·Editorial·

VR/AR research and commercial applications in Singapore

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The COVID-19 pandemic has virtually changed every aspect of our lives and society globally. This special issue is developed during this challenging time. Going through the period of circuit breaker, Singapore is now planning ahead for the post pandemic era. One of the strategic areas is to embrace innovative technologies including virtual reality (VR) and augmented reality (AR) for work, study, and life in the new normal.

From the perspective of Singapore, this special issue presents the multi-facet landscape of VR and AR in the island state ranging from academic research to industrial applications with both past and future activities illustrated.

Six articles are selected in this special issue addressing the research and development on VR/AR and their applications in relation to several software and hardware solutions.

Yin et al. from National University of Singapore (NUS) share the research activities in the university with a focus on VR/AR work to improve human performance. VR/AR-enabled training in surgery and manufacturing are discussed. Current research trends, findings and limitations in VR/AR in relation to human performance are presented based on some studies in NUS.

Huang et al. from Nanyang Technological University (NTU), Singapore present an overall picture on VR/AR research developed in NTU over the past years with an emphasis on their applications in biomedical sciences, engineering, humanity, and education. Both fundamental research and application development on VR/AR are discussed.

Lee et al. from Singapore Institute of Technology and its partners discuss their efforts in design and development of a novel and adjustable VR headset. The adjustment is mainly based on the distances among optical lens, display screen and users' eyes for the purpose to reduce users' uncomfortableness during prolonged use.

Zhu et al. describe a joint work between University of Glasgow Singapore campus (UGS) and NTU for an interesting attempt to combine VR, AR and wearable device for various applications. An AR serious game using visual, audio, and vibrotactile feedback is detailed with computerized virtual models, and multimodal interactive for immersive learning.

Syamimi et al. froma a start-up company VRcollab Pte Ltd showcase the VR/AR ecosystem as well as R&D activities in Singapore from an industrial angle. Singapore's government initiatives to promote VR's commercial adoption for the digital economy are also discussed.

Philippe et al. from Manzalab Group review the VR/AR related work and use cases from a global perspective. Manzalab is a French company with a branch office in Singapore actively promoting VR/AR technology for education and training. More specifically multimodal VR for teaching, learning and training

is studied in a good detail.

This special issue is by no means to cover the entire landscape of VR/AR in Singapore. Hopefully, by providing an introduction through this special issue, those interested individuals or organizations can follow up for potential academic and industrial collaborations in the field of VR and AR.

Sincerely yours,

Yiyu CAI & Qi CAO
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