



# MID YEAR NEWSLETTER 2025

See what we've been up to from the end of December 2024 to June 2025! Plenty of exciting milestones: conferences, paper acceptances, awards, project progress, and more!

## PROJECTS IN PROGRESS



### Big Achievements for Si PHI!

Si PHI, led by Mohini Ranganathan, MBBS with team members Kimberly Hieftje, PhD; Asher Marks, MD; and Jose Cortes-Briones, PhD, 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 has had big successes in the past few months, winning the Audience's Choice at the [Yale Life Science PitchFest 2024](#) and the [2025 Blavatnik Award](#)!

### Conference Congratulations

Congratulations are in order for Justin Berry (Project Director) and Michael Gancz (Research Associate) who were both recognized for their outstanding demos, respectively, Lemmings: Tools for Accessible Gestures and Screenless Optical Theremin with Tremolo (ScOTT).

Lemmings won Best Demo at the 2025 XR Access Symposium. Lemmings is a tool that allows users to remap gestures for immersive platforms using Unity, optimizing user experience, usability, and accessibility.

ScOTT won Demo Honorable Mention at IMX 2025. ScOTT is a novel gesture MIDI controller powered by a modified screenless XR headset that uses hand and arm movements to control musical elements like pitch, velocity, and tremolo.



## Year of the Cicadas

The final version of Year of the Cicadas is on its way! Year of the Cicadas is an immersive experience that uses narrative storytelling to explore parental grief, child loss, and meaning-making over time. Soon to be available on the Steam Store page, Year of the Cicadas now has its own website and press release article - take a look and sign up to follow the game's release! <https://www.yearofthecicadas.com/>



## Perfect Score: R01 Funding for IOVR

Invite Only VR earns a perfect score for the NIH R01 grant and receives another 5 years of funding! The study led by Co-PIs, Drs. Kimberly Hieftje and Deepa Camenga, uses a virtual reality intervention to deliver nicotine/vaping prevention education and emotion regulation skills to youth. With continued funding, the Yale team welcomes new Co-Investigators Drs. Ijeoma Opara, Mona Sharifi, and Veronika Shabanova. The project is also expanding to a multi-site study with the addition of Dr. Randi Schuster and her team at Massachusetts General Hospital.

## That's A Wrap!: Data Collection for Mixed Reality Monitoring Concludes

Mixed Reality Monitoring, a study led by Abigail Crocker, MSN, has completed pilot data collection! This study, a continuation of the Dr. Hunter Hoffman's research, uses the Apple Vision Pro to expose participants to virtual and real objects. We hope to understand how mixed reality contributes to the creation of false memories. Findings will potentially inform the design and application of safer and more effective mixed reality environments. Stay tuned for the final paper unveiling our findings!



## TEAM HIGHLIGHT: VIRTUAL MEDICINE CONFERENCE

Members of the XR Pediatrics team traveled to Los Angeles, CA in March for the Cedars-Sinai Virtual Medicine Conference. XRPeds made a strong presence at the conference with an astounding six total presentations and talks. Before conference festivities, the team visited Universal Studios Hollywood, racing down Rainbow Road in Super Nintendo World! The conference invited many new conversations about XR/VR applications in the medical/healthcare fields.

