Guest Editorial
Foreword to the Special Issue of the
XV Symposium on Virtual and Augmented Reality

In this special issue of the JIS (SBC Journal on 3D Interactive Systems) we present a collection of six of the best papers selected and accepted among the best papers of the XV Symposium on Virtual and Augmented Reality (SVR 2013). The papers of this edition were expanded and went through a complete new reviewing cycle. The SVR is the most important Brazilian conference on Virtual, Augmented and Mixed Reality, supported by the Brazilian Computer Society (SBC).

In the paper *KinectFusion for Faces: Real-Time 3D Face Tracking and Modeling Using a Kinect Camera for a Markerless AR System* the authors have adapted and improved the KinectFusion---a system that reconstructs in real time a high-quality 3D scene based on its depth data---so that it also recognizes and tracks markerless faces. Their system segments a face, generates a 3D reference model of the tracked face, and finally tries to continuously match the input raw depth data with the 3D reference model to estimate camera pose. Additionally, in case of tracking failure, real time head pose estimation provides a new initial guess for the 3D point cloud-matching algorithm.

The design of educational activities using augmented reality was the focus of the paper *A Dynamic Blocks Platform Based on Augmented Reality and Tangible Interfaces for Educational Activities.* The authors presented the development of a platform for educational purposes, based on tangible interfaces and projective systems, and the use of a frame marker to better tracker the blocks of the application. The evaluation of the platform pointed out good acceptance by students and teachers, that can create their own activities, and the good adaptation of the frame marker for augmented reality purposes.

The paper *Performance Evaluation of an xSight 3120 HMD and Usability Analysis of the Phantom Omni in a Thoracocentesis Simulation* investigates the effects of a fully immersive system (HMD and haptic device) in comparison with a semi-immersive version (LCD display and joystick) in the context of a medical application. They developed a virtual Pleural tap procedure simulator that enables basic training of this procedure, evaluates the user performance, and works as a test-bed application for their comparison. Their main findings indicate that the immersive system provided greater precision and improved training performance.

Two manuscripts focused on issues related to three-dimensional interaction. The paper *Proposal and evaluation of a tablet-based tool for 3D virtual environments* focused on the context of immersive virtual engineering applications. Typically this type of system relies on multiple devices to support both the traditional immersive 3D interaction tasks, such as navigation, selection, and manipulation, as well as some degree of non-immersive symbolic input for WIMP interfaces. The authors realized that the embedded sensors found in most tablets and their mobile nature could be harnessed into a single tabled-based tool, reaching a compromise between supporting both immersive and non-immersive interaction tasks. Motta and Nedel, the authors of *Interactive Public Displays: A Gesture-Based Proposal Using Kinect,* proposed a gestural interactive system for public displays. This type of system is particularly difficult to design since it should be robust enough to properly deal with factors such a varying level of brightness, selecting the right amount of information to present to a general public, or just having people unintentionally wandering in front of the motion capture device. Their proposal adds a valuable contribution to the field in the sense that it supports a range of typical interaction tasks and does not require users to wear any special device.

Drift is a common problem found in inertial sensors caused by the error accumulation in the incremental process of position and orientation determination. To tackle this problem, the authors of the paper *Correcting Drift, Head and Body Misalignments between Virtual and Real Humans* introduced a comfort pose function that corrects the drifting when applied to the inertial sensor data.

We would like to thank all the reviewers, the editors and staff that supported the edition of this issue, and the authors that extended and adapt their papers in order to have extra quality content on the papers. We also would like to thank the editorial board of JIS for our opportunity to contribute with this journal. We hope that the readers enjoy this issue!

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