

AAMC Building Better Curriculum Webinar Series

We will begin our presentation shortly.

Topic: Teaching & Learning Extended Reality Technology

Nhora Lucía Serrano, PhD

Associate Director for Digital Learning & Research, Hamilton College

Ben Salzman

Instructional Designer, VR/AR Technology Specialist, Hamilton College

Doug Higgins

Instructional Designer, Hamilton College

PLEASE NOTE: All users will be muted during the webinar but should use the chat feature to send questions to Angela Blood during the presentation. We will try to answer as many questions as possible at the end of the presentation.



Tomorrow's Doctors, Tomorrow's Cures®

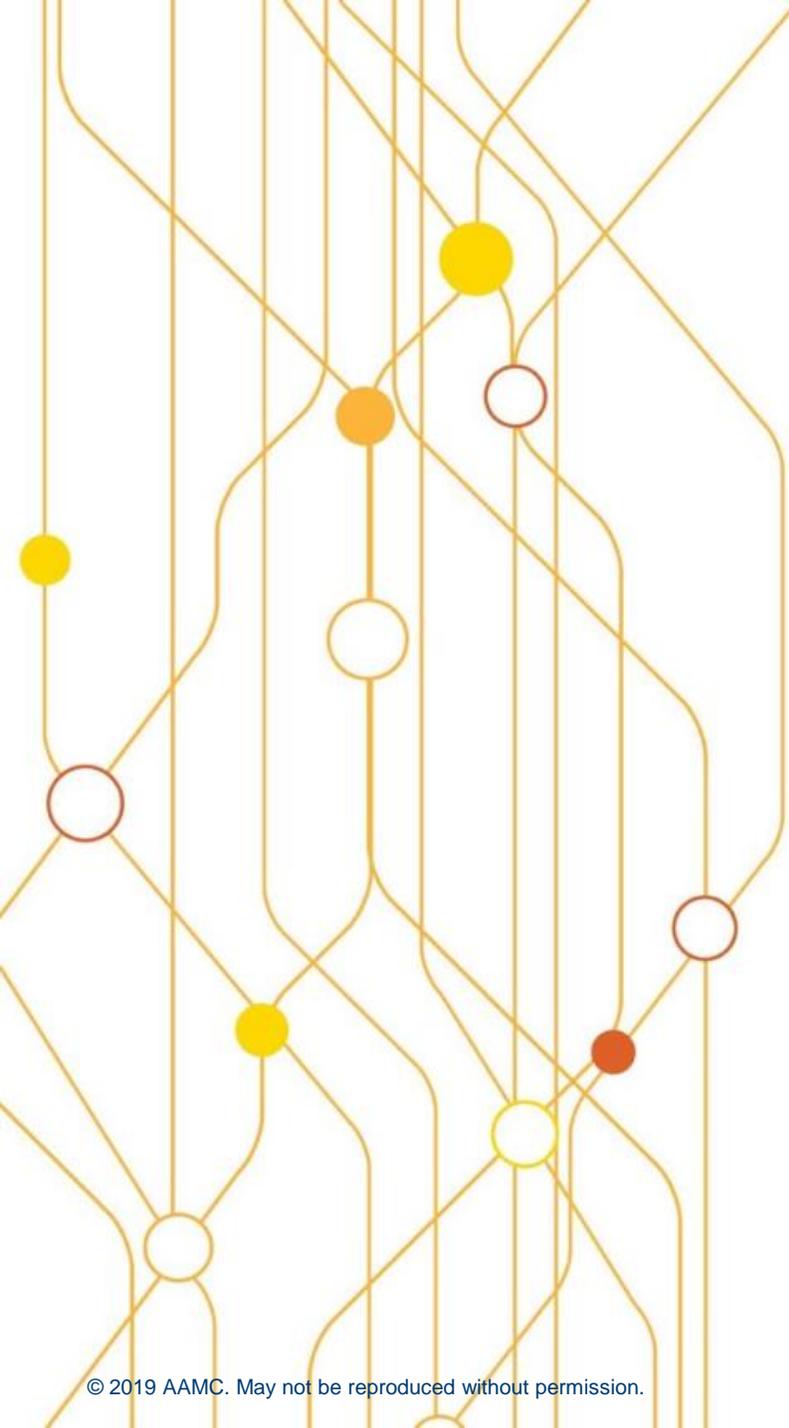
Learn

Serve

Lead



Association of
American Medical Colleges



BUILDING BETTER CURRICULUM **WEBINAR**

Down the Rabbit Holes

Teaching & Learning Extended Reality Technologies



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Hamilton College

[Research & Instructional Design Team](#)



Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>

Hamilton

STUDENTS

- Enrollment: 1,850 (53% female, 47% male)
- Diversity: Students hail from 45 states and 46 countries; 32% of the student body consists of U.S. students of color (25.4%) and international citizens (6.6%).
- Residential Life: 100% of students live in 28 residence halls.



Dream a Little Dream: Virtual Reality & Literature

Course Design, Learning Objectives, Assessment, and New Role as Associate Director

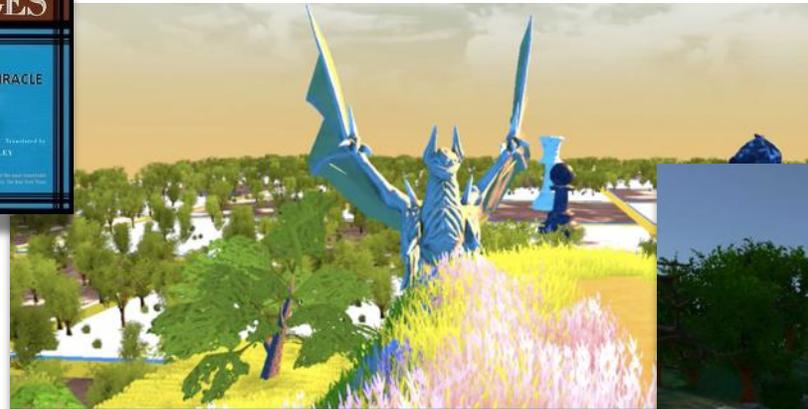
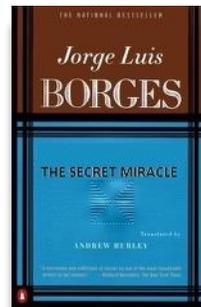
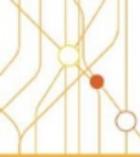


Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>



Case Studies

Examples of XR Technologies Transforming Teaching and Learning



Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>

Content Generation

Pre-existing applications, Internal & External Development Team Examples

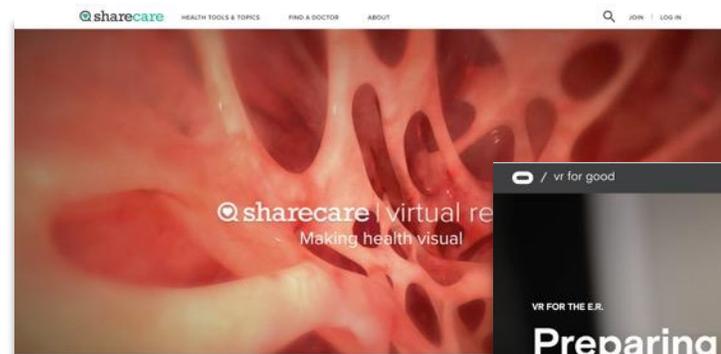
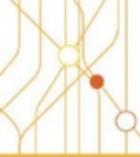


Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/> Oculus Website <https://www.oculus.com/> Sharecare VR, "Homepage", <https://www.sharecare.com/pages/vr>



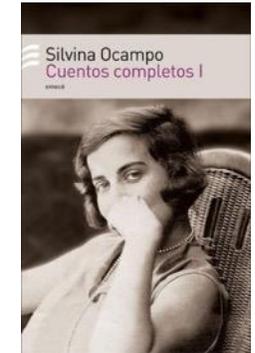
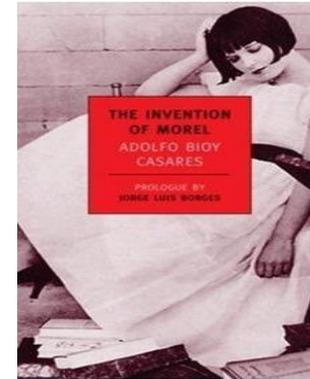
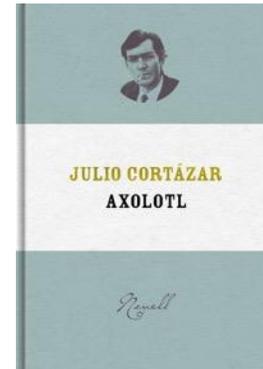
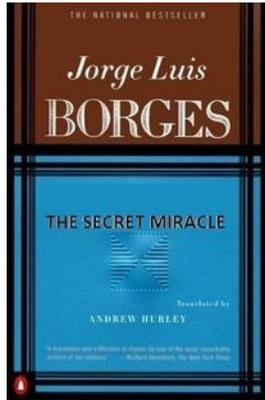
Equipment Recommendations