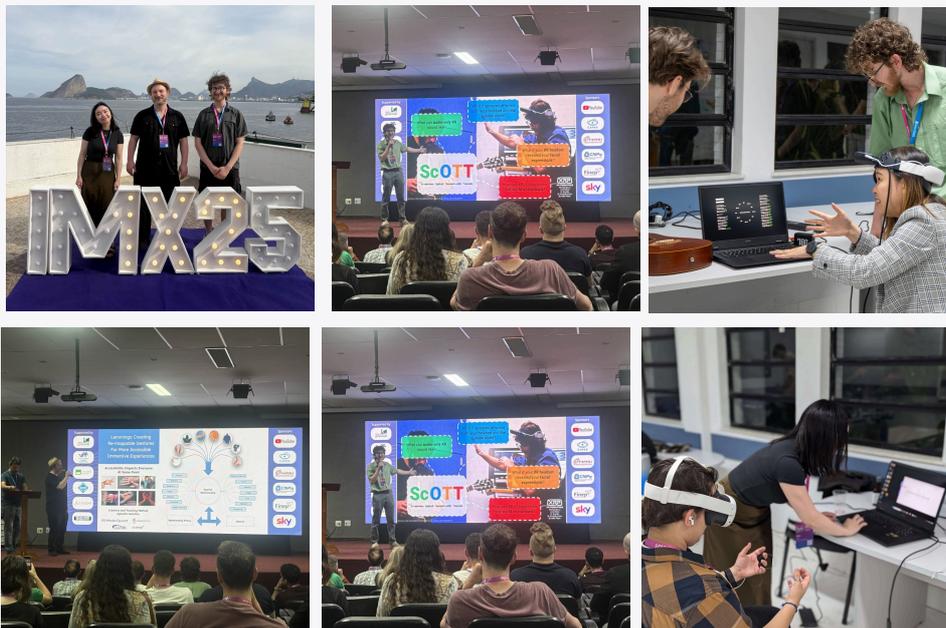
- Skylar Bartush (Poster) – Using Immersive Experiences to Educate and Empower Youth About mRNA Vaccines
- Abigail Crocker, MSN (Poster) – Mixed Reality Monitoring: Understanding Technology’s Influence on Memory
- Dr. Asher Marks (Talk) – Simulated Psychedelic Immersive Experience: Healthcare Intervention for Depression (Si-PHI)
- Dr. Kimberly Hieftje (Talk) – Year of the Cicadas: A VR Experience Through Grief and Meaning Making
- Dr. Veronica Weser (Talk) – VR Game-Based Infection Prevention Education in the NICU
- Dr. Kimberly Hieftje (Panel) - Mental Health Forum: Lessons Learned Using XR for Anxiety, Depression, and Chronic Pain



## TEAM HIGHLIGHT: IMX CONFERENCE

Dr. Shu Wei, Michael Gancz, and Justin Berry attended the ACM Interactive Media Experiences (IMX) Conference in Rio de Janeiro, Brazil. Their participation sparked new conversations around extended reality, encouraging the IMX community to think in more exploratory and innovative ways. The feedback they received during live demos is inspiring new directions and integration of community perspectives.

- Michael Gancz – Demonstrating the Screenless Optical Theremin with Tremolo (ScOTT)
- Justin Berry – Lemmings: Creating Re-mappable Gestures For More Accessible Immersive Experiences
- Shu Wei – The Arborist: A Collective Bloom Through Physiological Data in Mixed Reality



### Now Recruiting: Pop-A-Bubble

Data collection is still 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.

We're looking for participants ages **12-17**. Interesting in participating?

**SIGN UP!**



## RECENT EVENTS

### Grand Rounds at Johns Hopkins, 16 December 2024

Dr. Asher Marks presented a talk titled, "The Yale Center for Immersive Technologies in Pediatrics: Using Immersive Technologies to Improve the Health and Well-Being of Youth and Young Adults," at the [Johns Hopkins Pediatric Grand Rounds](#). His talk explored applications of XR in healthcare and education and detailed the various ongoing projects within the lab and center.

### MIT Reality Hack Hackathon, 25 January 2025

Co-Directors, Drs. Kimberly Hieftje and Asher Marks presented their talk titled, "Little Hands, Big Worlds: XR for Kids at the Yale Center for Immersive Technologies in Pediatrics" at [MIT's Reality Hack Hackathon](#). They presented the latest recommendations regarding XR use and development for kids.

### Grand Rounds at Yale, 29 January 2025

Dr. Kimberly Hieftje shared her emotional story describing the feeling of grief after the loss of a child during the [Yale Pediatric Grand Rounds: Marjorie S. Rosenthal Stories in Pediatrics](#). Her experiences inspired the creation of her game, [Year of the Cicadas](#).

### Drexel University DIGM Colloquium, 11 March 2025

Drs. Kimberly Hieftje and Asher Marks participated in the Drexel University DIGM Colloquium series in their talk, "[A Twister, a Pandemic, and a Vision: A Reflection of 5 Years of XR Pediatrics](#)." They reflected on their journey, milestones, and vision for the future of immersive pediatric care.

### Eastern Society for Pediatric Research Conference, 14-16 March 2025

Associate Director of XRPeds, Dr. Veronica Weser, was invited to attend the [2025 Eastern Society for Pediatric Research Conference](#) as a plenary speaker. Her panel, "Artificial Intelligence and Advanced Technologies in Pediatric Research," joined

by [Drs. Kristyn Beam \(Harvard\)](#) and [Mark Mercurio \(Yale\)](#), explored how cutting-edge technologies like AI and virtual reality are transforming pediatric research, from diagnosis to medical education and more.

