



The next user interface is here

Redefining human interaction

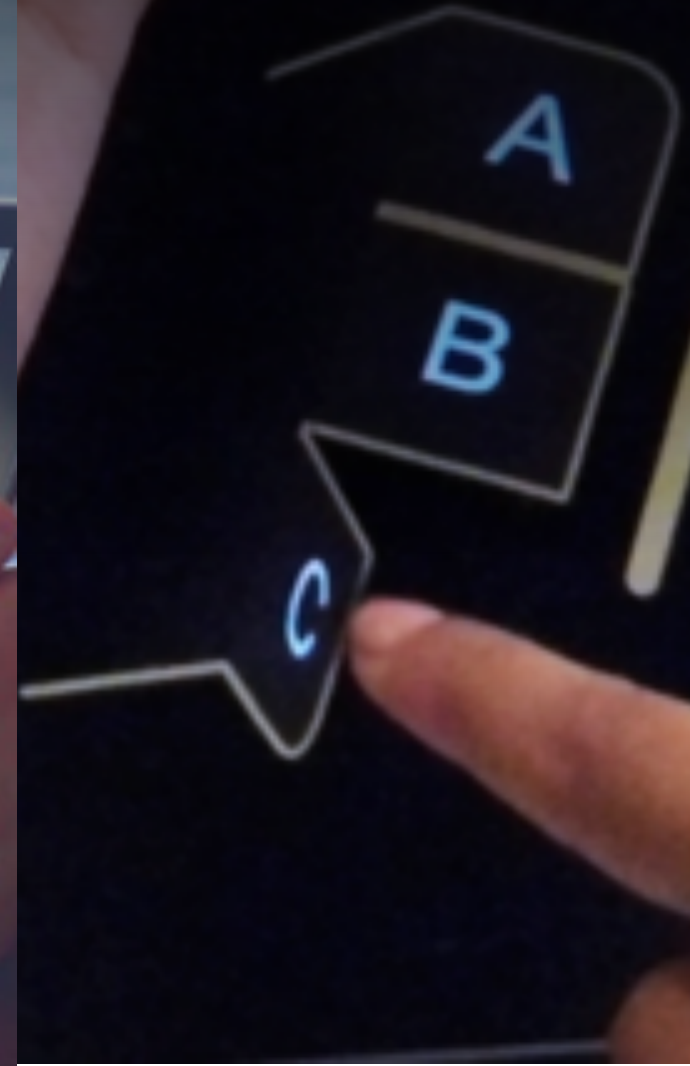
Company Presentation | March 2020

Interaction is shifting to 3D and mid-air gestures

From keyboard and mouse...

...to touchscreen...

... to mixed reality.