Budgeting, Portability and Implementation



Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>, HP VR Backpack <https://www8.hp.com/us/en/vr/vr-backpack.html>

Dream a Little Dream: Virtual Reality & Literature



- Idea & Digital Citizenship
- Course Design
- Assignments & Student Learning Outcomes
- Reflection & Next Steps in Digital & Visual Fluency



Idea & Digital Citizenship ~ Virtual Reality Meets Literature

- *The Wonderful Wizard of Oz, Through the Looking-Glass, Neil Gaiman's Sandman, and Tron*
- Interdisciplinary Approach: Global & Comparative Selection, Variety of Genres
- Visual Studies & Digital Humanities Methodology
- Continued Collaboration with Research & Instructional Design Team

Creation, Design, and Contribution:

“Digital Citizenship is a concept which helps teachers and technology leaders understand what students should know to use technology appropriately... it is a way to prepare students for a society full of technology.”

~Mike Ribble, “Digital Citizenship: Using Technology Appropriately” (2011)



Course Design: Overall Course & Pedagogy

Considered still a new emerging field of study and research, Digital Humanities is the intersection of digital technologies and the disciplines of humanities in which students learn to be producers not just consumers of technology.

Course Design centered on an interdisciplinary and intermedia approach where students explored the intersection of dreams and realities (virtual, simulated, imagined, hyperreal, etc.) inside the literary text from digital humanities and cross-cultural perspectives.

- One semester in advance planning: rhythm & pacing for assignments & workshops
- Many meetings in advance (e.g. workshops, space, etc.)
- Balance: Literature and Comp Sci students would both be on equal playing field (e.g. Inclusive Teaching Methodologies)
- Devising Projects for collaborative work to mirror course collaboration
- Trying out the Technology



Assignments & Student Learning Objectives: Digital & Visual Fluency

- **Better understand and critique images that saturate our waking, daily life.**
- Ability to interpret, recognize, appreciate and understand information passed through visual objects, especially those made by digital 'hand.'
- **Use viewing skills and strategies to interpret visual media.**
- Engagement with a wide range of print and non-print materials in the library, including Special Collections and Research & Instructional Design, that facilitate this engagement.
- **Help students to think through, think about, and think with images (with)in books, digital pictures, and other possible visual ephemera.**
 - <http://hamiltoncs.org/lit232/>



Reflection & Next Steps in Digital & Visual Fluency

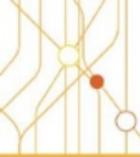
- **Students Exceeded our Expectations: Group Roles worked**
- More built-in time for outside meetings and consultation to facilitate further Engagement

- **Showcase on Last Day**
- More Workshops on how to “Screen grab” for StoryMaps and “Save/Record their project to take Home”

- **Article in Chronicle of Higher Education**
- Repository of Student Feedback and Quotes outside of Faculty Evaluations

- **Let the Course Breathe, Team Reflection, and Design New Ones**
- Take out Movie Reviews and replace for Close Passage Analysis; “Suffrage and Comics” and “MakerSpaces and Literature”

- **In my new role as Associate Director for Digital Learning & Research, help faculty to design and create new opportunities for students at large**



