



Windows 10



## Higher education today is inconceivable without augmented reality and virtual reality technologies

Augmented reality (AR) and virtual reality (VR) are rapidly penetrating all areas of our lives. More and more institutions of higher education are adding AR and VR courses to their offerings. With Dell EMC, they can take advantage of solutions and services that are proven to be effective in enabling powerful teaching and learning that fully explore the horizons of AR and VR.

<sup>1</sup><https://www.digi-capital.com/news/2017/01/after-mixed-year-mobile-ar-to-drive-108-billion-vr-ar-market-by-2021/#.Vw8iUp9KiUk>

<sup>2</sup><https://www.forbes.com/sites/delltechnologies/2017/11/27/what-huge-growth-in-augmented-reality-could-mean-for-business/#1131b241b4c4>

<sup>3</sup><https://www.digitalbodies.net/virtual-reality/ar-vr-market-50-annual-growth-rate-for-the-next-five-years/>

<sup>4</sup><https://www.seaberyat.com/augmented-reality-stats/>

<sup>5</sup><https://www.burning-glass.com/blog/augmented-reality-virtual-reality-jobs-become-real/>

<sup>6</sup><https://www.newgenapps.com/blog/6-vr-and-ar-statistics-shaping-the-future-of-augmented-reality-with-data>

<sup>7</sup><https://www.virtualreality-news.net/news/2017/aug/02/httpswwwupworkcom/>

<sup>8</sup><https://www.forbes.com/sites/delltechnologies/2017/10/17/more-than-half-of-colleges-will-use-virtual-reality-to-enhance-education-by-2021/#5c2e40f86c48>

<sup>9</sup><https://www.forbes.com/sites/forbestechcouncil/2018/01/16/virtual-and-augmented-reality-in-college-classrooms-more-hype-than-help/#444154efd15a>

<sup>10</sup><https://edtechmagazine.com/higher/article/2017/07/medical-schools-get-virtual-vr-and-ar-trainings-0>



### The market for AR and VR is growing fast

- Expected size of the combined AR and VR market by 2021: \$108 billion
  - AR share: \$83 billion
  - VR share: \$25 billion
- Global, expected spending on products and services related to AR and VR by 2012: \$214 billion
- Compounded annual growth rate for the AR and VR market through 2022: 52.5%
- Americans engaging with some form of AR at least monthly in 2017: 40 million
  - Increase year-on-year: 30.2%



### Companies urgently need AR and VR skills, and workers are looking to acquire them

- Job postings requiring AR and VR skills by the end of September 2017 in the U.S.: 10,000
  - Increase over 2010: 256%
- AR startups listed at the beginning of 2018: 543
- Growth in VR skills among U.S. freelancers in 2017, compared to 2016: More than 300%



### Universities are offering AR and VR courses to fill the skills gap.

- Texas A&M University has made AR and VR part of the educational culture and provides students and faculty with extensive resources for VR exploration and creation.
- University of Arkansas in Little Rock lets students, faculty and researchers use VR and extended reality (XR) in data analytics and visualization as well as software architecture and development.



### AR and VR already play a key role in higher education

- Higher education institutions estimated to be using VR in the learning environment by 2021: 60%
- Expected investment in AR and VR educational applications by 2025: \$700 million
- Retention rate of student knowledge:
  - In traditional lectures: 5%
  - Possible with AR- and VR-enhanced experiential learning: up to 90%



### Dell EMC solutions and expertise bring AR and VR to life in higher education:

- Dell Precision 7000 Series mobile workstations with Intel® Core™ i7 quad-core CPUs and NVIDIA Quadro graphics cards
- Dell Precision tower workstations with Intel® Xeon® and Core™ processors, NVIDIA NVS, NVIDIA Quadro and AMD Radeon Pro graphics, and SATA and solid-state drives.
- Dell Precision rack workstations with Intel® Xeon® processors with up to 22 cores per processor, NVIDIA Quadro and AMD Radeon Pro graphics, optional 12 Gb/s RAID controllers and SSD storage
- Dell EMC servers, storage and networking solutions
- Dell EMC services for designing, deploying, managing, supporting and funding AR and VR solutions
- Dell reference architectures for effective AR and VR applications