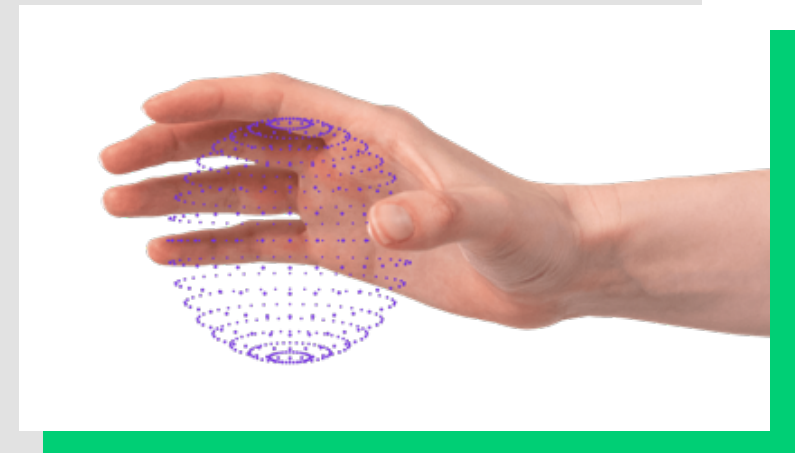




Ultraleap is at the centre of this user interface revolution

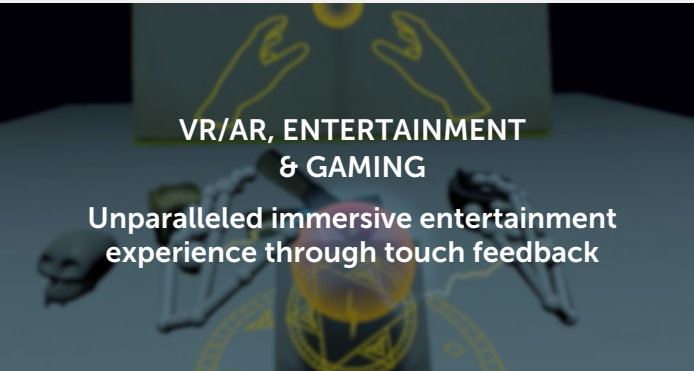
Ultraleap delivers the only complete 3D user interface, with proven applications already adopted by global technology leaders

- The world's most powerful **hand tracking** hardware and software, with imperceptible latency
- The world's only **mid-air haptics**. "Virtual touch" technology that uses ultrasound to create tactile sensations in mid-air.





Transformative applications across vast addressable markets

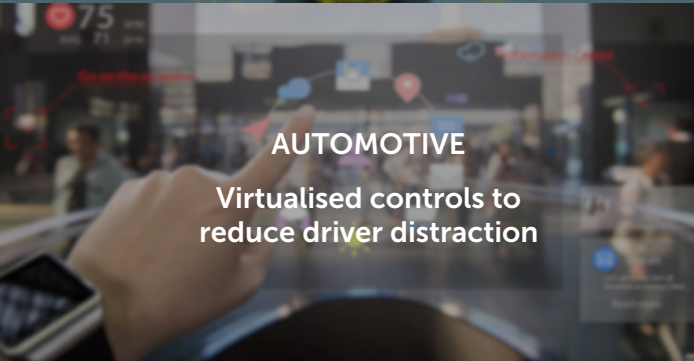


VR/AR, ENTERTAINMENT & GAMING

Unparalleled immersive entertainment experience through touch feedback

6m dedicated VR headsets will be shipped in 2019 - expected to grow to **>50m in 2023**

Around **390m personal computing devices** expected to be shipped in 2023



AUTOMOTIVE

Virtualised controls to reduce driver distraction

97m vehicles were shipped in 2018, rising to **>100m in 2022**

>85% of automotive displays have touchscreens



MARKETING & ADVERTISING

Support new 3D, interactive and virtual customer touchpoints, enhancing brand recall and dwell time

Signage displays installed globally will reach **>120m in 2025**

Less than 1% of these have any form of interactivity today



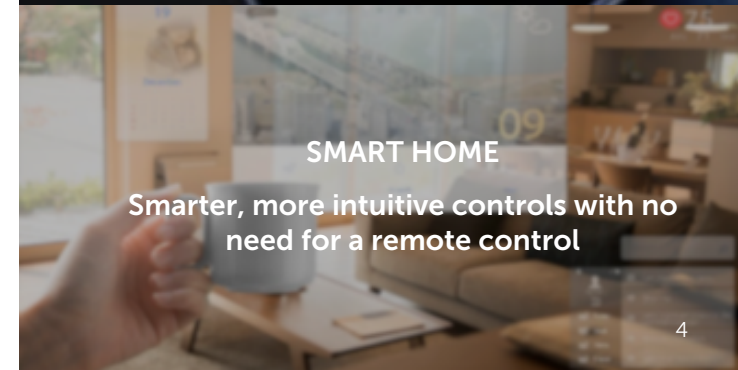
WORKSPACE

Unique technology to explore and manipulate virtual objects, enabling higher productivity and improved user experience



INDUSTRIAL, MEDICAL & PUBLIC INTERFACES

Ultra-clean, more secure interface with reduced maintenance needs and easier use for visual and hearing impaired