Case Studies

Examples of XR Technologies Transforming Teaching and Learning

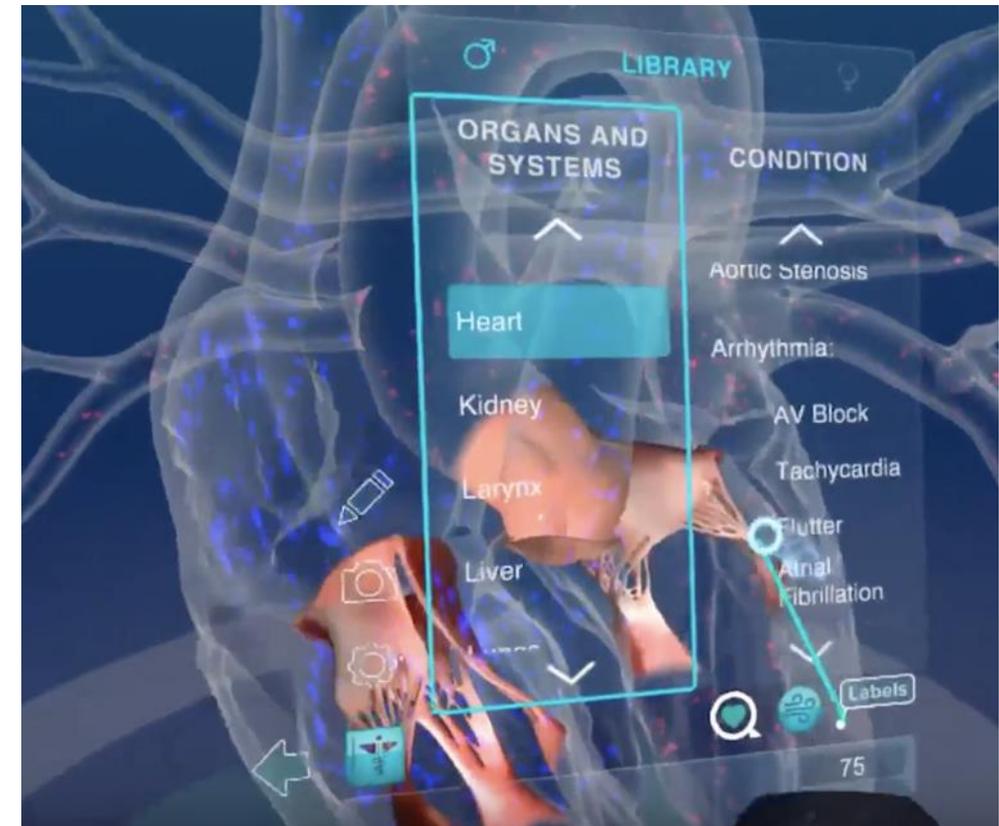


Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>

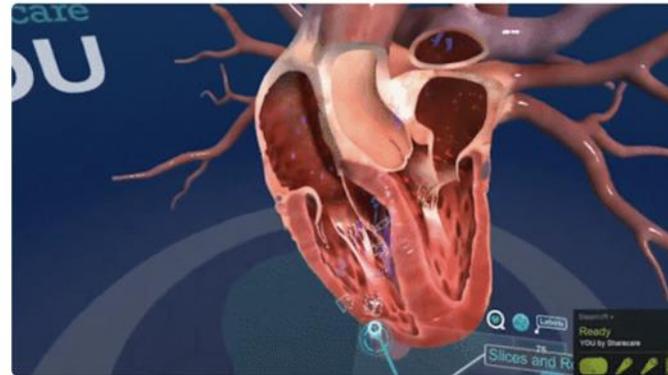
HP/Educause Research Project

CAMPUS OF THE FUTURE XR RESEARCH PROJECT

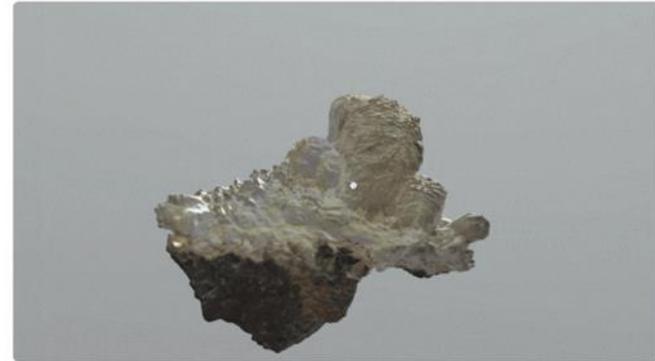




Best Practices for 3D Technologies in the Classroom



Virtual Human Anatomy



Geoscience mineral scanning project



Empathy Walk



VR Orchestra Conducting

Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>

Educause Report: Learning in Three Dimensions



The banner features a blue background with a collage of images on the left showing a computer monitor, a person wearing VR goggles, and a 3D cube. The main text reads "Learning in Three Dimensions" in a large, light blue font. Below this, it says "Educause releases 2018 report" and "Read the EDUCAUSE/HP Campus of the Future Project". A black button with white text says "View Website >". On the right side, there are several smaller images: a person in VR, a 3D printer, a person with a VR headset, and a person with a VR headset. At the bottom right, the HP and EDUCAUSE logos are displayed. A row of seven small circles is at the bottom center, with the second one from the left being filled.

Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>

Teaching Human Anatomy with VR



