Creative production's new workforce is coming

Texas A&M students and faculty are pushing virtual reality's creative limits, using Dell Precision mobile workstations to save rendering time and demo their work at conferences and shows

TEXAS A&M UNIVERSITY

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Business needs

Texas A&M students and faculty are deploying virtual reality into non-gaming applications and artistic creations using some of the most powerful tools available to support their creativity. They also want to maximize the studio space necessary to achieve these goals and to gain mobility to take their work to conferences, trade shows and other public venues.

Solutions at a glance

- Dell Precision workstations
  - Dell Precision 7720 mobile workstation

Business results

- Facilitates virtual-reality research
- Saves hours of rendering time
- Enriches creativity via rapid prototyping
- Provides reliable, mobile demonstrations
- Maximizes limited studio space

"Combining tools and techniques in novel ways helps students learn to tackle hairy design and research problems, which the Dell 7720 mobile workstations enable them to do."

Tim McLaughlin
Department of Visualization,
Texas A&M University

By 2022, the virtual-reality market is expected to be roughly 10 times larger than its current size.[1] As head of Texas A&M University's Department of Visualization, Tim McLaughlin wants to ensure that graduates of its Masters of Visualization Programs are well prepared for careers that can benefit from this growth as well as influence it. According to McLaughlin, a former creature supervisor at Industrial Light & Magic, it is telling that the Department of Visualization is part of the university's College of Architecture and not aligned with Computer Science or Fine Arts as it typically is at other universities. "We are one of the top destinations worldwide for students and faculty committed to merging art and design with science and technology," he says. "We tend to attract candidates who seek an environment where these disciplines are fused every day."

"We're able to save valuable lab space with the 7720 laptop form factor, but it's every bit as powerful as tower models."

Ann McNamara
Associate Head, Department of Visualization, Texas A&M University

Dedicated VR resources

One place where that happens is the department's Visualization Immersive Reality Lab (VIRL). It offers students and faculty dedicated VR resources — with studio space, hardware, software, peripherals and support staff — to support creative problem solving and transformative learning. "We think of the lab as a collection of sandboxes where the physical space and the variety of tools available leave the imagination open to decide on the right approach," McLaughlin says.

Because VR solutions require hardware and peripherals, including workstations, flat-panel and head-mounted displays (HMDs), the space in the VIRL is limited, especially when several students or faculty are working on their projects at the same time. "Demand for lab time is a huge issue for us, especially during the school year," says Ann McNamara, Ph.D., the associate department head who coordinates graduate programs.

Of course, when establishing VIRL, the department needed powerful workstation technology for the compute and graphics processing required by such applications as Autodesk Maya, Unity 3D Pro and SteamVR, which drive the HTC Vive HMDs. To meet this requirement, the department acquired 20 Dell Precision 7720 mobile workstations with 17-inch displays.

Industry's first ready-for-VR mobile workstations

Known as the industry's first ready-for-VR mobile workstations, the department's Dell Precision 7720 mobile workstations run Windows 10 Pro and are powered by Intel® Core™ i7 quad-core CPUs and Nvidia Quadro graphics cards. They feature seven ports, including a 40 Gbps Thunderbolt 3 USB-C port, an HDMI port and four USB 3.0 ports, all of which are needed to support VR production's heavy use of peripherals.

Also aboard is an SD card reader supporting cards with up to 2TB of storage, which is an important feature because VIRL users must save their work to the cloud or to this form of portable storage. "Our checkout system for the

lab's Dell Precision workstations makes them a shared resource, so users need this feature," McNamara says. "What's more, we're able to save valuable lab space with the 7720 laptop form factor, but it's every bit as powerful as our current tower models."

What matters most is how students and faculty are using the Dell Precision 7720 mobile workstations to produce their projects. In the lab's most recent summer, for example, McNamara facilitated a 10-week, graduate-level course focused on emulating a real-world production environment.

"This year we worked with VR," she says. "Students collaborated in small teams to create immersive experiences, with training led by a team of mentors from Industrial Light & Magic's ILMxLAB. The 7720's mobility was ideal for all the collaboration required while moving from classroom to studio and back again."

Enhanced creativity

Another important benefit is how users can save hours of rendering time by using the Dell technology and various applications, enabling them to explore new creative angles faster and more easily. "Students and faculty can afford to try different VR approaches because their changes render so quickly using the Dell Precision 7720s," McNamara says. "This enhances their creativity and really helps them extend the boundaries of what's possible with VR."
For Texas A&M VR creators attending conferences, trade shows and other external venues, the portability and reliability of the mobile workstations provide them with a dependable platform to demonstrate their VR applications and content when traveling.

"When our people present VR projects at international conferences such as SIGGRAPH Asia and elsewhere, they know they can rely on the Dell Precision 7720 mobile workstations they carry with them," says McLaughlin. "It's so much easier than packing a tower model for a trip halfway around the world or even across town. And it ensures the demo goes perfectly compared to counting on an available workstation at your destination."

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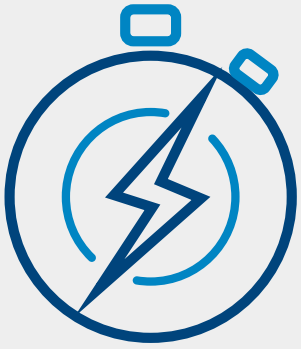

save hours
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Spellbinding performance

Another example involves faculty member Jinsil Hwaryoung Seo, Ph.D. and is called Upwell, an artistic work done in collaboration with Texas A&M's dance department. "It's a spellbinding, underwater virtual-reality environment in which users don conventional VR head-mounted displays and wearable controllers to navigate through bio-luminescent particles," Seo says. "The 7720s enable us to take it on the road and share it in ways we couldn't with fixed workstations that are just too bulky."

When students enter the working world of VR production, McLaughlin wants them ready to tackle the myriad 3D design issues that VR projects can raise. "Combining tools and techniques in novel ways helps students learn to tackle hairy design and research problems, which the Dell Precision 7720 mobile workstations enable them to do," he says. "By the time they graduate, technology will have evolved that much more, but we're sure that Dell will stay ahead of the curve and give them the tools they need."

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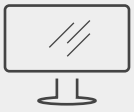

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[1] "Virtual Reality (VR) Market by Hardware and Software for (Consumer, Commercial, Enterprise, Medical, Aerospace and Defense, Automotive, Energy and Others). Global Industry Analysis, Size, Share, Growth, Trends, and Forecast, 2016–2022," by Zion Market Research. February 2018.