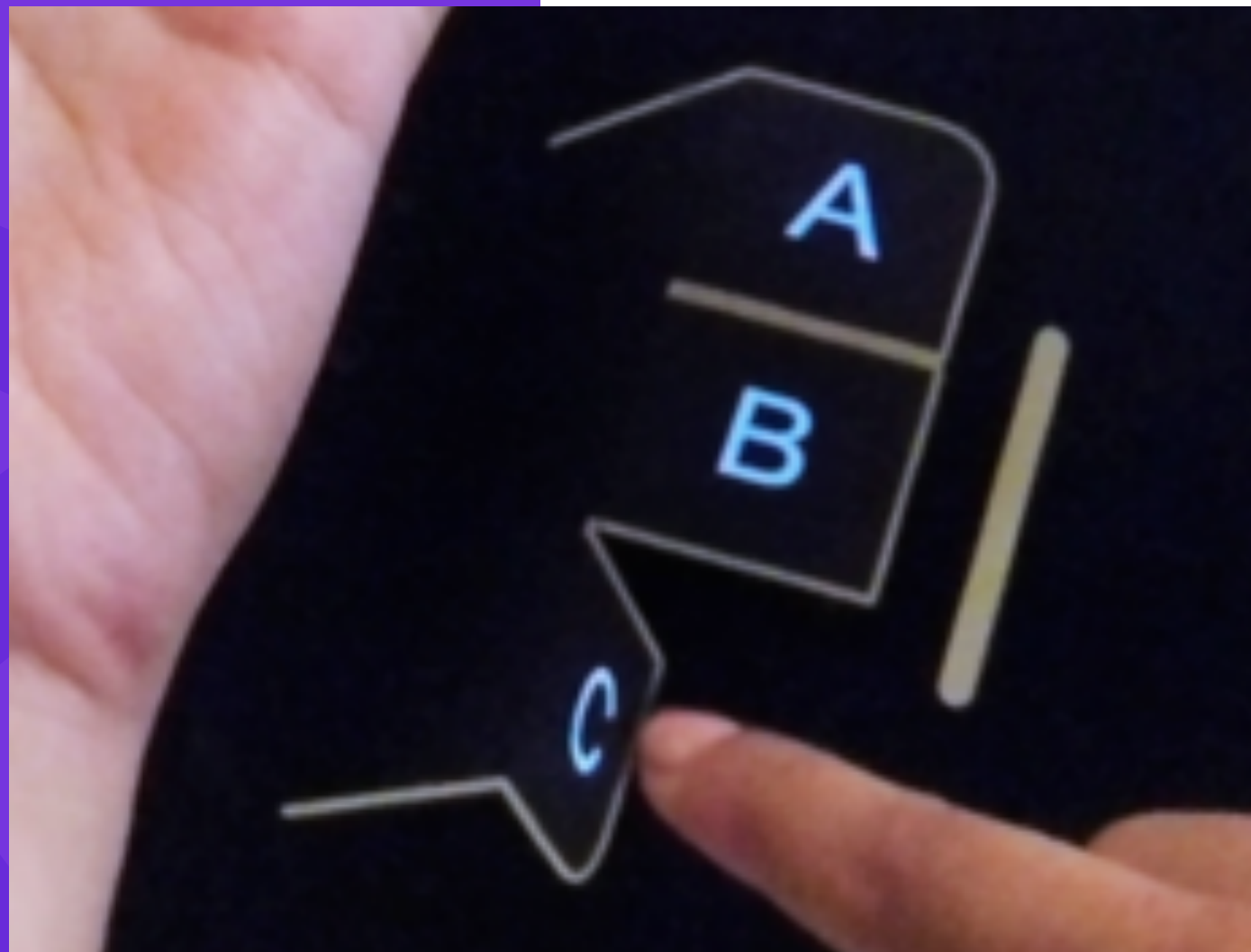
SMART HOME

Smarter, more intuitive controls with no need for a remote control



The worlds most powerful hand tracking solution

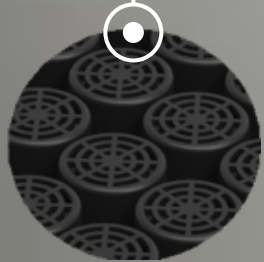
- World leaders in computer vision – 10 years and 5 generations of innovative software.
- The industry's most robust hand tracking solution, powered by artificial intelligence.
- Community of 350,000 developers worldwide.
- Powerful Interaction Engine provides pre-built tools for hand/object manipulation.



