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Digital technologies for forward-thinking manufacturing and engineering businesses

Supporting NAAME members

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Rapid technological advancements in artificial intelligence as well as immersive innovations are changing the face of life as we know it. The ability to learn from vast swathes of data, then predict likely outcomes or requirements is nothing short of a game changer for every industry, on every single level.

Based in the heart of Suffolk, Orbital are one of a handful of businesses in the region who are leading within the realms of data science and enhanced learning using immersive technologies.

We address challenges with cutting edge artificial intelligence, machine learning and virtual and augmented reality experiences for the benefit of reducing costs whilst enhancing outcomes, whatever they may be.

FUTURE 50

TECH EAST

Artificial Intelligence

Often deemed the *next industrial revolution*, AI is changing the face of industries on every granular level. Essentially an intelligent algorithm, AI allows companies to make rapid, data-driven decisions, optimizing manufacturing processes, whilst minimizing operational costs, and enhancing the final customer experience. Essentially, AI is helping organisations operate more efficiently; from production planning, right through to the end marketing function.

Potential relevant use cases

Predictive maintenance allows companies to predict when machines need maintenance with great accuracy, instead of guessing or performing preventive maintenance. Predictive maintenance prevents unplanned downtime by using machine learning. Technologies such as sensors and advanced analytics embedded in manufacturing equipment enable predictive maintenance by responding to alerts and resolving machine issues.

Environmental impact

AI is transforming manufacturing by reducing, or even reversing, its environmental impact. AI can support the development of new eco-friendly materials and help optimize energy efficiency – Google already uses AI in this way in its data centres.

Prediction of failure modes

The way we observe objects and their flaws is often biased, leading to the potential for expensive decisions. However, when armed with vast amounts of data on product performance, AI can help identify and rectify potential issues early on within the product design lifecycle.

Other areas where AI can be used

Supply chain management, risk management, predictions on sales volume, product quality maintenance, prediction of recall issues. With the help of big data, AI can unlock insights that were previously unreachable.

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Virtual Reality

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Thanks to VR's ability to instantly transport us to new environments with full immersion, training is becoming a whole lot more cost effective, safe from immediate danger, and with clear signs of better retention of complex tasks and scenarios.

In fact, thanks to continued research and development of in VR software and hardware, kit is now highly affordable, offering exciting levels of realism, interaction and even binary feedback.

Space planning tool in VR

VR provides an opportunity to fully visualise production facilities or even retail layouts in 3D, and can help optimise valuable space before time-intensive re-ordering of heavy stock shelves takes place. By including the use of predictive analytics of customer movement data and high-selling items, you can re-structure your shop based on real world data.

Gamification

When gamification is combined with VR it can expand our capacity to recall information through incremental steps of improvement. The immersive qualities of VR make use of our core senses to fully stimulate our brains into engaging with a task. Bringing an element of an interactive challenge into the experience is proven to improve our cognitive abilities.

Safety in Failure

Failing a task presents itself as a fundamental learning opportunity. However, failing in high stake scenarios can often result in serious consequences. VR has the ability to provide a safe environment for all sectors and industries, at all levels of risk. This gives individuals a place to perfect technique and learn from mistakes. VR is hugely cost effective in this scenario, but more importantly, poses no risk to health.

Augmented Reality

AR gamifications help to cultivate a happy workforce by adapting work processes and training to include play. It creates positive behavioural change to boost productivity, employee engagement and increase learning retention. Studies show that about 95% of employees enjoy using gaming-inspired elements in their work and 72% of employees claim gamification inspires them to work harder*. Gamification leverages people's desire for achievement, competition, and mastery.

Training Simulation

By introducing augmented reality within training programmes, trainees can receive an unlimited amount of practical experience needed for the job, reducing the costs of man hours and facility space and yet still providing valuable training to give them confidence to carry out the work.

Remote Training and Assistance

By using Augmented Reality in your production and manufacturing pipelines, companies can harness the opportunity to visualise complex 3D systems and utilise immediate remote assistance within the organisation. Companies can provide valuable training support to staff whilst maintaining efficiency. Specialist help can be on hand immediately, even when that help is on the other side of the factory or in a factory on the other side of the country.

AR fast forward

Companies can enhance storage capacity and factory space planning by visualising future produce and current stock allocation.

*https://review42.com/resources/gamification-statistics

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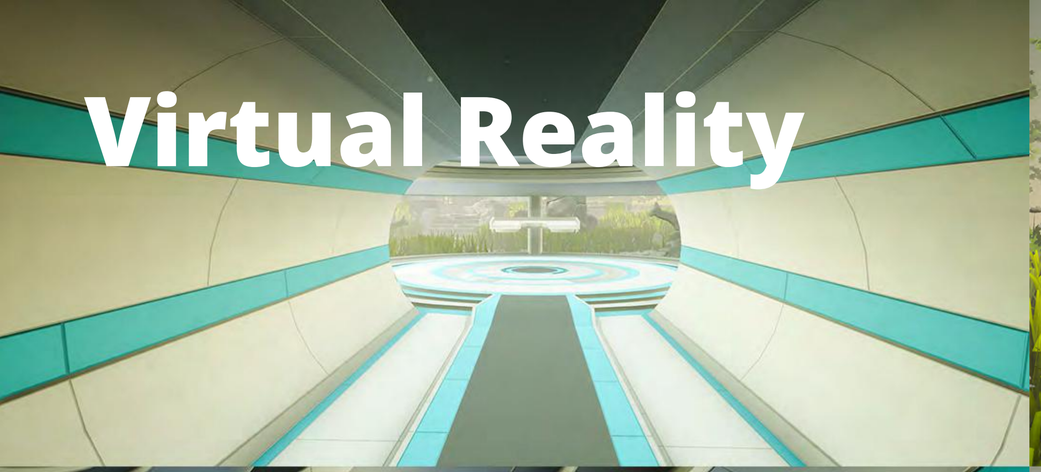
Virtual Reality





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Thank you!

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