Image Sources: Sharecare VR, "Homepage", <https://www.sharecare.com/pages/vr> & https://store.steampowered.com/app/730360/Sharecare_VR/

The Chronicle of Higher Education

By BETH McMURTRIE

May 27, 2019

Last year, Nhora Lucía Serrano added a twist to her literature course at Hamilton College. She asked her students to design worlds in virtual reality, inspired by novels such as *Alice in Wonderland* and *The Wizard of Oz*.

A colleague in the biology department, Natalie Nannas, is helping develop virtual DNA, one of the trickiest structures for undergraduates to comprehend, particularly in two dimensions.

And before the end of this semester, students in Heather Buchman's conducting course practiced in front of a virtual orchestra before leading a live ensemble as part of their final grade.

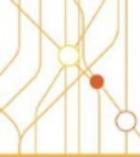


Source: The Chronicle of Higher Education, "Virtual Reality Comes to the Classroom" by BETH McMURTRIE <https://www.chronicle.com/interactives/20190528-ImmersiveTech>

Orchestra Conducting in Virtual Reality



Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>



Fundamental VR: 360 Degree Virtual Reality Brain Surgery



Source: Brain Book https://www.youtube.com/watch?v=1H9qNaP0W9o&feature=emb_title

Harvard Business Review



Harvard Business Review

Latest Magazine Popular Topics Podcasts Video Store The Big Idea Visual Library

TALENT MANAGEMENT

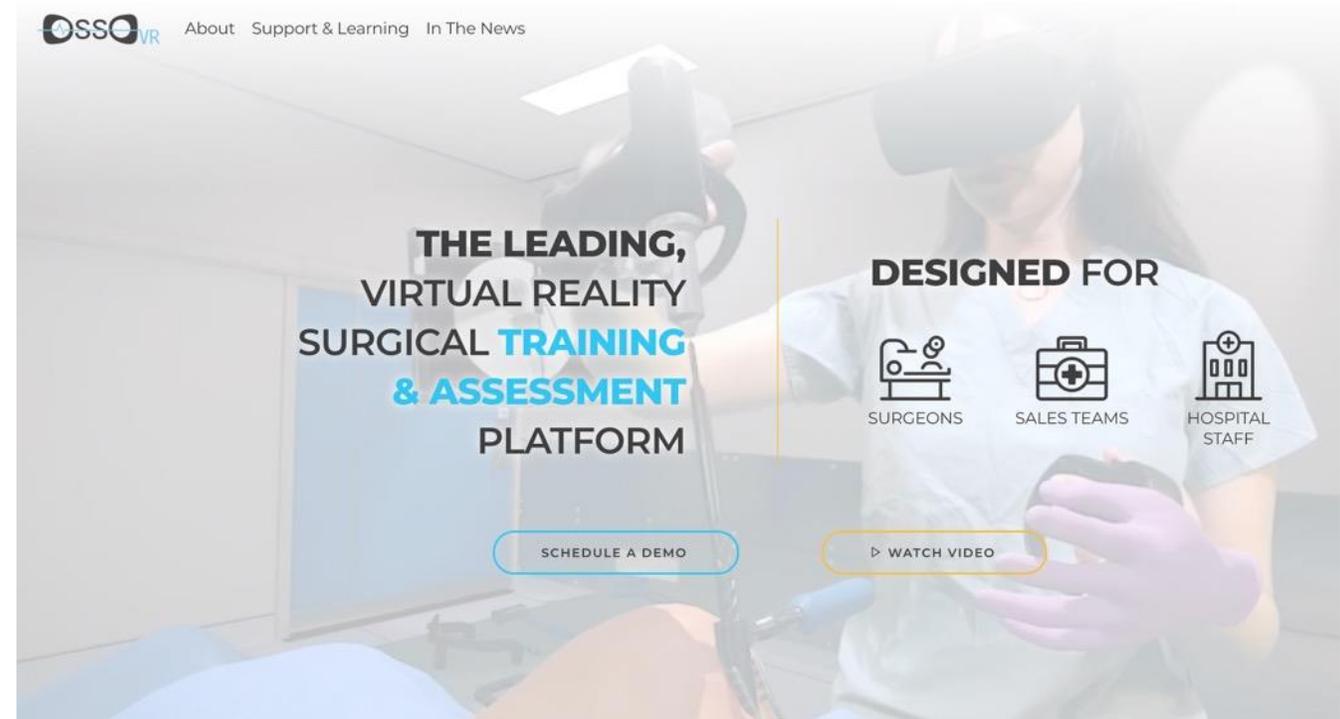
Research: How Virtual Reality Can Help Train Surgeons

