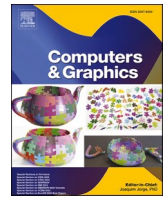


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## Editorial

### Foreword to the special section on Recent Advances in Graphics and Interaction (RAGI 2023)



This special section on Recent Advances in Graphics and Interaction features the papers submitted to Computers & Graphics and presented at the 2023 edition of the International Conference on Graphics and Interaction (ICGI'2023), which was held on November 2 and 3, 2023 at Tomar, as a joint organization between the Polytechnic University of Tomar and the Eurographics Portuguese Chapter (GPCG).

The ICGI conference focuses on novel ideas in the areas of Computer Graphics, Image Processing, Computer Vision, Information Visualization, and Human-Computer Interaction, as well as related fields such as Virtual and Augmented Reality, Modelling, Rendering, Digital Arts, and Information Visualisation. The conference further aims to bring together and inspire collaboration among practitioners, users, and researchers.

This special issue of Computers & Graphics received sixteen submissions, nine of which were accepted for publication after they had been fully peer-reviewed by at least three experts, according to the standards of Computers & Graphics.

The article titled Exponential Strain-based Dynamics using XPBD algorithm [1], by Ozan Cetinaslan, proposes a new method for simulating deformable objects with enhanced stability and reduced sensitivity to numerical dissipation in XPBD-based simulations. The article titled Exploring the user experience of hands-free VR interaction methods during a Fitts' task [2], by Pedro Monteiro, Hugo Coelho, Guilherme Gonçalves, Miguel Melo and Maximino Bessa, explores the use of gaze-directed methods to improve depth perception and comfort in VR, outperforming default HMD settings and saliency-guided approaches. The article titled Self-report user interfaces for patients with Rheumatic and Musculoskeletal Diseases: App review and usability experiments with mobile user interface components [3], by Francisco Nunes, Petra Rato Grego, Ricardo Araújo and Paula Alexandra Silva, provides an analysis of mobile app interfaces for patients with rheumatic and musculoskeletal diseases to identify the most effective UI components for better usability for these users. The article titled A multimodal smartwatch-based interaction concept for immersive environments [4], by Berk Cebeci, Mehmet Bahadır Askin, Tolga K. Capin and Ufuk Celikcan, studies the usability of touchscreen/button inputs versus mid-air gestures in immersive environments, with touchscreen inputs preferred for efficiency. The article titled Gaze-directed and saliency-guided approaches of stereo camera control in interactive virtual reality [5], by Berk Cebeci, Mehmet Bahadır Askin, Tolga K. Capin and Ufuk Celikcan, evaluates eye gaze, head gaze, and voice commands for selection tasks, with assisted eye gaze aiming at offering the best usability and user satisfaction. The article titled NOVAction23: Addressing the data diversity gap by uniquely generated synthetic sequences for real-world human action recognition [6], by Ali Egemen Tasoren and Ufuk Celikcan, proposes a diverse synthetic dataset for human action

recognition, improving model performance with photorealistic, varied data under different conditions. The article titled SIT6: Indirect touch-based object manipulation for DeskVR [7], by Diogo Almeida, Daniel Mendes and Rui Rodrigues, proposes a touch-based manipulation technique for seated VR, offering comparable performance to mid-air methods while reducing physical effort. The article titled Shape-A-Getti: A haptic device for getting multiple shapes using a simple actuator [8], by Filipe Barbosa, Daniel Mendes and Rui Rodrigues, proposes a haptic device that quickly renders different radially symmetrical shapes using a single actuator, enabling users to interact with virtual objects by touch. Finally, the article titled Comparative study of interaction methods for mobile gaming while running on a treadmill [9], by Carlos Marín-Lora, Miguel Chover, Micaela Y. Martín and Linda García-Rytman, presents a comparative evaluation of smartphone accelerometers, smartwatch accelerometers, and cameras for treadmill-based games, with camera-based interaction looking to provide a more immersive experience.

Collectively, these contributions underline the dynamic and interdisciplinary nature of research in graphics and interaction and its applications, contributing valuable knowledge to the research and professional community.

We are grateful to Computers & Graphics for welcoming the publication of this special section and also to the authors and reviewers, who actively contributed to the quality of the manuscripts. Finally, we want to thank all the members of the ICGI'2023 Organising Committee as well as the Eurographics Portuguese Chapter for all the support and collaboration regarding this special section. For further information about ICGI'2023, please visit the official website: <https://gpcg.pt/icgi2023>.

#### CRediT authorship contribution statement

**Vítor J. Sá:** Writing – original draft, Writing – review & editing.  
**Anabela Marto:** Writing – original draft, Writing – review & editing.  
**Paula Alexandra Silva:** Writing – review & editing. **Alan Chalmers:** Writing – review & editing.

#### Declaration of competing interest

No conflict of interest.

#### Data availability

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**Alan Chalmers** is a Professor of Visualisation at the International Digital Laboratory, WMG, University of Warwick, UK. He has an MSc with distinction from Rhodes University, 1985 and a PhD from University of Bristol, 1991. He has published over 200 papers in journals and international conferences on high-fidelity graphics, multi-sensory perception, High Dynamic Range (HDR) imaging, virtual archaeology and parallel rendering. He is Honorary President of Afrigraph and a former Vice President of ACM SIGGRAPH. Together with SpheronVR, a high-precision German camera company, he was instrumental in the development of the world's first HDR video camera, which was completed in July 2009. He is the Founder and a Director of the spin-out company goHDR Ltd., which aims to be the leader in the software which enables HDR technology. Chalmers' research goal is "Real Virtuality", obtaining physically-based, multi-sensory, high-fidelity virtual environments at interactive rates through a combination of parallel processing and human perception techniques.

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