

University of Michigan Teaching and Learning with XR at Scale

Jeremy Nelson, XR Initiative Director



EXTENDED REALITY (XR)
@ MICHIGAN

Bring XR Technologies Campus-Wide

- Seed new projects and experiments that integrate XR into residential curricula for all 19 schools and colleges
- Integrate XR into online curricula (Coursera, EdX, FutureLearn, Michigan Online)
- Create innovative public/private partnerships to develop new XR related educational technology

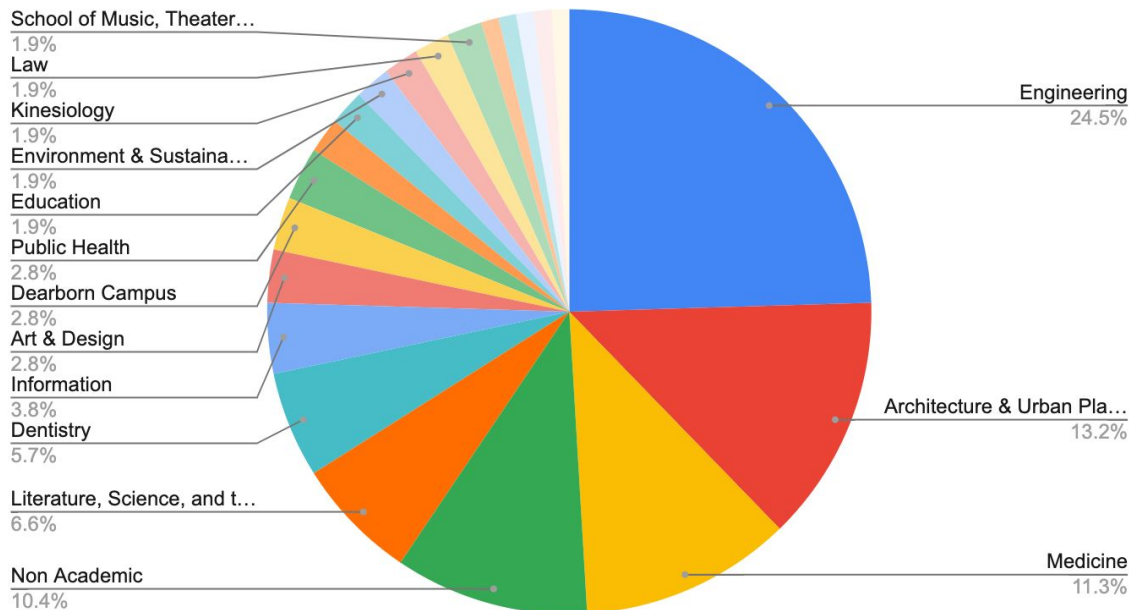


Strong Interest Across Campus

> 100 Contacts

> 30 potential projects

Connections by School/College



XR Experiences @ Michigan



Matthew Solomon

Film, TV, and Media

Citizen Kane VR
Filmmaking in the 21st Century



Michael Nebeling

School of Information

Mixed Reality
Design for Everyone



Sara Blair

English Language and
Literature

Novels and Virtual Realities

“XR For Everybody” MOOC Specialization

Key question: How to get started in XR?

Set of courses to provide broad learning experience for various backgrounds

Knowing what XR is and what it involves

Doing XR design and development

Shaping XR to address issues & explore opportunities

Launching in **12/15/2020** on Coursera





XR Graduate Certificate Program

- 12 credits in XR focused courses across the entire U-M curriculum
 - [Information] SI 559: **Intro to AVR Application Design**
 - [Information] SI 659: **Developing AR/VR Experiences**
 - [Stamps] ARTDES 420.1: **Sci-Fi Prototyping**
 - [SMTD] PAT 443: **Immersive Media**
 - [SEAS] EAS 501.160: **Advanced Visualization**
 - [Taubman] ARCH 591: **Generative Design Computing**
 - [Taubman] ARCH 703: **Virtual Engagement in Digital Technologies**

Participating Schools

- School of Information
- Stamps School of Art and Design
- Engineering
- LSA
- Nursing
- Dentistry
- Education
- Medicine
- Kinesiology
- Architecture and Urban Planning
- Music, Theater, & Dance (SMTD)
- Environment and Sustainability

For more information, email

xr.certificate@umich.edu



ACADEMIC INNOVATION
UNIVERSITY OF MICHIGAN

UM XR Community

Positive collaborations and synergies with UM XR Community

- DC - Emerging Technologies Group
- LSA - Emerging Technologies/Technology Services
- CAEN XR
- Museums Collections
- Michigan Medicine (CMSXR)
- Provost's AVMR Working Group
- Shapiro Design Lab
- Student Groups (Wolverine Soft, ARI)



XR Innovation Fund

Seed XR Projects for Teaching & Learning

- Advancing multidisciplinary learning and teaching
- Creating innovative learning experiences with Augmented and Virtual Reality
- Increasing access to XR technologies to a broad audience

