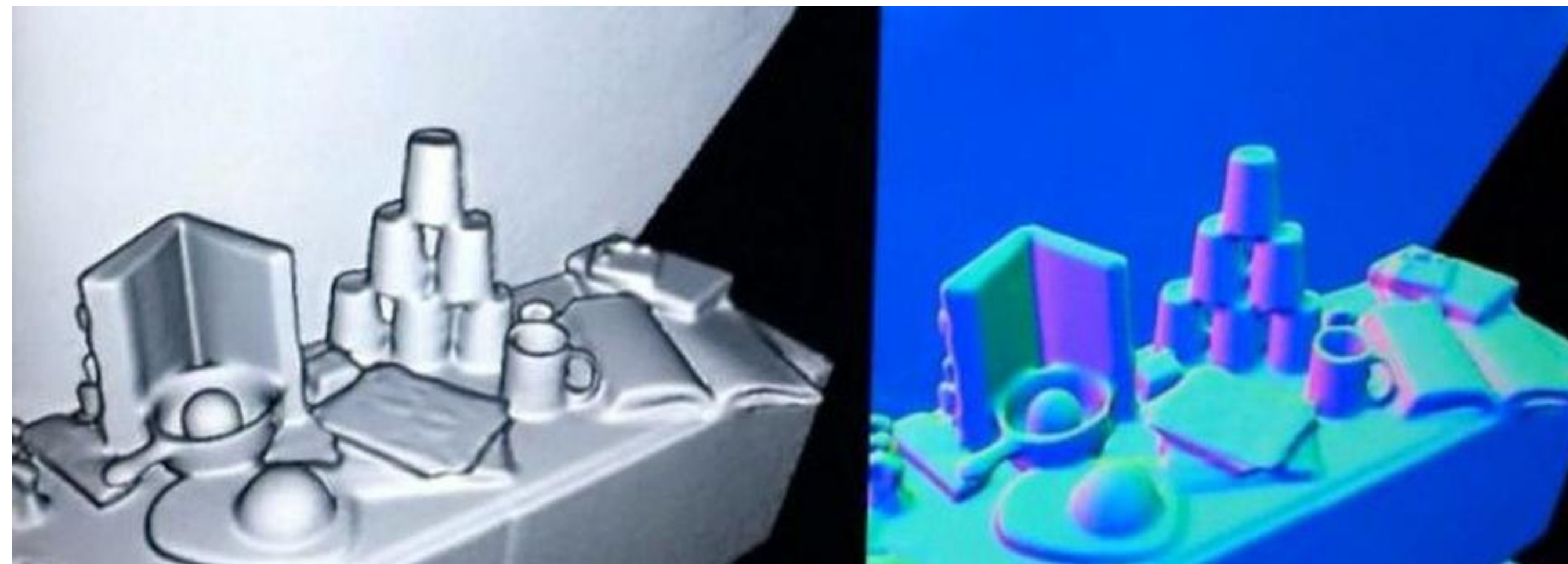# Virtualized Reality using Depth Camera Point Clouds

