December 2024

XR PEDIATRICS

END OF YEAR HIGHLIGHTS

PROJECTS IN PROGRESS

VR in Connecticut High Schools

We recently set out to explore how virtual reality (VR) is being used in Connecticut public high schools. We surveyed 181 schools and heard back from 60% of them (not bad!). To dig deeper, we also interviewed 19 school administrators to better understand their experiences and perspectives. Funded by the Connecticut State Department of Education, this study highlights the opportunities and challenges of bringing VR into classrooms. The full report is available here. Learn more about how this innovative technology could shape the future of education in Connecticut!

Blavatnik Accelerator Award at Yale Innovation Summit

Led by Mohini Ranganathan, MBBS with team members Kimberly Hieftje, PhD; Asher Marks, MD; and Jose Cortes-Briones, PhD. SI-PHI is a cutting-edge tool using hi-definition, immersive visuals and audio to create a simulation of the effects of psychedelic medications to treat depression. SI-PHI hopes to provide the benefits of psychedelic medications without the side effects that make them difficult for patients to tolerate. The potential impact of using extended reality interventions is significant given the large patient population who may benefit, while avoiding the high costs and challenges associated with medications. In addition to winning a YNHHS Innovation Award, the team also pitched and won a prestigious Blavatnik Accelerator Award at the Summit receiving an additional $30,000 to further advance this innovation.

Cutie: Infection Prevention for NICU Parents

We piloted the latest iteration of “Cutie: Infection Prevention for NICU Parents” with around 10 nurses and 3 family members in the neonatal intensive care unit (NICU) at Yale New Haven Hospital. Funded by the Centers for Disease Control and Prevention (CDC), this project is centered on the development and implementation of a virtual reality (VR)-based application, codenamed “The Cutie.” This intervention will provide hands on practice of both soft and hard skills related to infection control and prevention behaviors for parents of high-risk patients admitted to the NICU.

Pop-A-Bubble Participant Recruitment

Data collection is up and running for Pop-A-Bubble! Our study utilizes synthesized spatial audio to assess the sound localization abilities of youth and young adults. Findings will contribute to the design and development of audio features for immersive technologies and experiences.

Interesting in participating?

SIGN UP!

Our Team is On-The-Go!

XRPeds had some exciting lab outings this year!

Anesthesiology Update 2024 at Harvard Medical School: Dr. Hunter Hoffman discussed the scope of using VR for pain reduction in his talk: “Virtual Reality: A New Tool for Anxiolysis, Distraction, and Analgesia.” We co-hosted a workshop with Dr. Hoffman, allowing anesthesiologists to experience VR for the first time.

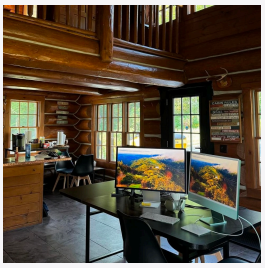
Lab Writing Retreat: In September, our team took a step back from daily routines for a focused writing retreat, making significant progress on ongoing projects and papers.

IOVR: ReHASHED Progress: In October, postgraduate researchers Skylar and Mona attended a local football game to capture ambisonic audio, advancing our immersive VR project.

Visit to Apple HQ: Also in October, team members Abigail, Justin, Mona, Skylar, and Veronica traveled to Apple HQ in New York City. They explored the Apple Vision Pro

and engaged in discussions about how Apple can support our ongoing VR initiatives.








RECENT EVENTS

Association for Professionals in Infection Control and Epidemiology Conference, 4 June 2024

Dr. Veronica Weser co-presented a panel, "Let's Get Real: Using Virtual and Extended Reality for IPC Training and Education", at the 2024 APIC Conference. Joined by Andrea Silva Greenfield (Mass General), Chloe V. Green (Mass General), and Kellie Rusin (Children's Hospital Colorado), the panel offered varying perspectives of the challenges and successes involved in building and piloting VR for healthcare training.

Games for Change, 27-28 June 2024

Dr. Hieftje and composer, Dr. Andrew Schartmann, gave a talk about the Year of the Cicadas at the Games for Change Conference in New York City. The Year of the Cicadas is a VR experience about grief and meaning making over time after the loss of a child. Justin Berry co-moderated a panel adptly titled, "How Tabletop RPGs Can Build and Support Communities", with XRPeds collaborator Dr. Nicolas Meade, game designer Timothy Grant, and Dr. Brian Quinones.

