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- EDITORIAL, *C. LOVIS*
- HOSPITAL OF THE FUTURE, *M. KEEN*
- FUTURE MEDICINE, TODAY'S HEALTHCARE, *S.HEINEMANN*
- LET'S CHANGE BEFORE WE HAVE TO, *M. CABRER*
- SMART CONTRACTS IN HEALTHCARE, *S. JANIN*
- PATIENT HEALTHCARE PORTALS, *M. PETERSEN*
- LABS OF THE FUTURE
- FUTURE OF AUGMENTED REALITY IN HEALHTCARE, D. *MADISON*
- CHALLENGES, OPPORTUNITIES OF TOMORROW'S RADIOLOGIST, *D. HILMI*
- UTILITY OF ARTIFICIAL INTELLIGENCE IN CARDIOLOGY, *R. VIDAL-PEREZ*

TOP HEALTHCARE TRENDS 2018

THE FUTURE OF MEDICINE BOOK, *P. BRONSON ET AL*

VISIONARY LEADERSHIP, *D. CORTESE ET AL*

WOMEN IN RADIOLOGY, *S. BAKER*

ROBOTICS: A CHANGE

MANAGEMENT CASE STUDY, *L. ROBSON*

AWARD-WINNING 'DOCTORS' ASSISTANTS', *S. MCNALLY ET AL*

3D PRINTING AT THE JACOBS INSTITUTE: AN UPDATE, *P. MARCUCCI*

DEEP INTEROPERABILITY IN HEALTHCARE *C. BUCKLEY,*

VIRTUAL REALITY CLINIC: A CASE STUDY, *B. WIEDERHOLD*

MACHINE LEARNING FOR BRAIN TUMOUR DETECTION, *D. CORONADO*

ARE RANKINGS THE BEST WAY TO DETERMINE HEALTHCARE SYSTEMS? *A. LAYLAND ET AL*

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The future of augmented reality in healthcare

Smart technologies shaping the future

An overview and look to the future of how augmented reality (AR) is being widely adopted in the healthcare industry, creating business opportunities for companies with AR expertise.

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Augmented reality is the use of displays, cameras, and sensors to overlay digital information onto the real world. In contrast to Virtual Reality (VR), which creates an entirely new world, AR allows us to bring the most useful information from the digital realm into our perception of the environment around us. AR is not a new concept, but over the last few years, advances in camera and sensor technology and AR-focused software research have made it practical — we're still in the early stages of the AR revolution, but this year and into the future, we can expect to see an explosion of AR devices and applications enter the market.

Indeed, healthcare and medical fields will be among the first to embrace AR in a big way. In fact, today there are many nurses and doctors interacting with AR applications every day to improve patient education and outcomes.

Google Glass was the first AR platform to get wide public exposure. However, it's safe to say that it wasn't a huge success with consumers, largely because of the high-cost, limited functionality, and perception problems — Google Glass was attractive, but it didn't look attractive. Beyond the consumer market, Google Glass has found a home in enterprise and in the healthcare field, demonstrating the importance of AR even at that early stage of development.

Many companies are now hard at work laying the foundation of the AR revolution. For example, Microsoft's Hololens is hugely impressive and is seeing wide adoption throughout industry and the healthcare space.

AR in healthcare

Healthcare workers have been quick to realise the benefits of AR technologies. Education is an obvious application of augmented reality in the healthcare field. Healthcare workers have to learn a huge amount of information about anatomy and the way the body functions. AR applications give learners the ability to visualise and interact with three-dimensional representations of bodies.

However, it's not only healthcare workers who benefit from augmented reality. It's also proving hugely useful as a tool for patient education, allowing medical professionals to help patients understand surgical procedures and the way medicines work.

> "THERE ARE MANY NURSES AND DOCTORS INTERACTING WITH AR APPLICATIONS EVERY DAY TO IMPROVE PATIENT EDUCATION AND OUTCOMES"

Today, surgeons use several techniques to visualise the area on which they are to operate, but augmented reality, which can project three dimensional representations of the patient's anatomy into the surgeon's field of view, is likely to improve accuracy and outcomes for patients.

A practical application of augmented reality which is in use today is vein visualisation. Many patients are uncomfortable with being injected or having blood taken, the experience is much worse when it's difficult to find a vein and the patient has to be "stuck" several times.

AccuVein for example, which is in use in hospitals today, can project a map of a patient's veins onto their skin, making it easier for healthcare workers to find the vein first time.

CableLabs, the cable and broadband industry research organisation, is at the forefront of research

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into applications of augmented reality. Their vision of the future of AR in the healthcare field — The Near Future, A Better Place — provides a fascinating insight into the way advances in network technology and augmented reality will radically change the quality of life for seniors and others who depend on the healthcare industry.

Although augmented reality is used every day by healthcare workers across the US, there is a way to go before the vision that's presented by CableLabs for example becomes a reality. That means there is enormous opportunity for businesses that understand augmented reality and have the vision to create innovative new AR products and applications.

KEY POINTS

- ✓ Augmented reality is used in healthcare facilities across the world today, for applications that include vein visualisation, surgical visualisation and education.
- ✓ Recent hardware and software advances have reduced the cost of augmented reality while significantly improving the experience for users and developers.
- ✓ Forward-thinking healthcare providers are investigating the potential benefits of AR to their customers and their business.
- ✓ We're in the early days of AR in healthcare, but the future will bring significant advances to the education of patients and healthcare professionals, communication, and patient outcomes.

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