December '19



ACADEMIC INNOVATION
UNIVERSITY OF MICHIGAN

16 Proposals Submitted

Architecture & Urban Planning	2
Dentistry	2
Engineering	4
Information	1
Literature, Science, and the Arts (LSA)	2
Michigan Medicine	3
Nursing	1
School of Music, Theater & Dance	1

8 New XR Projects Funded!



"Getting Under the Skin": A VR Chemotherapy Simulation

Michelle Aebersold
School of Nursing



XR Nuclear Reactor Laboratory

Brendan Kochunas
Department of Nuclear Engineering and Radiological Sciences



XR Tools for Supporting Student Creativity in Immersive Audio Design

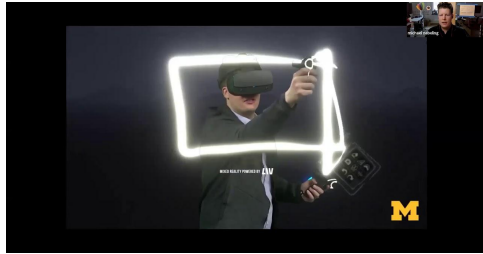
Anıl Çamcı
School of Music, Theatre & Dance



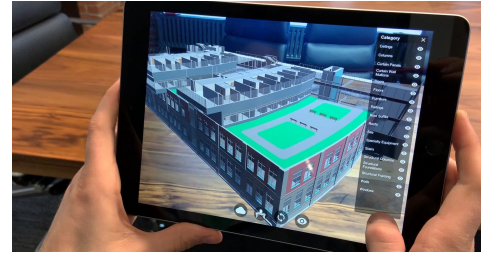
Head and Neck Anatomy and Diagnosis of Pathology Using XR

Hera Kim-Berman
Department of Orthodontics and Pediatric Dentistry

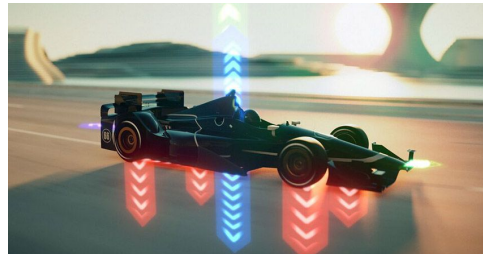
8 New XR Projects Funded!



XRStudio
Michael Nebeling
School of Information



Georeferenced XR
Vineet Kamat
Department of Civil and Environmental Engineering



Crashing Trains and Launching Rockets: A Virtual Physics Laboratory
Thomas Schwarz
Department of Physics



Augmented Tectonics
Jonathan Rule
Taubman College of Architecture and Urban Planning

Fall 2020 XR Innovation Fund

Seed XR Projects for Teaching & Learning

- Advancing multidisciplinary learning and teaching
- Creating innovative learning experiences with Augmented and Virtual Reality
- Increasing access to XR technologies to a broad audience

November '20



MiXR Studios Podcast

<https://ai.umich.edu/category/mixr/>

[Spotify](#)

[Apple Podcast](#)

[Google Podcast](#)



The Past, Present, and Future of XR: MiXR Studios Podcast with Guest Bryan Alexander

Jeremy...

 by Jeremy Nelson



Launching an XR Graduate Certificate Program at University of Michigan: MiXR Studios Podcast with Guest Mark Newman

Jeremy...

