Initial Post

Hi All,

Fascinating discussion, I've been catching up.

I am an NHS neurosurgery registrar, so the healthcare and healthtech industries are the sectors I work in. Especially in recent years, the sector is seeing an explosion in AI being developed around a range of use cases in healthcare from medical chat bots, using data to predict disease diagnosis and progression, through to computer-aided diagnosis in medical imaging (1). There are also AI applications being developed for next generation treatments like autonomous robotic surgery (2).

An area of research I am actively involved in is the use of spatial computing to improve recovery after neurosurgery or trauma to the brain and spine. "Spatial computing" was defined in 2003 by Simon Greenwold as "human interaction with a machine in which the machine retains and manipulates referents to real objects and spaces" (3). Spatial computing is a pattern of technologies that enable computers to blend with the real physical world. These technologies are used to interact with 3D data. A spatial computing system collects data about the real world with sensors, and feeds this data into computers that can be connected to screens or actuators/effectors elsewhere in the system for humans to interact with. My discussion is primarily focused on developing and investigating use cases for spatial computing in healthcare. However, spatial computing has several use cases in sectors outside of healthcare that are worth considering, such as engineering, product design, training, workplace collaboration, and even customer experience.

In healthcare, spatial computing is powerful because it focuses on human machine interaction to improve health. An example here is the use of spatial computing to visualise image data in pre-operative planning and surgical navigation (4). Typically, the technologies captured under the umbrella term of spatial computing include virtual reality (VR), augmented reality (AR), mixed reality (MR), internet of things, digital twins, robotics, and metaverse concepts. AI underpins and powers many applications using these technologies. My interest lies in understanding the most effective way to use spatial computing, specifically VR/AR/MR + AI, in helping patients recover from neurosurgery or neurotrauma.

Thanks for reading!

Will

References:

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