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Leveraging Virtual Reality for Enhanced Medical Education: A Paradigm Shift in Learning

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Learning objectives

Medical education is undergoing a transformative shift with the integration of cutting-edge technology. With its immersive and dynamic nature, VR has effortlessly transformed the learning experience, particularly in the domain of anatomy study using ultrasound. Previously confined to textbooks and mere observation, the introduction of VR has opened up new horizons, offering medical students captivating and interactive learning opportunities.We have spearheaded the development of a revolutionary 180-degree VR technology specifically designed to enhance the training process for medical students in abdominal ultrasound.

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Background

A VR platform, with dynamic and engaging environments thanks to augmented reality (AR), has been developed to explore the intricacies of human anatomy and enhance diagnostic skills in performing ultrasound abdominal scanning. The VR system is primarily based on Dual Fish Eye optics, which is fully compatible with mirrorless cameras utilizing cutting-edge 8K sensors for unparalleled stereoscopic 180° video performances. Ultrasound examinations were recorded in different abdominal districts in this unique setting. This innovative approach allowed for more realistic simulations, complete with haptic feedback and...

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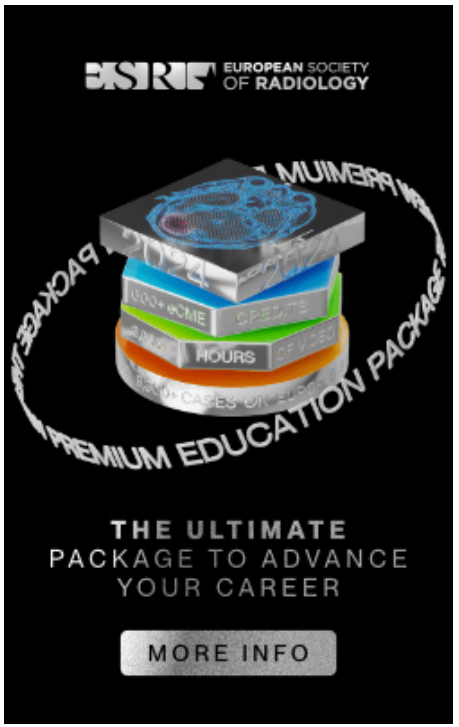

Findings and procedure details

Preliminary results from our ongoing research clearly indicate that Virtual Reality with Augmented Reality scenarios have a profound impact on medical education. Immersing themselves in ultrasound scenarios, medical students improved their sonographic abilities, learning spatial and anatomical relationships. Moreover, our innovative platform also played a key role in facilitating remote learning and collaboration. Through its advanced connectivity features, it successfully connected both the students and instructors across different geographical boundaries. This breakthrough enabled them to benefit from a more efficient and effective learning experience.
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Conclusion

ConclusionStudents engaged in VR and AR technology applied to abdominal ultrasound exams demonstrated improved spatial understanding and enhanced procedural skills. The integration of VR technology into medical education represents a paradigm shift in how we prepare the healthcare professionals of the future. This innovative approach not only enhances learning but also contributes to improved patient care by producing well-prepared and confident medical practitioners.LimitationsThe protocol feasibility, as well as the preliminary feedback, strongly support the potential utilization of virtual reality (VR) and augmented reality (AR) in...
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Personal information and conflict of interest

P. M. Parrella: Speaker: Research A. Fabozzi: Research/Grant Support: Research M. P. Belfiore: Research/Grant Support: Research F. Urraro: Research/Grant Support: Research V. Cantisani:

Research/Grant Support: Research G. Vallone: Research/Grant Support: Research A. Dell'Era: Employee: Employee F. Grassi: Research/Grant Support: Research

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References

1. **VR and AR in Medical Education:** - Kyaw, B. M., Saxena, N., Posadzki, P., Vseteckova, J., Nikolaou, C. K., George, P. P., Divakar, U., Masiello, I., Kononowicz, A. A., Zary, N., & Car, L. T. (2019). "Virtual Reality for Health Professions Education: Systematic Review and Meta-Analysis by the Digital Health Education Collaboration". _Journal of Medical Internet Research_, 21(1), e12959.2. **Innovations in Ultrasound Training:** - Sutherland, J., Belec, J., Sheikh, A., Chepelev, L., Althobaity, W., Chow, B. J., & Mitsouras, D. (2020). "Applying Modern Virtual...

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Fig 2

Fig 3

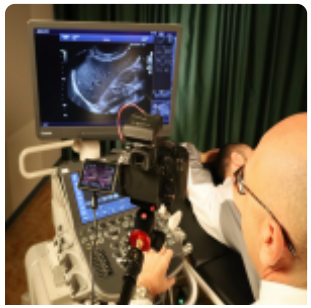

Fig 4

Fig 5

Fig 6

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