

<p><b>1</b></p> <p><b>PAGE 1-3</b></p> <p>ASPIRE Preview</p>	<p><b>2</b></p> <p><b>PAGE 4-6</b></p> <p>Student Awards!!!</p>	<p><b>3</b></p> <p><b>PAGE 6-7</b></p> <p>Webinar Overview: Training TG</p>	<p><b>4</b></p> <p><b>PAGE 8</b></p> <p>Officer elections: Change in election process</p>
--	---	---	---

# XRTGNewsletter

## Come Say Hi!

By Stephanie Fussell, Program Chair

If you'll be attending ASPIRE this year (Sep. 9 -13th), we are excited to announce that we are hosting **10 lecture sessions throughout the week!** This includes some joint sessions with the following TGs:

- Training (Tuesday at 3 pm)
- Augmented Condition (Wednesday at 9:45 am)
- Education (Wednesday at 11:15 am)

The fact that we can have 3 joint sessions demonstrates how our interests and research are relevant to so many other TGs (and vice versa!). We will also have XRTG members at the poster sessions Wednesday and Thursday from 5:30-6:30 pm.


A full itinerary can be seen on the next page. Hope to see you at the sessions!


Take the HFES APSIRE schedule with you on the go! Scan the QR code to the right, and you'll get redirected to XRTG's website for a glimpse at all the exciting sessions we will be hosting throughout the week.

*Stay in touch!*

 [hfes.xrtg@gmail.com](mailto:hfes.xrtg@gmail.com)

 [https://twitter.com/HFES\\_XRTG](https://twitter.com/HFES_XRTG)

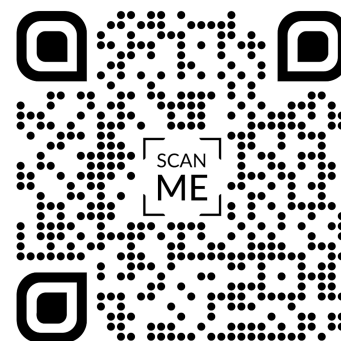
 <https://www.instagram.com/hfes.xrtg/>

 <https://www.linkedin.com/company/hfes-xrtg/>

 <https://www.facebook.com/hfes.xrtg>

**HFES XRTG**

<https://hfesxrtg.wixsite.com/hfes-xrtg>



<b>Date</b>	<b>Tuesday, September 10th</b>
<b>Time</b>	9:45am-10:45am
<b>Session Title</b>	XR1: Cueing Considerations for Extended Reality Environments
<b>Location</b>	FLW Salon J
<b>Time</b>	1:30pm-2:30pm
<b>Session Title</b>	XR2: Ergonomics and Workload in Augmented Reality
<b>Location</b>	FLW Salon J
<b>Time</b>	3pm-4pm
<b>Session Title</b>	T2 with XR: Extended Reality for Training and Learning
<b>Location</b>	FLW Salon H
<b>Joint Session TGs</b>	Training, Extended Reality
<b>Time</b>	4:15pm-5:15pm
<b>Session Title</b>	XR3: Virtual Reality and the Individual: Designing Better Virtual Environments
<b>Location</b>	FLW Salon J

<b>Date</b>	<b>Wednesday, September 11th</b>
<b>Time</b>	9:45am-10:45am
<b>Session Title</b>	AC1 with XR: Augmented Cognition & XR in High-Stakes Environments
<b>Location</b>	FLW Salon H
<b>Joint Session TGs</b>	Augmented Cognition, Extended Reality
<b>Time</b>	11:15am-12:15pm
<b>Session Title</b>	EDU3 with XR: Exploring XR in Education from an HF Perspective
<b>Location</b>	FLW Salon G
<b>Joint Session TGs</b>	Education, Extended Reality

<b>Date</b>	<b>Thursday, September 12th</b>
<b>Time</b>	9:45am-10:45am
<b>Session Title</b>	XR5: Enhancing Learning in Extended Reality
<b>Location</b>	FLW Salon A
<b>Time</b>	1:30pm-2:30pm
<b>Session Title</b>	XR6: Heightening the Virtual Reality Experience with Movement and Cueing
<b>Location</b>	FLW Salon A
<b>Time</b>	4:15pm-5:15pm
<b>Session Title</b>	XR7: Performance and Usability in Extended Reality
<b>Location</b>	FLW Salon A

<b>Date</b>	<b>Friday, September 13th</b>
<b>Time</b>	8:30am-9:30am
<b>Session Title</b>	XR8: The Eyes Have It: Visual Considerations in Extended Reality
<b>Location</b>	FLW Salon I
<b>Time</b>	8:30am-10:45am
<b>Session Title</b>	Human Factors Extended Reality Showcase
<b>Location</b>	Flagstaff

Join us for a dynamic, immersive session! Try out the technologies presented in the showcase and learn how human factors professionals use XR to support human factors-oriented research!

