



An Overview on Digital, Immersive VR, and AI Literacy

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(retired)**



- **Digital Literacy**
- **Immersive Literacy**
- **AI Fluency**
- **Virtual Reality Literacy**
- **Cognitive Literacy**
- **Digital Feedback**
- **Side-effects of Digital&AI Technologies**
- **Behavioral Adaptation**

- **Gradual negotiation with the technologies around us - Tom Chatfield**
- **Environmental Remanence (Real vs Virtual)**
 - Brain and games
 - Immersion environments
 - VR-based recovery
 - VR-training
- **Co-evolving with Technologies**
 - Uninformed (Ignorance) and Informed (hesitation)
 - Human minds are literally extended into aspects of the environment surrounding them
 - Metaverse is training the AI-based tools with virtual models
- **The power of Digital**
 - Practicing, learning, trusting
 - Mental upgrade and digital acceptance (through Digital Literacy)
- **AI-based Technologies**
 - (re)skilling
 - Trust (hallucinations, overfitting, underfitting)
 - Help vs. unintended consequences
 - The Oracle of Delphi syndrome
 - Verify & Accept
 - Summarization vs decision
 - Where can be useful: light and harmless duties
 - Where should not be used: critical systems, health care, without human-assistance
 - Education support
 - Preparing product documentations/manuals
 - Accurate health imaging (huge data)
 - Yours....



Why it's 'imperative' to start using AI

Experts predict how AI will transform your workday



TECHNOLOGY 51 mins ago

Google DeepMind CEO says human-level AI will be here in 'a few years'

AI fluency

<https://www.bbc.com/worklife/article/20230515-workplace-ai-how-artificial-intelligence-will-transform-the-workday>

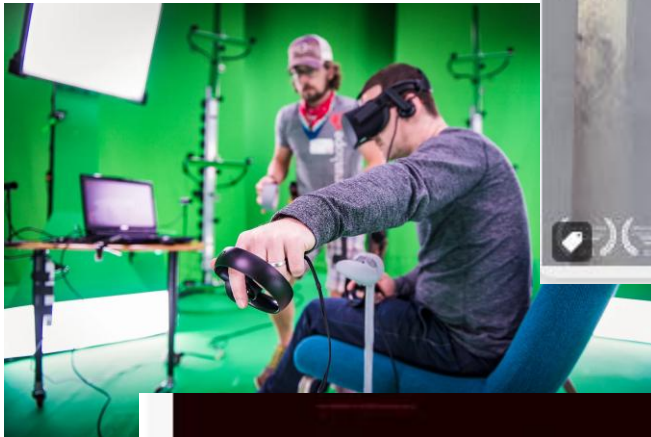
The rise of **Generative AI** in the workplace is inevitable.

Google DeepMind CEO says human-level AI will be here in 'a few years'

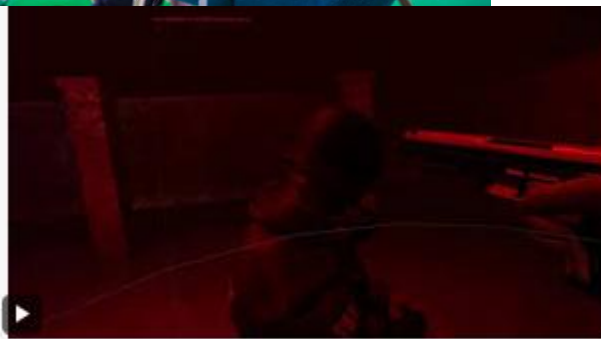
Demis Hassabis says we could be seeing AGIs 'within a decade'

<https://www.foxbusiness.com/technology/demis-hassabis-google-deepmind-ceo-says-human-level-ai-years>

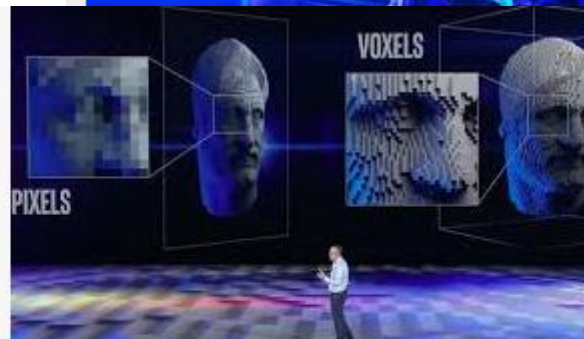
Volumetric VR is particularly suited for applications where realism and true-to-life interaction are critical, such as in detailed **training simulations, realistic historical recreations, or highly immersive storytelling.**



Alamy
Cyberspace virtual and augmented ...



Reddit
Running volumetric fog in VR at 90fps ...



Daily Mail
Intel introduces 'volumetric video' of ...



Realtra
Sequoia VR - REALTRA, Inc.



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Microsoft Edge has built-in security features such as Microsoft Defender SmartScreen and Password Monitor to help keep you and your loved ones protected and secure online.

