

A decorative graphic at the top of the page consisting of several overlapping, curved bands of light in shades of orange, red, yellow, and green, creating a spectral effect.

SPECTRE

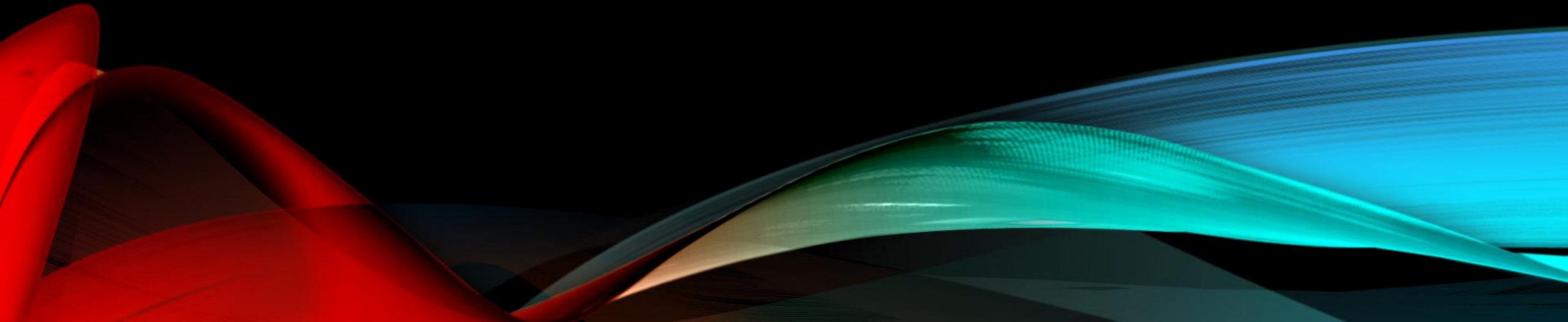
CREATING YOUR VISION

FUTURE TECHNOLOGIES THAT WILL CHANGE THE WORLD



VIRTUAL REALITY (VR)

Fully artificial environment or 360 real life photos and videos

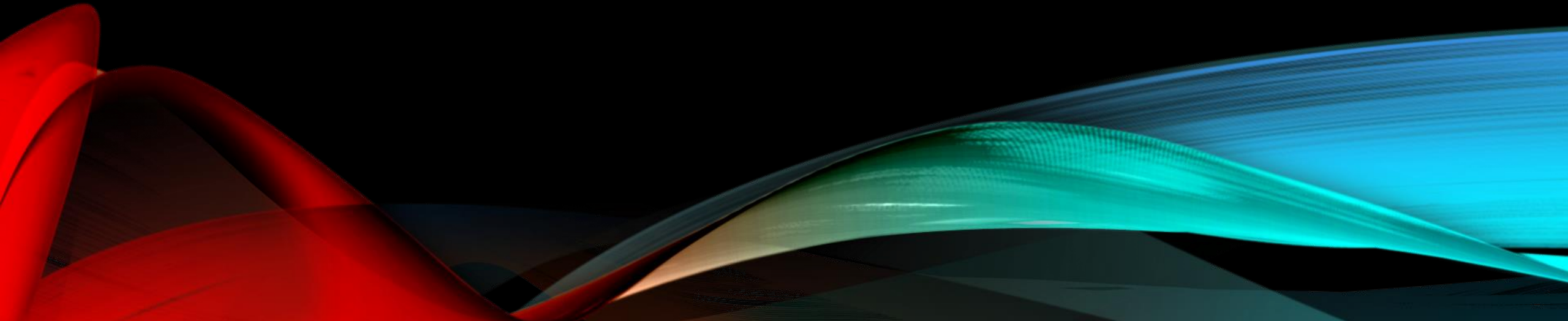


VIRTUAL REALITY (VR) IMMERSSES USERS IN A FULLY ARTIFICIAL DIGITAL ENVIRONMENT

- This technology immerses users in a **completely virtual environment** that is generated by a computer. The most advanced VR experiences even provide freedom of movement – users can move in a digital environment and hear sounds. Moreover, special hand controllers can be used to enhance VR experiences.
- You need to wear a special VR headset to experience virtual reality. Most VR headsets are connected to a computer (Oculus Rift) or a gaming console (PlayStation VR) but there are standalone devices (Oculus GO is among the most popular) as well. Standalone VR headsets can also work in combination with smartphones – you insert a smartphone, wear a headset, and immerse in the virtual reality.