### Cedars-Sinai Virtual Medicine Conference, 27-28 March 2025

Dr. Kimberly Hieftje, Dr. Asher Marks, Dr. Veronica Weser, Skylar Bartush (Postgraduate Associate) and Abigail Crocker, MSN (Graduate Student Collaborator) attended the [2025 Cedars-Sinai Virtual Medicine \(vMED\) Conference](#) in Los Angeles, CA.

The team had a strong presence at the conference with a total of six presentations that showcased our innovative research in projects spanning simulated psychedelics to a virtual experience on parental grief.

## Health Care & Life Sciences Council of the Greater New Haven Chamber & Affiliates, 23 April 2025

Dr. Kimberly Hieftje participated as a panelist in the event "[Tech Tools in Training and Patient Care](#)," hosted by the Health Care & Life Sciences Council of the Greater New Haven Chamber & Affiliates. Joined by Ted Dinsmore (President, SphereGen), Dr. Deborah Morrill (Assistant Professor, SCSU), and Dr. David Pearlstone (CEO, DICOM Director), the panel facilitated a community dialogue on the current and future use of immersive technology in healthcare and education, exploring its benefits, challenges, and implementation strategies.

## ACM (Association for Computing Machinery) CHI Conference, 29 April - 1 May 2025

Postdoctoral Associate, Dr. Shu Wei, presented her doctoral work in a Late-Breaking Work session titled, "[Physiological Responses to Affective Virtual Coach Design in a VR Fear of Heights Consultation](#)" at the 2025 CHI Conference in Yokohama, Japan. Her presentation explored how emotional design elements in virtual reality coaches, like facial warmth and nodding, affect physiological stress and regulation during automated mental health interventions.

## Yale School of Medicine Research Day, 6 May 2025

Abigail Crocker, MSN (Graduate Student Collaborator) presented her poster "Mixed Reality Monitoring: Understanding Technology's Influence on Memory" at the Yale School of Medicine Research Day. This study investigates the qualities of virtual objects experienced in mixed reality and how they contribute to the creation of false memories.

## Yale Pediatric Research Forum, 14 May 2025

Skylar Bartush (Postgraduate Associate) presented her poster "Using Immersive Experiences to Educate and Empower Youth About mRNA Vaccines" at the Yale Pediatric Research Forum. Her poster showcased a prototype for a new project, *ImmunoDeck*, which is a VR experience that allows users to build an mRNA vaccine with the goal of combating vaccine myths, increasing self-efficacy, and promoting informed decision-making about vaccination among youth.

## SNO Pediatric Neuro-Oncology Conference, 16 May 2025

Dr. Asher Marks presented his talk, "Health Equity and Digital Interventions for AYA Patients" during the "Adolescent and Young Adults with Pediatric CNS Tumors - How to Bridge the Gaps" at the SNO Pediatric Neuro-Oncology Conference in San Diego, CA. His talk discussed how technology can be leveraged in AYA (adolescents and young adult) oncology care to amplify AYAs' desire to explore, seek, and learn from socially and affectively salient experiences.

## Yale Pediatric Education Learning Community (PELC) Speaker Series, 22 May 2025

Dr. Kimberly Hieftje was a speaker at the [Yale Pediatric Education Learning Community \(PELC\) Speaker Series](#). Her talk titled, "The Grief We Don't Teach: Virtual Reality as a Tool for Understanding Child Loss", highlighted *Year of the Cicadas*, her VR experience that explores grief and child loss over time. Broadly, she shared how immersive technology, and personal narrative can be used as an educational tool to deepen our understanding of grief and meaning-making.

## ACM Interactive Media Experiences (IMX) Conference, 3-6 June 2025

Justin Berry (Project Director), Michael Gancz (Research Associate), and Dr. Shu Wei (Postdoctoral Associate) attended the [IMX Conference](#) in Rio de Janeiro, Brazil. Justin Berry presented his latest work in his talk, "Lemmings: Creating Re-mappable Gestures for More Accessible Immersive Experiences." Shu Wei presented her demo for "The Arborist: A Collective Bloom Through Physiological Data in Mixed Reality", and Michael Gancz, their demo for "...Screenless Optical Theremin with Tremolo (ScOTT)."

## Immersive Learning Research Network (iLRN) Conference, 15-19 June 2025

Dr. Kimberly Hieftje was a keynote speaker at [iLRN 2025](#) in Chicago, IL. Her keynote "Reality Check: What Immersive Technology Needs from Education", highlighted findings from our statewide study based in Connecticut public high schools which examined how immersive technology is being integrated, the challenges schools are navigating, and what educators say they need to move from interest to meaningful implementation.