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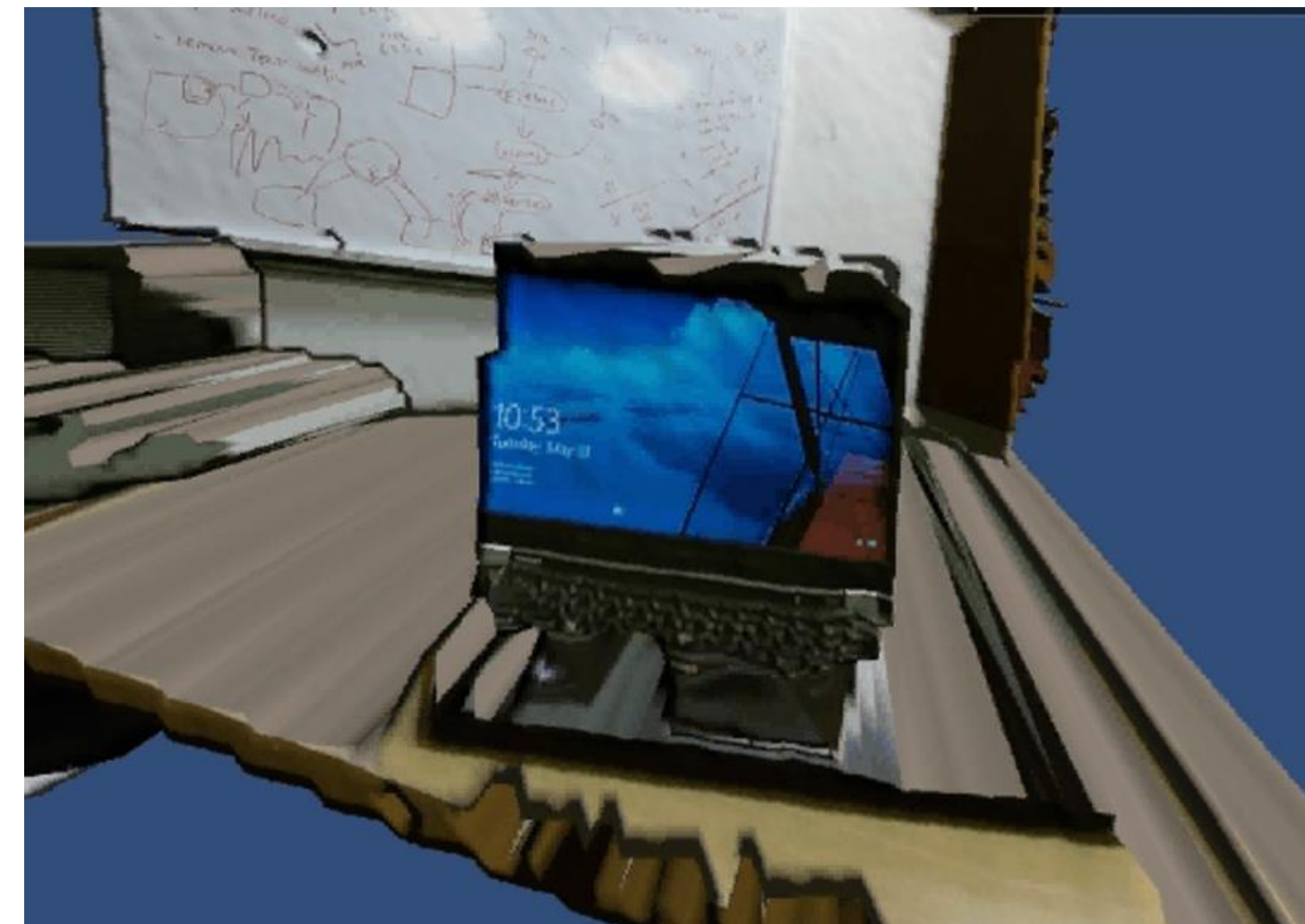
Motivation

