

NISE Network Online Workshop

Practical Approaches to Immersive Digital Experiences in Museums

July 21, 2026



Today's Presenters:

- Ben Wilson, Director of Digital & Interactive Media, **Museum of Science, Boston**
- Liz Kunz Kollmann, Director, Research and Evaluation, **Museum of Science, Boston**
- Darrell Porcello, Director, Learning Networks, **Children's Creativity Museum**
- Christine Brubaker, Associate Professor, Drama, **School of Creative & Performing Arts, University of Calgary**
- Awstin Davies, Creative Technical Director, **Rella's Cambrian Dream, University of Calgary**

Welcome! As we wait to get started with today's discussion, please...

Introduce yourself! Type your name, institution, and location into the [Chat Box](#)

Questions? Feel free to type your questions into the [Chat Box](#) at any time throughout the webinar. A selection of questions from the chat and workshop registration will be read aloud by moderators for presenters to answer during the Q&A.

See you next time!

Upcoming Online Workshops...

Tuesdays; 2pm-3pm Eastern / 11am-12pm Pacific

- **August 11th:** Ready for Roman - Resources for Celebrating the Launch of NASA's Nancy Grace Roman Space Telescope



Learn more and register at nisenet.org/events

Agenda

- **Introduction to Alliance for Immersion in Museums (AIM) and Technical Specs & MOS Examples (15 minutes)**
 - Ben Wilson, Museum of Science, Boston
- **Visitor Perceptions of Digital Immersive Experiences (5 minutes)**
 - Liz Kunz Kollmann, Museum of Science, Boston
- **Community Garden at Children's Creativity Museums (10 minutes)**
 - Darrell Porcello, Children's Creativity Museum
- **Integrating technology and storytelling to create more personal impact (10 minutes)**
 - Christine Brubaker, a partnership with University of Calgary & TELUS Spark
- **Q&A Discussion (10 minutes)**

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&

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Museum of Science, Boston



Alliance for Immersion in Museums

<https://www.museumimmersion.org/>

What is AIM?

The Alliance for Immersion in Museums (AIM) is a coalition of museums and media producers from around the world, working together to share best practices and learning about digital immersive experiences in museum settings; and to enable the sharing of experiences between museums everywhere.

The Alliance for Immersion in Museums (AIM) project was first supported through a two-year grant by the Institute for Museum and Library Services in 2023.

Founding Museums

&

Experience Producers

- Museum of Science (Boston, MA)
- The Tech Interactive (San Jose, CA)
- COSI (Columbus, OH)
- Great Lakes Science Center (Cleveland, OH)
- Exploration Place (Wichita, KS)
- The Exploratorium (San Francisco, CA)
- TELUS Spark (Calgary, AB, Canada)
- Science World (Vancouver, BC, Canada)

- Moment Factory
- Supply & Demand
- Ars Electronica
- Blue Cadet
- Sugar Creative



Technical Specification

Summary

Core Components

Standardized Interactive Projection Environment

Defined parameters for modular projection spaces.

Creation Toolkit

Software and tools enabling organizations to modify or build immersive content.

Software & Content Framework

LiDAR/Sensor Tracking Software:

- Standardized output using the TUIO protocol
<https://www.tuio.org> ↗
- Supports 2D and 3D LiDAR
- Open source and extensible for other sensors

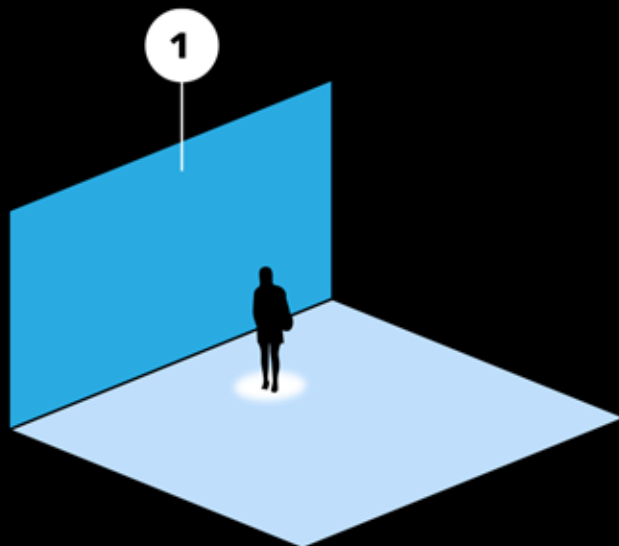
Supported Engines:

- Unity (primary development environment)
- Unreal, TouchDesigner, Disguise, Pixera for alternative workflows

Scalable Configuration

By combining multiple interactive modules, the system can expand to cover multiple form factors.