## Games for Change Festival, 26-27 June 2025

Dr. Kimberly Hieftje, Dr. Shu Wei, Skylar Bartush, and Chris Shia attended [Games for Change](#) in New York, NY. Shu Wei presented her talk, "Emotional Avatar: Virtual Humans for Automated Mental Health Therapy", which uses data to demonstrate how affect character design can reshape user trust, engagement, and physiological response in VR therapy.

## XR Access Symposium, 26-27 June 2025

Justin Berry attended the [XR Access Symposium](#) as a plenary speaker in New York, NY. His talk, "Lemmings: Tools for Accessible Gestures", introduces Lemmings, an open-source Unity tool that makes gesture-based controls more accessible by replacing complex hand shapes with simpler, customizable motion inputs, enabling users to interact using movements that are more physically comfortable and achievable.

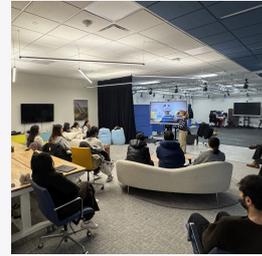
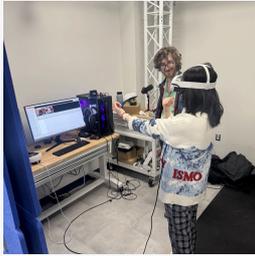
## New Interfaces for Musical Expression (NIME) Conference, 27 June 2025

Michael Gancz participated in the [NIME Conference](#), showcasing a presentation of the [Screenless Optical Theremin with Tremolo \(ScOTT\)](#) and earning a paper acceptance.

# COMMUNITY ENGAGEMENT

## UCD of Digital Health Tools Class Visit

We hosted Dr. Terika McCall's Master's course "User-Centered Design of Digital Health Tools". Students had the opportunity to witness first-hand how user-centered design practices are utilized in the creation of XR interventions for healthcare and education.



## Bringing Immersive Tech to the Community

Dr. Kimberly Hieftje served as a panelist at "Tech Tools in Training and Patient Care," hosted by the Health Care & Life Sciences Council of the Greater New Haven Chamber & Affiliates. The panel explored how immersive technology is transforming healthcare and education. After the discussion, attendees had the chance to demo our XR-based interventions, showcasing the potential of immersive tools to support public health and behavior change.

## Skype A Scientist

Research Associate, Michael Gancz, participated in [Skype A Scientist](#), an initiative to connect "scientists with classrooms across the globe". Michael connected with students who were eager to hear about their role at XRPeds and the work they do in the lab.



## Spatial Audio Working Group

We hosted the Spatial Audio Working Group, a group that includes faculty and students across Yale in departments such as the Divinity School, the School of Music, Department of Music, and Computing and the Arts. Some members of our team also attended the symposium, "Echoes Through Time: Perspectives on Sacred Space Acoustics". What a fantastic opportunity to expand our collaborative efforts by sharing our projects with colleagues also working in the realm of spatial audio.

## PreviewLabs Visits XRPeds!

XRPeds hosted our long-term development partner, [PreviewLabs](#)! The PreviewLabs team celebrated the company's 15th year anniversary by reuniting team members from all over the globe. We had the opportunity to meet the talented minds behind all of our interventions. We are so grateful for all their hard work and support throughout the years! Congratulations, PreviewLabs!



## NEW TEAM MEMBERS



**Shu Wei**

*Postdoctoral Associate*

Shu is an XR developer and researcher who creates and evaluates immersive experiences for behavioural and psychological insights. She received her PhD in Psychiatry from the University of Oxford, where she focused on using context-aware facial expressions in virtual humans to optimize VR-based mental health therapy.

Her interest lies at the intersection of human-computer interaction and digital healthcare, integrating spatial computing, 3D environment design, and biometric analysis. She enjoys hands-on prototyping and digital art creation and has received awards for her work, including the Best 3D UI Contest at IEEE VR and Best Digital Health Innovation Awards from the Francis Crick Institute.

Beyond research, Shu has contributed to teaching at the Oxford Department of Physics' Computing Lab and has volunteered as an instructor for CodeFirst: Girls.

**Chris Shia**

*Student Collaborator*

Chris is a game design assistant with XR Pediatrics. He is a rising junior at Yale University majoring in Computing and the Arts on the visual art track. He is passionate about games and interactive experiences and how interaction and storytelling can leave a serious impact. Chris currently leads "Encore!", a rhythm game project with Amoriem Labs, the undergraduate game development club at Yale, and will serve as the club's president in the next school year. Chris is currently working on IOVR Rehashed and is also excited to work on the upcoming biometrics vaping VR study this summer with XR Pediatrics!