Bring the real world into VR in real-time
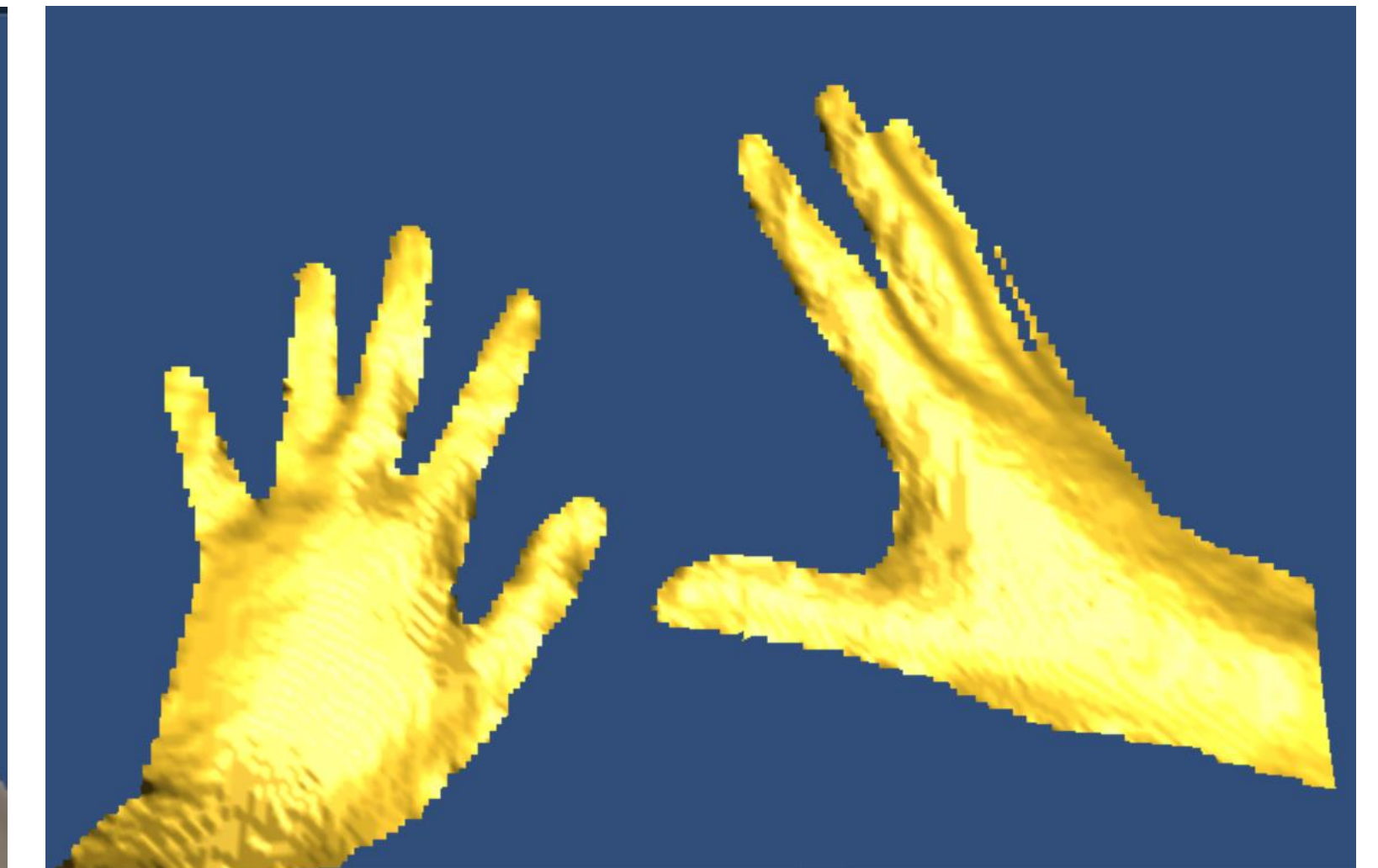and make it interactable

Our Approaches

Kinect   RealSense

Real-time scene capture   Real-time hand capture
+ tracking

Related Work

1. Izadi, S., Kim, Hilliges, O., Molyneaux, D., Newcombe, R., Kohli, P., … Fitzgibbon, A. (2011). KinectFusion: real-time 3D reconstruction and interaction using a moving depth camera. Proceedings of the 24th Annual ACM User Interface Software and Technology Symposium - UIST '11, 559–568. http://doi.org/10.1145/2047196.2047270
2. Kanade, T., & Narayanan, P. J. (2007). Virtualized reality: Perspectives on 4D digitization of dynamic events. IEEE Computer Graphics and Applications, 27(3), 32–40. http://doi.org/10.1109/MCG.2007.72
3. Kanade, T., Rander, P., & Narayanan, P. J. (1997). Virtualized reality: Constructing virtual worlds from real scenes. IEEE Multimedia, 4(1), 34–47. http://doi.org/10.1109/93.580394

Experimental Results

RealSense worked well with short distances; Kinect better for long distances. Combination of both is ideal.

Integration of KinectFusion with Unity is currently a roadblock

Future work:
- Full scene integration
- Point cloud registration
- KinectFusion over Network