by Gideon Blumstein
October 16, 2019

Summary Save Share Comment Print \$8.95 Buy Copies



Osso VR



Osso VR About Support & Learning In The News

THE LEADING, VIRTUAL REALITY SURGICAL TRAINING & ASSESSMENT PLATFORM

DESIGNED FOR

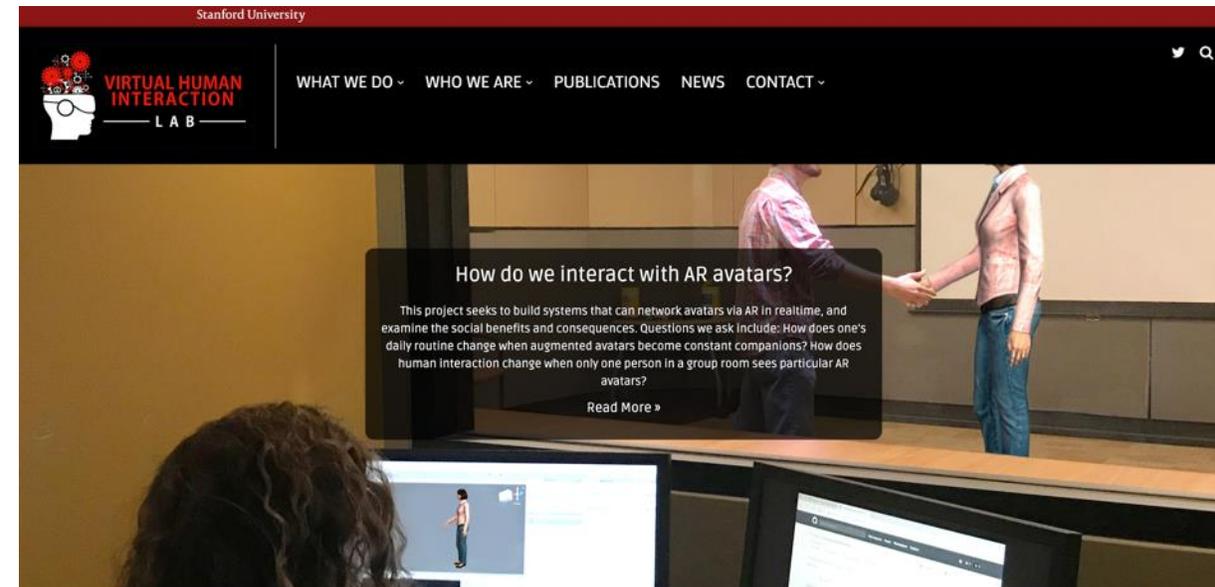
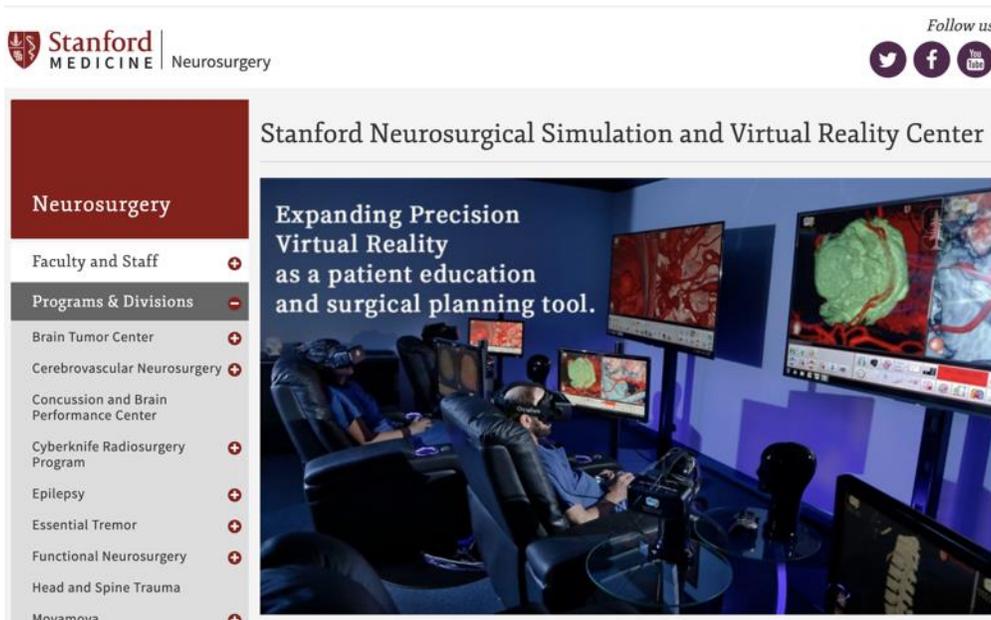
- SURGEONS
- SALES TEAMS
- HOSPITAL STAFF