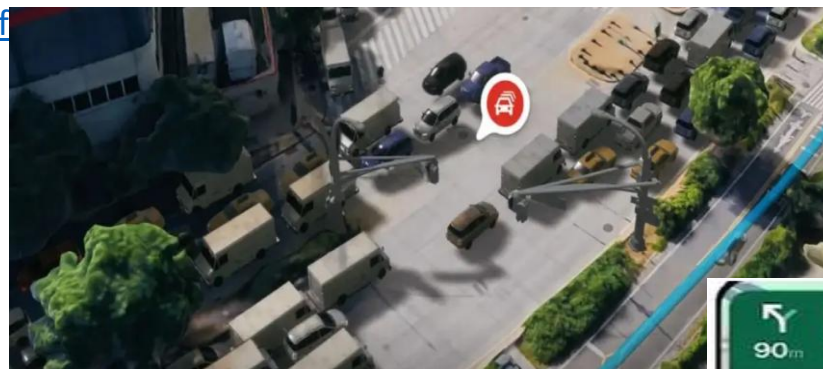
Website typo protection

Password Monitor

SmartScreen

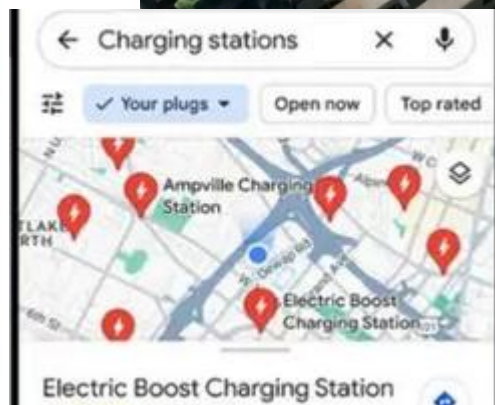


Google Maps gets a massive AI upgrade with 5 new features
The latest updates to Google Maps makes it smarter and more helpful
<https://www.foxnews.com/tech/google-maps-gets-massive-ai-upgrade-5-new-features>



3D with Immersive View

Google Maps getting major upgrade thanks to new trend taking world by storm



■ Immersive Literacy

■ Environmental Remanence (Real vs Virtual)

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- VR-training



■ Co-evolving with Technologies

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■ The power of Augmented Reality and Immersion (from acceptance to use)

- Virtual Reality Therapy, Cognitive Rehabilitation, Immersive Technology, Neurofeedback Systems, Sensory Integration, Personalized Cognitive Assistance, VR-enabled Cognitive Assessments, Augmented Cognition Mental
- Immersive Literacy (from **Preparedness** of its use to **Prevention** of its side effects)

■ Personalized Cognitive Assistance

■ Cognitive Rehabilitation

- Recovering from neurological disorders, brain injuries, or strokes

■ Elderly Cognitive Support

- Assist elderly individuals in maintaining or enhancing their cognitive vitality, through engaging and stimulating environments

■ Learning Disabilities

- Children and adults with learning disabilities can benefit from VR programs that adapt in real-time to their learning pace and style

■ Challenges

- Adaptive algorithms, Interactive Content, Feedback mechanisms
- Accessibility (Individuals in low-resource settings or with severe disabilities)
- Privacy and Ethics (Safeguarding the sensitive data collected from users)

Virtual Reality (VR) and Augmented Reality (AR) in Therapeutic Practices



Understanding Cognitive Rehabilitation



- **(Hidden) Side effects**
- **Spatial deskilling** (*individuals lose their ability to perform spatial tasks*)
 - **Causes:** *Over-Reliance on Virtual Guidance, Reduced Cognitive Mapping, Sensory Input Differences*)
 - **Implications**
 - **Everyday life:** Regular use of immersive technologies for navigation and spatial tasks could lead to diminished ability to navigate real-world spaces
 - **Professional Skills:** Danger for strong spatial awareness (e.g., pilots, architects, surgeons), reliance on VR training without corresponding real-world experiences
 - **Educational Settings:** Excessive use in education, especially for young children, there might be a risk of impacting the development of essential spatial reasoning and navigation skills
- **Real-Virtual Cognitive Mismatch** (*reduced transfer of skills and knowledge from virtual to real settings*)
 - **Perceptual Differences** (depth perception, peripheral vision, and tactile feedback)
 - **Spatial Awareness** (Virtual environments might not accurately replicate these feedback mechanisms from movement and navigation in real-world)
 - **Memory Formation** (Lack of multisensory cues that are present in real-world experiences: affects how memories are encoded and retrieved)
- **Immersion Dependency**
 - Essentially: lack of **social interactions** (nuances of face-to-face interactions, including non-verbal cues and emotional subtleties)
 - **Transition from real to immersive and vice-versa are brain-traumatizing and transition strategies are needed.**

■ Several ways

- **Sensory Disorientation**: The sensory input in VR and AR can be significantly different from the real world
- **Social Interaction Challenges**: Interacting with avatars or AI within virtual environments lacks many subtle cues of human interaction, such as body language, eye contact, and spontaneous emotional expressions
- **Cognitive overload**: Immersive technologies often streamline or alter cognitive processes, such as decision-making or problem-solving,...Returning to the complexities of real-world decision-making can feel overwhelming.

■ From Immersive to Real Environments

- **Sensory readaptation**: (Mismatched sensory cues – from a controlled experience to uncontrolled nature; Motion sickness and Vertigo - a visual illusion of movement which can be misaligned with the body's physical motion
- **Social Interactions**: Interaction cues – no body language or interpersonal distance, Isolation Effects - long periods in immersive environments vs. immediate nature of human contact can feel abrupt or invasive.
- **Cognitive overload**: Decision-making - Immersive environments can simplify decision-making processes or provide augmented decision support' Attention shifts - VR typically directs the user's attention, the real world's open-ended nature requires a broader focus

■ From Real to Immersive Environments

- **Sensory adjustments**: Overstimulation - immersion is very stimulating, Physical Discomfort - Wearing VR headsets and using controllers can cause physical discomfort
- **Cognitive Dissonance**- Reality-Virtuality Confusion, **Psychological impact** - Escapism

■ Developmental Dyslexia and Nerve Noise

- https://www.thinkmind.org/library/BRAININFO/BRAININFO_2025/braininfo_2025_2_30_90046.html

■ Low frequency stimuli [4.5, 40]

- **Parietal occipital regions:**
- **Dyslexia::** deficit in syllables processing which is associated with the Theta band (4-7 Hz)
- **Brain Models:** brain models that captures large-scale brain activity

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