AUGMENTED REALITY (AR)

The real world enhanced with digital objects

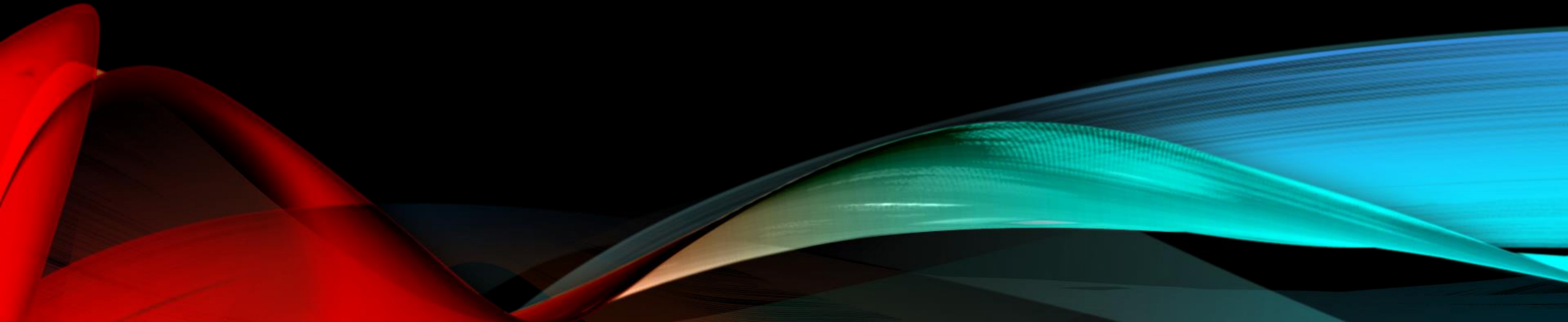


AUGMENTED REALITY (AR) OVERLAYS VIRTUAL OBJECTS ON THE REAL-WORLD ENVIRONMENT

- *In **augmented reality**, users see and interact with the real world while digital content is added to it. If this sounds unclear think of Pokemon Go – millions of people all over the world have been rushing with their smartphones in search for small virtual creatures. That's the most vivid example of augmented reality.*
- *Augmented reality module activation methods : **object & scene recognition, image recognition, location based services etc..***
- *If you own a smartphone, you can easily download an AR app and try this technology. There's a different way to experience augmented reality, though – with special AR headsets, such as Google Glass, where digital content is displayed on a tiny screen in front of a user's eye.*

MIXED REALITY (MR)

Interact with both the real world and virtual environment

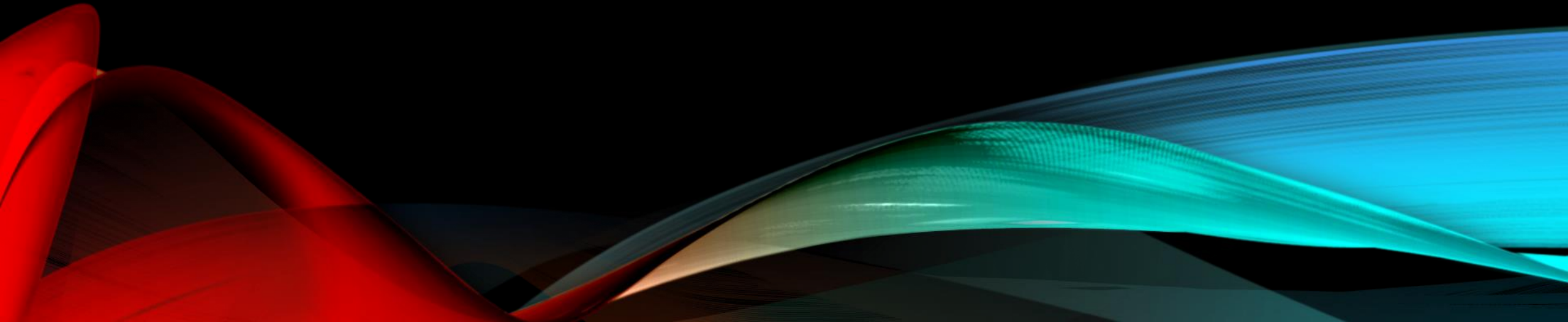


MIXED REALITY (MR) NOT JUST OVERLAYS BUT ANCHORS VIRTUAL OBJECTS TO THE REAL WORLD

- **Mixed reality that starts with the real world** – virtual objects are not just overlaid on the real world but can interact with it. In this case, a user remains in the real-world environment while digital content is added to it; moreover, a user can interact with virtual objects. This form of mixed reality can be considered an advanced form of AR.
- **Mixed reality that starts with the virtual world** – the digital environment is anchored to and replaces the real world. In this case, a user is fully immersed in the virtual environment while the real world is blocked out. Sounds like virtual reality, right? In fact it does, but the digital objects overlap the real ones whereas in conventional VR the virtual environment isn't connected to the real world around a user. To experience this form of mixed reality, you can wear Windows mixed reality headsets.

5G WILL UNLOCK THE FULL POTENTIAL OF VR, AR AND MR

A reliable 5G network will help VR, AR and MR applications evolve to the next level



5G WILL IMPACT AUGMENTED, MIXED AND VIRTUAL REALITY USE

- **5G enhanced mobile broadband** is required to take VR/AR/MR experiences to the next level.
- **5G Reduces Latency and Increases Traffic Capacity** – Low wireless latency is critical for immersion. The air interface is one component of the overall end-to-end latency. With 5G we anticipate to have 10X improvement in throughput, a 10X decrease in latency, a 100X improvement in traffic capacity, and a 100X improvement in network efficiency.
- **5G Will Help to „Cut the Cord”** - 5G will be an indispensable conduit for streaming this kind of content thanks to its bigger bandwidth and mobility advantages.



**Thank you
and
WELCOME TO OUR WORLD**

FUTURE TECHNOLOGIES THAT WILL CHANGE THE WORLD