SCHEDULE A DEMO WATCH VIDEO

Source: Harvard Business Review, "Research: How Virtual Reality Can Help Train Surgeons" by Gideon Blumstein, <https://hbr.org/2019/10/research-how-virtual-reality-can-help-train-surgeons>

Neurosurgical Simulation and Virtual Reality Center

Stanford VHIL



Source: Stanford Neurosurgical Simulation and Virtual Reality Center <http://med.stanford.edu/neurosurgery/divisions/vr-lab.html>, Stanford VHIL <https://vhil.stanford.edu/>

Content Generation

Pre-existing content

- Free/paid experiences available online
<https://www.sharecare.com/pages/vr>

Internal development team

- Faculty, staff, and/or students
<https://rid.hamilton.edu/campus-of-the-future/>

External development team

- Hire an outside consultant/company
<https://www.oculus.com/vr-for-good/stories/preparing-for-emergencies-before-they-happen/>



Equipment Recommendations

Budgeting, Portability and Implementation



Source: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>



Oculus Go



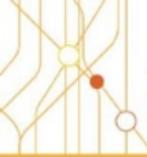
oculus Go

All-In-One VR

Experience VR that's portable and easy to use.

\$199 USD*	32 GB ¹	Buy Now
\$249 USD*	64 GB ¹	Buy Now

Image Sources: Oculus Website <https://www.oculus.com/>



Oculus Rift



oculus quest

All-In-One VR

No PC. No wires. No limits.

\$399 USD*	64 GB ¹	Buy Now
\$499 USD*	128 GB ¹	Buy Now

-  **Easy Setup**
Set up effortlessly whether you're at home or someplace new.**
-  **Oculus Insight Tracking**
Built-in sensors translate your movements into VR and provide room-scale tracking.
-  **Oculus Touch Controllers**
Your hands and gestures appear in VR with intuitive, realistic precision.

Image Sources: Oculus Website <https://www.oculus.com/>

Oculus Rift S



oculus rift s

PC-Powered VR Gaming

Step into our best VR games.

[Buy Now](#) | **\$399 USD*** | [View PC requirements](#)

- Improved Optics**
Improved optics deliver bright, vivid colors and reduced "screen-door" effect.
- Ergonomic Design**
The halo headband is redesigned with speed and comfort in mind.
- Oculus Touch Controllers**
Your slashes, throws and grabs appear in VR with intuitive, realistic precision.