**B**ack by popular demand, the XR Showcase will be held **Friday morning 8:30-10:45 am in the Flagstaff room**. This interactive session provides students, researchers, faculty, and practitioners with a forum to showcase how they are using state-of-the-art Extended reality (XR) applications to address critical human factors questions in academia, defense, and industry. This year's demonstrations include XR applications for STEM education, medical training, forensics, homeland security, and military training.



**O**ther **XRTG** events at HFES ASPIRE this year:

- **Networking Event**
  - *When?* Monday from 6:00-8:00 pm (during the Opening Reception)
  - *Where?* McArthur Ballroom
- **XRTG Annual Business Meeting**
  - *When?* Wednesday from 12:15-1:30 pm
    - No worries about lunch! Snacks/light refreshments will be served.
  - *Where?* Rimrock room
  - *Topics to discuss:* upcoming activities for 2025, progress in the HFES Technical Group Circle of Excellence (CoE) Program, and announce the winners of the Best Student Paper for 2024.

# Student Awards

By Stephanie Fussell, Program Chair

Each year, the XRTG reviews the student submissions to identify the top 3 submissions based on the highest scores of writing quality, quality of research, substance of contribution, and overall quality. We will award First Place, Second Place, and Honorable Mention at the APSIRE Business Meeting on Wednesday. ***This year's nominees are:***

## **"DEVELOPMENT OF A SURVEY INSTRUMENT TO MEASURE EDUCATORS' PREPAREDNESS FOR CREATING EXTENDED REALITY LEARNING MODULES" BY JIWON KIM AND A TEAM FROM IOWA STATE UNIVERSITY.**

**About the author:** *Jiwon Kim* is a Ph.D. student in Industrial Engineering at Iowa State University, Ames, IA. He is the Harold and Shirley Reihman Graduate Scholar in the Industrial and Manufacturing Systems Engineering Department at Iowa State University. His research interests include human factors in aviation, cognitive systems engineering, and advanced training systems. His recent publications appeared in *Human Factors and Ergonomics*.

### **Abstract:**

In order to facilitate the adoption of extended reality (XR) technologies in education, various interventions, such as XR technical skills training and user-friendly authoring toolkits, have been designed for educators. However, traditional assessment tools often fall short, primarily focusing on interventions' outcomes, such as usability, rather than on educators' acceptance and readiness. This study aimed to bridge this gap by developing a new metric that assesses educators' preparedness for integrating XR technologies into their teaching practices. Forty-one participants completed the developed survey before and after creating XR lessons. Exploratory and confirmatory factor analyses revealed two key factors: perceived XR authoring proficiency and perceived XR's educational values. The developed survey can be utilized to capture educators' perceptions of barriers and needs, providing practitioners with targeted feedback to enhance XR applications in educational settings.

**“SEX AND AGE DIFFERENCES IN VIRTUAL REALITY (VR) SICKNESS SUSCEPTIBILITY IN FORKLIFT DRIVING SIMULATION” BY MD SHAFIQU L ISLAM AND A TEAM FROM VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.**

**About the author:** *Md Shafiqu l Islam* is pursuing a PhD in Industrial and Systems Engineering, under the supervision of Dr. Sol Lim, with a focus on developing and validating ergonomic and biomechanical models for various applications, such as healthcare, manufacturing, and sports.

**Abstract:**

Traditional forklift training methods are limited by their time-consuming nature and high costs. Virtual reality (VR) simulators have emerged as a cost-effective and safe alternative for forklift driving training. However, previous research revealed a substantial challenge associated with VR experiences, specifically concerning motion sickness during forklift training. Motion sickness poses a significant challenge to the effectiveness and user experience in VR forklift simulations. The primary objective of this research is to examine the influence of sex and age on motion sickness susceptibility within a virtual reality forklift simulation. Twenty individuals (9 females, 11 males) participated in the study and completed several driving tasks in a VR forklift simulator. Survival analysis (Kaplan-Meier) and Cox Proportional Hazards models examined sex and age differences in VR sickness. Age was the only significant predictor. The effects of age on motion sickness susceptibility highlight the need for tailored approaches in VR development and training.