Comic Con 2024, 25-28 July 2024

Dr. Hieftje was part of a panel titled, "Video Games: Gamer to Greatness" at Comic Con 2024. Also featuring Dr. Shamika Mitchell (SUNY Rockland Community College), Elie Dekel (Power Rangers), Eric Johnson (Ignited), Travis Williams (Meta), Tarnie Williams (Kidoz), and Sharon Wood (Happy People Games), the panel discussed the future of gaming and its potential to drive cultural and personal evolution.

AMXRA Grand Rounds, 29 July 2024

Drs. Hieftje and Marks presented their talk, "Thoughtful XR Design to Improve the Lives of Youth" at AMXRA Grand Rounds.

VeeCon 2024, 9-11 August 2024

Postgraduate Associate, Mona Sinha, gave a talk titled "Mental Health and Technology" and joined the Mental Health Panel at VeeCon 2024.

Serious Play Conference, 12-14 August 2024

Drs. Hieftje and Marks, as well as composer, Dr. Andrew Schartmann, presented the Year of the Cicadas at the Serious Play Conference in Toronto, Canada.

IDWeek 2024, 16-19 October 2024

Dr. Hieftje was part of a session entitled, “Let’s Get Real: Using Virtual and Extended Reality for Infection Prevention, Control Training and Education of Frontline Staff” at IDWeek 2024 in Los Angeles, CA, discussing the development of our VR videogame intervention focused on reducing infection spread among parents in the NICU setting.

Meta Educators Community Summit, 17-18 October 2024

Dr. Hieftje attended the Meta Educators Community Summit in Palo Alto, CA. The summit brought together approximately 70 educators leading the use of immersive technologies in education. Representatives from 26 universities, K-12 institutions, and Meta explored innovative university-level VR initiatives and contributed feedback to shape Meta’s VR education efforts.

6th Annual Virtual Reality and Healthcare Europe Symposium, 15 November 2024

Dr. Marks and Dr. Mairi Wac (University of Bristol) gave their talk, "Virtual Reality for AYA’s: Shared Challenges and Successes in the UK and US" at the 6th Annual Virtual Reality and Healthcare Europe Symposium. Highlights of their talk include integration of AI with VR surgical training simulations, muscle-stimulating sensors for physiotherapy, VR for storytelling and patient education, and the revolution of surgical training through a neurocognitive approach.

Connecticut School Based Health Centers Conference, 19 November 2024

Postgraduate Associates, Mona Sinha and Skylar Bartush, represented XRPeds at the 2024 Connecticut School Based Health Centers Conference. They showcased our nicotine and marijuana vaping prevention intervention, Invite Only VR: reHASHED.

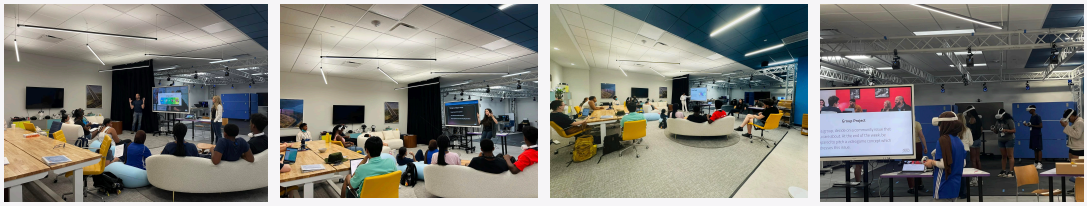
University of Oklahoma, 20 November 2024

Dr. Veronica Weser was invited to speak to the University of Oklahoma's Chapter of the Human Factors and Ergonomics Society in a talk entitled, "Discover how video games, informed by evidence, are created with extended reality technology". Her talk emphasizes the recent projects by XRPeds, the implications of VR in mental health and education, and the benefit of utilizing VR for youth populations.

COMMUNITY ENGAGEMENT

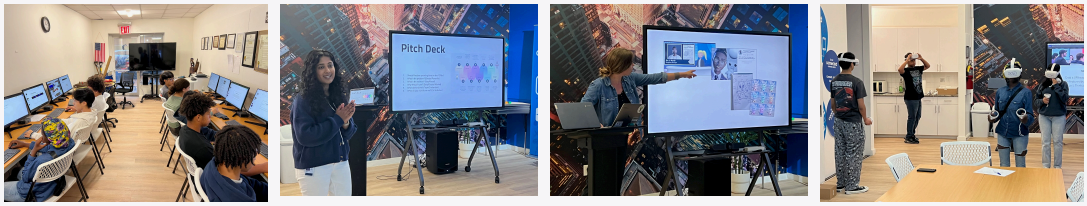
Pathways to Science Program

We had a blast hosting high school students from Yale Pathways to Science! Students explored the field of games for health, user-centered design, and VR experience guidelines. They worked in teams to research a community problem and concluded the week with impressive project presentations. Their creativity and enthusiasm were truly inspiring!