The only mid-air haptic technology

1 An array of ultrasound speakers transmits ultrasound waves.

2 The speakers are triggered one after the other with very specific time differences.



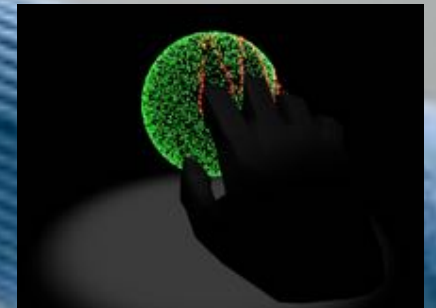
3 Because of the time differences, the ultrasound waves end up arriving at the same point at the same time. Where this point is positioned in 3D space is programmable in real time

4

The combined force of the ultrasound waves generates enough force to create a pressure point on the surface of your skin..

5

Pressure points can be moved around very quickly to create animated effects, or to sculpt lines or shapes.





Ultraleap's natural human-machine interaction technologies have clear, real world advantages

Gaming/Industrial/ Educational AR / VR experiences



<20ms

hand tracking
latency¹

Significantly reduced latency to deliver accurate hand position

- Integration with AR / VR headsets to complete fully immersive experience (<20ms is the limit at which lag is imperceptible to the human eye)
- Spatial (3D) user interface creates more natural and intuitive environments for professional workflows

Automotive Infotainment controls



>25%

Reduction in
glance time²

Average 25% decrease in "eyes off the road" time compared to touchscreen

- Improved accuracy and reduced 'eyes off the road'
- Potential to turn any vehicle space into a tactile user interface

Marketing / Advertising Digital signage



4.8x

Ad recall³

Average increase in ad recall compared to static digital signage

- Transforming 2D displays into 3D interactions
- Immersive brand experiences to enhance user engagement, dwell time and brand loyalty

Customers & partners

DELL

NIKE

BOSCH

MIT Massachusetts Institute of Technology

HARMAN

Microsoft HoloLens

IMMERSION
imagination, interaction...

IGT





The power of natural interaction. Shaped to your needs.

Software and technology licensing

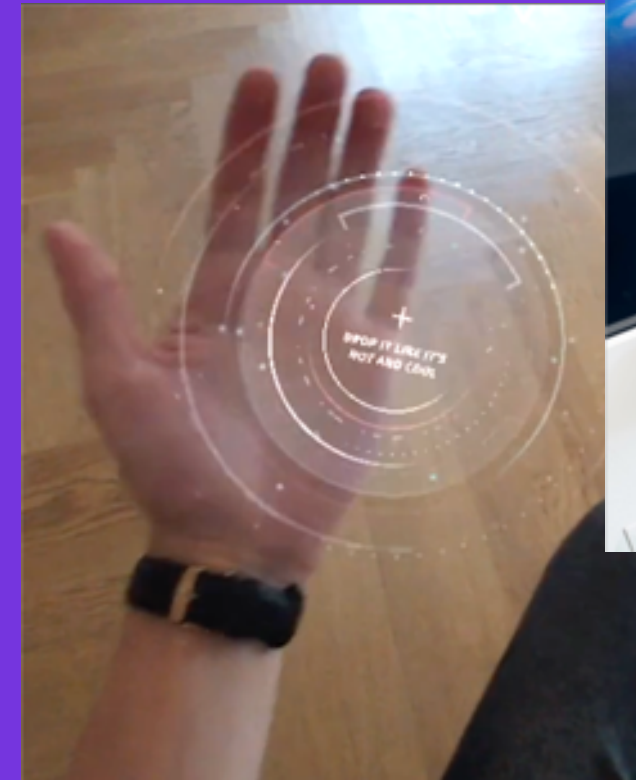
World-leading software for hand tracking and mid-air haptics, including SDKs/APIs and detailed documentation

Hardware – Hardware modules and reference designs for hand tracking and mid-air haptics solutions.

Use-case development – Exploration, development and testing of use-cases for your application

Design Tools and 3D interaction design – Access to our design and developer tools as well as in-house UX expertise in the unique challenges and opportunities of spatial interaction.

Custom integration support – Support from our engineering team in practical integration and custom hardware design.



Thank you



ultraleap.com



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