 by Jeremy Nelson

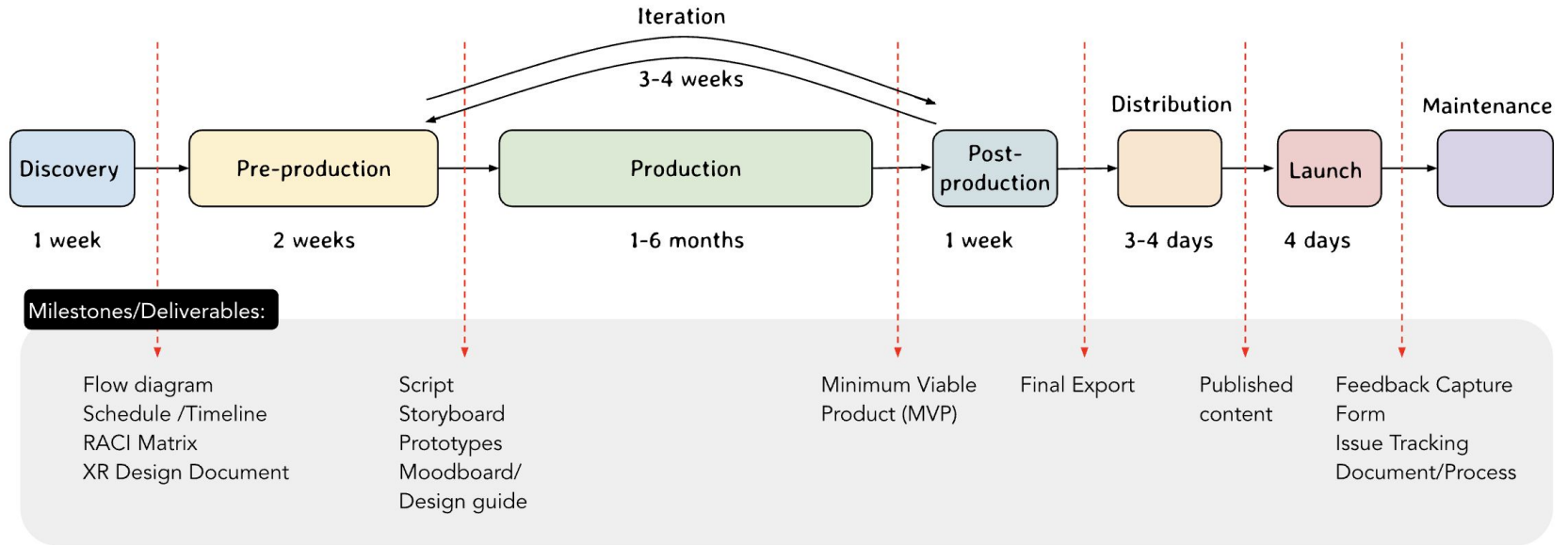


Creating the next generation of student XR innovators: MiXR Studios Podcast with Guests Beste Aydin and Matthew Kosova

Jeremy...

 by Jeremy Nelson

XR Development Services



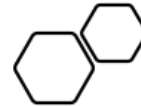
Mixed Reality Examples



Imperial College doctors with MR glasses examine patients as trainees watch and interact remotely

The MR Solution:

<https://www.theguardian.com/society/2020/jul/04/london-hospital-starts-virtual-ward-rounds-for-medical-students>



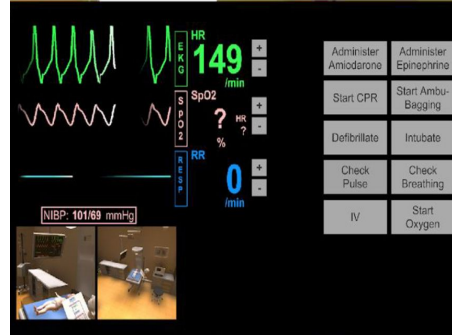
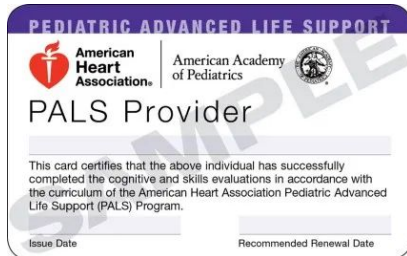
Dynamics 365 Guides



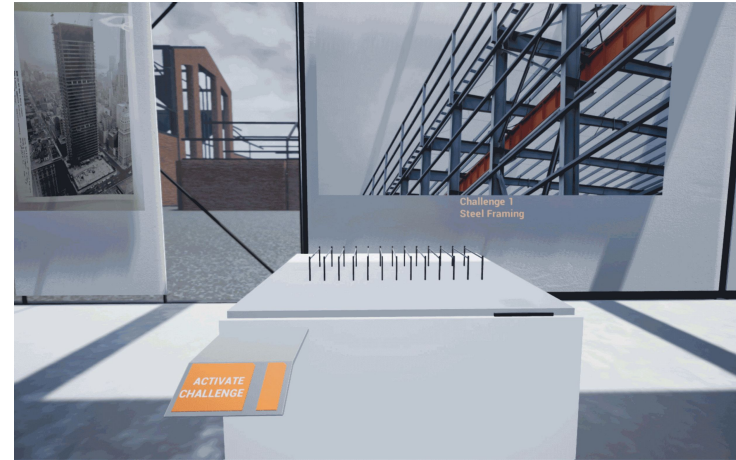
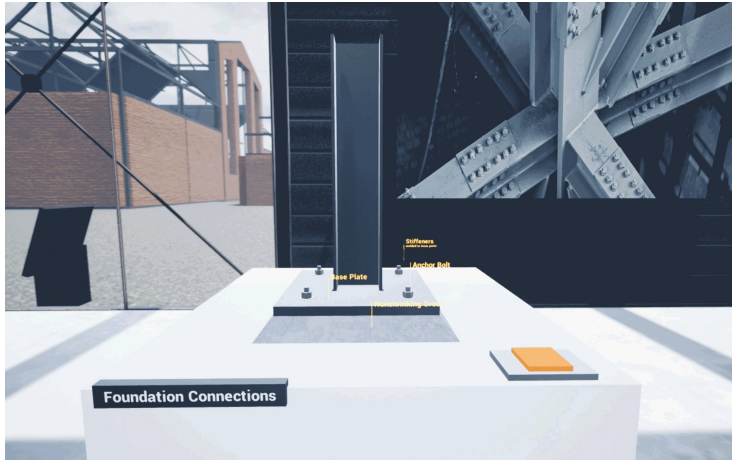
Heart VR-Team Training to Improve Patient Outcomes in Pediatric Cardiac Arrest



TEAM TRAINING
MULTI-PLAYER



Construction + XR



- Audio overlay for content explanation
- Interactive challenges for key learning points

Case Western HoloAnatomy



Hiring XR Fellows

Student Fellows to support our team

- XR Designers
- XR Developers
- 3D Artists

<https://ai.umich.edu/careers/#student-ops>