Harlem Workshop with PreviewLabs

We had the privilege of being invited to Silicon Harlem and delivering an interactive session for an audience of teenagers eager to learn about technology and entrepreneurship. Eric Cunningham, a seasoned startup mentor, received and introduced the speakers Mona Sinha and Abigail Crocker of XRPeds and Bernard Francois of PreviewLabs, setting the stage for an inspiring event.



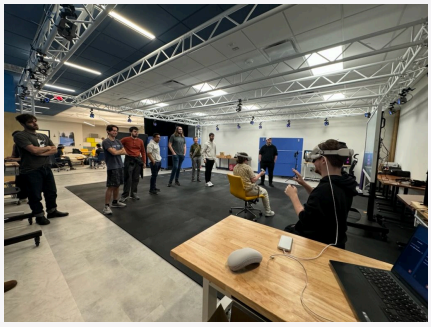
Yale Youth Advisory Board

This year, we have had several Youth Advisory Board meetings to involve Connecticut teens in the design and development of Invite-Only VR. The students engaged in role-playing activities, script development, character designs, and creative reviews to support our user-centered design approach. Youth Advisory Board signups are still open for ages 15-18 as we invite students for voice acting and remain involved in early 2025. If you know any teens who are interested, please share this Qualtrics sign-up link:

https://yalesurvey.ca1.qualtrics.com/jfe/form/SV_bBnUmg1hkDD4J2S

Quinnipiac Class Visit

We were excited to welcome Dr. Elena Bertozzi and undergraduate students from Quinnipiac University's Game Design and Development program! This visit provided students with a valuable opportunity to explore career paths in VR research by engaging with XRPed's innovative projects, including Cicadas, the Psychedelic Simulator, and the Cutie. The hands-on demos offered insight into how creative design and advanced technology are integrated in the field of VR.



NEW TEAM MEMBERS

Skylar Bartush

Postgraduate Associate

Skylar Bartush is a Postgraduate Associate within XR Pediatrics. Skylar graduated from Western Connecticut State University with a Bachelor's in Psychology and a minor in Mathematics. She completed her first year as a PGA in the Brain and Cognition Lab within the Department of Psychology; her work focused on investigating the usage of spatiotemporal contextual associations to facilitate long-term memory. Skylar is thrilled to be a part of the XR Pediatrics team and looks forward to examining the intersection between psychology and technology as a means to improve the lives of youth and young adults. She is interested in pursuing a Master's in Human-Computer Interaction with a long-term goal of a career in User Experience Research and Design.

Michael Gancz

Research Associate

Michael Gancz studies sound, people, and technology. They graduated from Yale University in 2022 with an MA in music theory and a BA in music, and they earned a carillon diploma from the Koninklijke Beiaardschool 'Jef Denyn' in Mechelen, Belgium in 2023. Before joining XRPeds, Gancz served as a research fellow for the Belgian American Educational Foundation and a postgraduate research associate with the Mark Gerstein Laboratory. Gancz's research interests focus on how music-technological imagination can center diverse bodies and psyches in our spaces of research, treatment, and play. Their publication record spans a wide range of related topics including evolutionary structures in music, computational brain genomics, and best practices in diversity, equity and inclusion. Apart from their research, Gancz is an award-winning composer and internationally touring musician, and co-directs a small indie games studio. They are very excited to spend the coming year with the talented XRPeds team!

RECENT PUBLICATIONS

Weser, V. U., Crocker, A., Murray, T. S., Wright, J., Truesdell, E. J. K., Ciaburri, R., Marks, A. M., Martinello, R. A., & Hieftje, K. D. (2024). Barriers to effective infection prevention in the neonatal intensive care unit: A qualitative study. Advances in Neonatal Care, 24(5), 475–484. https://doi.org/10.1097/ANC.0000000000001195

> The article examines barriers to effective infection prevention in neonatal intensive care units, highlighting challenges in communication and education between staff and families. It suggests improving education delivery and reducing nurse burden to enhance infection control behaviors and outcomes.

Buono, F. D., Marks, A., & Lee, D. (2024). Virtual reality in medical education. Cyberpsychology, Behavior, and Social Networking, 27(6), 361-362. https://doi.org/10.1089/cyber.2024.27599.geditorial

> The article highlights the transformative potential of virtual and extended reality in medical education, showcasing its effectiveness in enhancing learning, clinical skills, and training through immersive experiences.

STAY CONNECTED!

@xrpeds

@xrpeds

XR Pediatrics

XRPeds

xrpeds.org

xrpeds@yale.edu

Yale

Department of Pediatrics, Yale School of Medicine