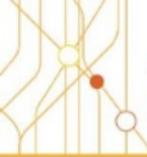
Image Sources: Oculus Website <https://www.oculus.com/>

360 Video Equipment

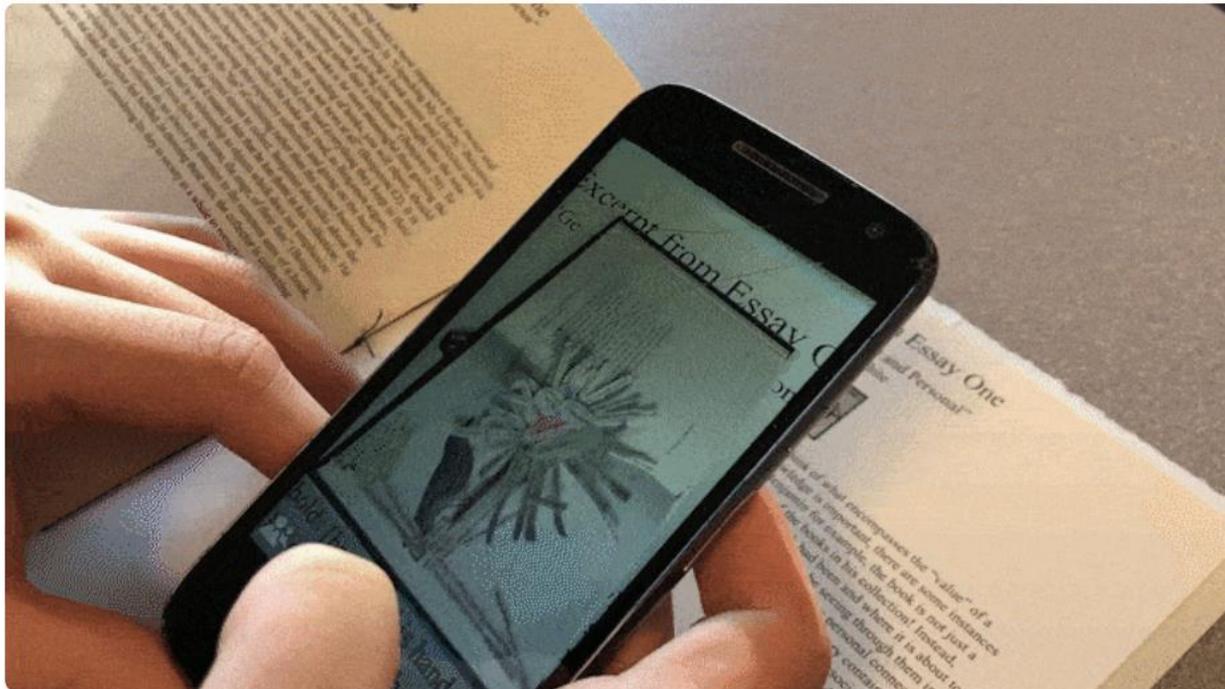


Insta360 GO With FlowState™ STABILIZATION
The twenty-gram steady cam.



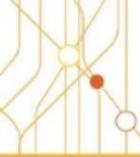


Augmented Reality Equipment



The Broadside in AR: Trigger Images

Image Sources: Hamilton College, "RID Webpage", <https://rid.hamilton.edu/campus-of-the-future/>

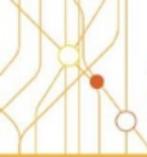


Portability and Flexibility



Image Sources HP Omen Laptop <https://store.hp.com/us/en/pdp/omen-by-hp-17-an188nr>

HP VR Backpack <https://www8.hp.com/us/en/vr/vr-backpack.html>



Portability and Flexibility



4K UHD
8.3 Mega pixel
Display
Ratio 0.19 (2.5inch 90")
Ultra Short Throw
UST
12-Point Keystone
\ IA QnirT DJ
Convenience



Source: LG HU85LA Projector <https://www.lg.com/us/home-video/lg-HU85LA-4k-laser-projector#>

Amazon link to [Yaheetech 32 to 70 Inch Mobile TV Cart](#)

Contact Us



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Hamilton College

[Research & Instructional Design Team](#)



Thank you and we will see you next month!

Please register for next month's
Building Better Curriculum Webinar Series on
Wednesday, January 8, 2020 at 1:00 pm EST.

Documenting Clinical Experience

Katie Maietta, Assistant Director and Administrator
University of Pittsburgh School of Medicine

We will post December's series on AAMC's website here:

www.aamc.org/cir/webinars