3DVAR: From 3D Reconstruction to Virtual and Augmented Reality

Ruofei Du
Shanghai Jiao Tong University
me@duruofei.com

Zhiwei Li
Microsoft Research Asia
zli@microsoft.com

Rui Cai
Microsoft Research Asia
ruicai@microsoft.com

Bao-Liang Lu
Shanghai Jiao Tong University
blu@cs.sjtu.edu.cn

Lei Zhang
Microsoft Research Asia
leizhang@microsoft.com

Figure 1: A blooming artwork rendered by 3DVAR in real-time.

CHI'13, April 27 – May 2, 2013, Paris, France.
ACM 978-1-XXXX-XXXX-X/XX/XX.

Abstract

This video demonstrates an exploration into leveraging online 3D reconstruction for various applications in the fields of virtual reality, holography, and augmented reality. First, we present the utilization of portable 3D reconstruction through iterative segmentation, enabling ordinary users to create and consume 3D models with ease. Additionally, we demonstrate the ability for users to interact with reconstructed models in virtual environments through the use of proxies, resulting in the creation of visually striking artworks utilizing their preferred reconstructed models. Furthermore, we introduce the concept of "holographical digital twin" utilizing 3D reconstruction for both advertising and comparison between virtual and physical models. Finally, we propose the potential for reconstructed models to be utilized for decorative purposes in physical spaces, enhancing the visual appeal of magazines, and immersive story-telling in augmented reality scenarios on head-mounted or mobile hand-held devices. In summary, this demonstration presents promising strategies in the utilization of 3D reconstruction for virtual and augmented reality applications.

Author Keywords

3D Reconstruction, Virtual Reality, Augmented Reality, Holography, Storytelling, Mobile Application