## **"UTILIZING MOTION CAPTURE TO QUANTIFY PHYSICAL WORKLOAD IN AUGMENTED REALITY LEARNING ENVIRONMENTS" BY VARUN PULIPATI AND A TEAM FROM UNIVERSITY OF MISSOURI.**

**About the author:** *Varun Pulipati* is a master student in the Department of Electrical Engineering and Computer Science at the University of Missouri.

### **Abstract:**

This study examines the ergonomic impact of augmented reality (AR) technologies in educational contexts, with a focus on understanding how prolonged AR engagement affects postural dynamics and physical demands on users. By analyzing slouching scores alongside NASA Task Load Index (TLX) Physical Demand (PD) values, we assess the physical strain experienced by participants during the initial modules of an AR-based lecture series. Our findings demonstrate a notable decline in slouching scores as participants progress through the lecture modules, indicating increased postural deviations. To quantify these effects, we developed a regression model that effectively predicts the physical demands imposed by various AR modules, based on the observed slouching scores.

## **XRTG Webinar Recap**

By Shannon Bailey, Chair

In August, the XRTG hosted a joint webinar with the Training TG, featuring a presentation by Dr. Benjamin Goldberg on "Moderating and Measuring Competency Development in Immersive Learning Environments."

During the webinar, Dr. Goldberg shared insights from his applied research program focused on Competency-Based Experiential Learning (CBEL). He explored how data and learning engineering can be used to optimize simulation in achieving organizational training objectives and proficiency goals. His research aims to establish a scalable data strategy that integrates intelligent tutoring services and data interoperability standards within active and experiential learning contexts.



**D**r. Goldberg discussed tracking performance and progress across multiple competency development phases and designing scenarios that provide deliberate practice experiences targeting specific competencies (knowledge, skills, and behaviors) aligned with learning objectives. Two key themes were addressed: defining and modeling competencies for immersive environments and applying experience design methods to create scenarios with embedded assessments aligned to these competencies. Additionally, he reviewed existing technologies, methods, and standards that are being developed to support these practices at scale across both individual and team learning domains.

As a Senior Scientist and Technical Lead for the Adaptive & Intelligent Training Systems Team at the U.S. Army DEVCOM Soldier Center, Dr. Goldberg brought a wealth of knowledge to the discussion. His research in adaptive experiential learning, particularly within simulation-based environments, emphasizes leveraging data and Artificial Intelligence to create personalized experiences that accelerate competency development. Dr. Goldberg holds a Ph.D. in Modeling & Simulation from the University of Central Florida and has published extensively in high-impact journals, including IEEE Transactions on Learning Technologies, the Journal of Artificial Intelligence in Education, and Computers in Human Behavior.

We were thrilled to have Dr. Goldberg share his expertise and look forward to future webinars that continue to advance the fields of training, extended reality, and human factors.

*\*A recording of the webinar will be freely available on the HFES website: <https://learn.hfes.org/products/hfes-extended-reality-technical-group-and-training-technical-group-webinar-moderating-and-measuring-competency-development-in-immersive-learning-environments>*



# **G**et Involved with XRTG: Apply for an Officer Position This Fall!

Are you interested in taking an active role in the XRTG? We encourage you to consider applying for one of our officer positions this Fall. Following this year's HFES Annual Meeting, we will hold elections for the following positions:

**1. Chair Elect**

The chair-elect supports the current chair as needed, though ultimate responsibility for the TG's operation lies with the current chair. The duties are overlapping.

**2. Treasurer**

The treasurer assists the chair with financial duties. Financial records, including checkbooks and bank statements, are managed by the HFES central office.

**3. Social Media/Communications Director**

The role is responsible for managing all electronic communications to TG members and keeping the TG's official community page and other communication channels up to date.

## **Important Changes to the Election Process:**

All current and newly elected officers will serve until December 31, 2025, aligning with the new HFES common election cycle. From 2025 onward, all HFES elections will follow this schedule and process.

The adoption of a common election cycle is designed to create greater consistency across the system, reduce confusion, enhance member interest in serving as Technical Group leadership, and decrease administrative workload. This will also greatly assist Technical Groups with nominations, elections, and communications.

### New Elected Positions for All Technical Groups starting 2025:

- 1. Technical Group Chair** (unchanged)
- 2. Technical Group Vice-Chair** - Serves one year in this role before becoming TG Chair for the following year. This replaces the former "TG Chair-Elect" position.
- 3. Annual Meeting Program Chair** (unchanged)
- 4. Annual Meeting Program Vice-Chair** - Serves one year before transitioning to Annual Meeting Program Chair. The only change is the title, shifting from "designate" to "vice-chair."

All other TG positions will be appointed by the TG chair, with terms aligned with the chair's term.

We look forward to your participation in shaping the future of the XRTG!