The Next Best Underwater View:
Supplementary Material

Mark Sheinin and Yoav Y. Schechner
Department of Electrical Engineering
Technion - Israel Inst. of Technology, Haifa 32000, Israel
markshe@campus.technion.ac.il , yoav@ee.technion.ac.il

Abstract

The supplementary material details the compensation of small misalignment, caused by slight error in the camera pose.

Compensating For Pose Error

There are small errors in $\phi_{\mathsf{C}}(t)$. An error in $\phi_{\mathsf{C}}(t)$ leads to a small misalignment during texture mapping in Eqs. (31) in [1]. To counter misalignment, phase correlation [2] is used to perform local fine alignment of $\hat{\rho}(\mathbf{x}^{\text{texture}}, t)$. We apply alignment per texture-map triangle Y_k. This is illustrated in Fig. 1 here.

References

[1] M. Sheinin and Y. Y. Schechner. The next best underwater view. In *Proc. IEEE CVPR*, 2016.

[2] B. S. Reddy and B. N. Chatterji. An FFT-based technique for translation, rotation, and scale-invariant image registration. *IEEE Trans. IP.*, 5(8):1266–1271, 1996.

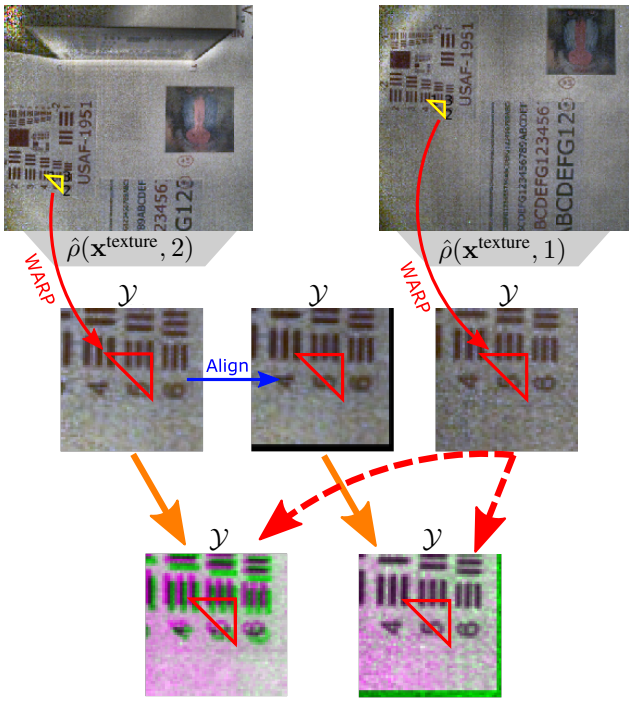

Figure 1. Compensating for small misalignments. Albedo maps are estimated per frame at $t = 1$ and $t = 2$. Face T_k is marked by a red triangle, and mapped to $Y_k \in \mathcal{Y}$ at $t = 2$ and $t = 1$. The small misalignment between the images is corrected. [Bottom] superimposing the images in false magenta and green displays the alignment.