**Palomi Kurade**  
*Postgraduate Associate*

Palomi is a Postgraduate Research Associate at XR Pediatrics, Yale School of Medicine, where she leads research coordination for Invite Only VR, an NIH-funded R01 project developing a virtual reality game to prevent vaping among middle school students. She earned her MSc in Applied Psychology from the Central University of Andhra Pradesh.

Their research focuses on understanding and mitigating the impact of stigma and discrimination on the health and well-being of marginalized populations through digital interventions. As part of this work, they are particularly interested in user-centered intervention design and community-partnered research.

Previously, she worked as lead RA on an NIH-funded R01 at the Yale LGBTQ Mental Health Initiative and collaborated on a systematic review at Stony Brook University.



**Shawn Van**  
*Postgraduate Associate*

Shawn is a Postgraduate Associate at XRPeds. His interest lies in the intersection of mental health research, immersive technology and scalable interventions. Shawn received his Master of Public Health from Yale, where he supported a large-scale implementation of LGBTQ-affirmative therapy in low-resource, community settings. His other experiences include leading the development of remote monitoring solutions as an assistant product manager and developing market assessment tools for UNICEF staff working in rural communities.

Outside research, Shawn is passionate about aerial dances, swimming, and meditation.

## RECENT PUBLICATIONS

Gancz, M., Berry, J., Wei, S., Shaker, J., Hieftje, K., & Marks, A. Screenless Optical Theremin with Tremolo (ScOTT). (2025). *Proceedings of The International Conference on New Interfaces for Musical Expression*. [https://nime2025.org/assets/preprints/nime2025\\_music\\_preprint\\_243.pdf](https://nime2025.org/assets/preprints/nime2025_music_preprint_243.pdf).

Wei, S., Ali, A. E., Cesar, P., Freeman, D., & Rovira, A. (2025). Physiological Responses to Affective Virtual Coach Design in a VR Fear of Heights Consultation. *IMX '25: Proceedings of the 2025 ACM International Conference on Interactive Media Experiences*, 1–8. <https://doi.org/10.1145/3706599.3719715>.

Gancz, M., Berry, J., Wei, S., Hieftje, K., & Marks, A. (2025). Demonstrating the Screenless Optical Theremin with Tremolo (ScOTT). *IMX '25: Proceedings of the 2025 ACM International Conference on Interactive Media Experiences*, 329–332. <https://doi.org/10.1145/3706370.3731699>.

Wei, S., Lee, B., Gancz, M., Marks, A., & Hieftje, K. (2025). The Arborist: A Collective Bloom Through Physiological Data in Mixed Reality. *IMX '25: Proceedings of the 2025 ACM International Conference on Interactive Media Experiences*, 364–367. <https://doi.org/10.1145/3706370.3731714>.

Berry, J., Gancz, M., Marks, A., & Hieftje, K. (2025). Lemmings: Creating Re-mappable Gestures For More Accessible Immersive Experiences. *IMX '25: Proceedings of the 2025 ACM International Conference on Interactive Media Experiences*, 441–446. <https://doi.org/10.1145/3706370.3732894>.

Singh, K.P., Camenga, D.R., Aneni, K., & Hieftje, K. (2025). Beyond User-Centered Design: Designing Digital Health Technologies for Substance Use Prevention and Treatment in Children and Youth. In: Wells, J.L. (eds) *A Clinical Lens on Pediatric Engineering*. Springer, Cham. [https://doi.org/10.1007/978-3-031-84655-7\\_10](https://doi.org/10.1007/978-3-031-84655-7_10).

Hieftje K. Year of the Cicadas. *JAMA*. Published online April 24, 2025. [doi:10.1001/jama.2025.2814](https://doi.org/10.1001/jama.2025.2814).

Marks A, Weser V, Caruso TJ, Persky S, Homer A, Gold J, Williamson E, & Hieftje, K (2025). AMXRA Guidelines on Extended Reality and Children: Considerations and Recommendations for Application Development and Use. *Journal of Medical Extended Reality* 2:1, 104–113, DOI: <https://www.liebertpub.com/doi/full/10.1089/jmedxr.2024.005> support groups for transgender and gender expansive youth. *Journal of Medical Extended Reality* 2:1, 51–60, <https://www.liebertpub.com/doi/10.1089/jmedxr.2024.0040>.

## STAY CONNECTED!



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**Yale**

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