Single interactive module



Hardware

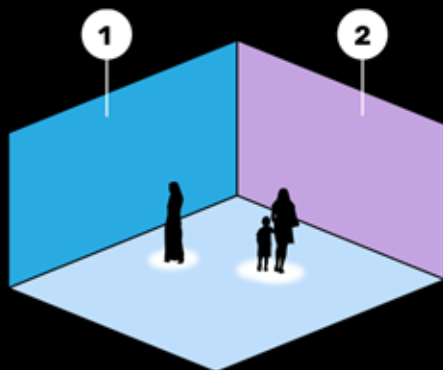
- 2x HD projectors (1920x1080 resolution, 0.6 lens)
- 3x LiDAR sensors for motion tracking and wall touch detection
- 2x Speakers (stereo audio setup)
- 1x Computer (Nvidia A5000 GPU, Core i9 processor, 128GB RAM, 2TB NVME SSD, 1Gb network card)

Space Requirements:

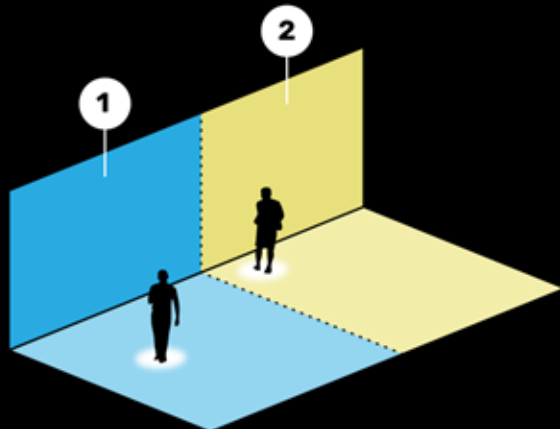
- 16:9 aspect ratio wall and floor projection area
- Minimum 12 ft ceiling height

Dual interactive module

corner



adjacent



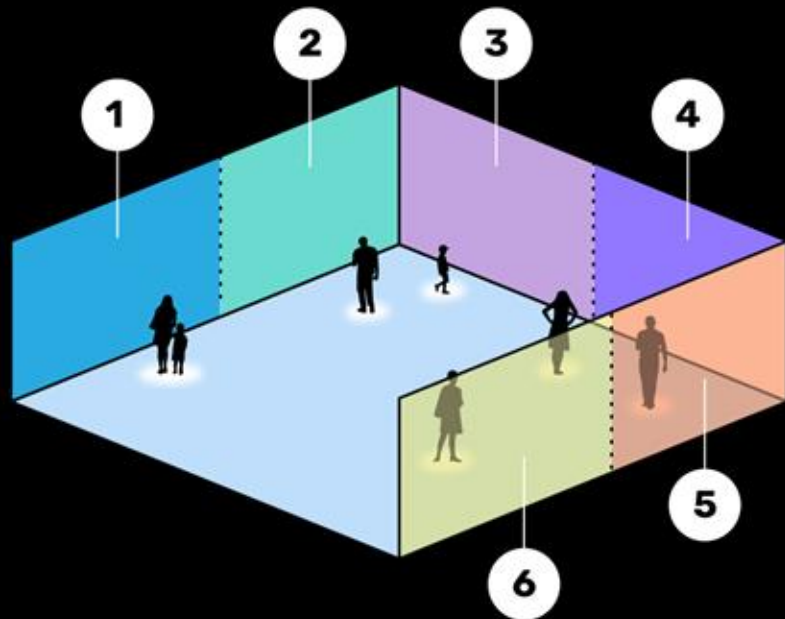
Hardware

- 4x HD projectors (1920x1080 resolution, 0.6 lens)
- 4x LiDAR sensors for motion tracking and wall touch detection
- 2x Speakers (stereo audio setup)
- 4x Computer (Nvidia A5000 GPU, Core i9 processor, 128GB RAM, 2TB NVME SSD, 1Gb network card)

Space Requirements:

- 16:9 aspect ratio wall and floor projection area
- Minimum 12 ft ceiling height

Multi-interactive modules



Hardware

- 7x 4k projectors (3840x2160 resolution, 3 x wall 0.30 lens, 4x floor 0.6 lens)
- 6x 2D LiDAR sensors for wall touch detection
- 2x 3D LiDAR sensors for floor motion tracking
- 7x Speakers (7.1 surround audio setup)
- 4x Computer (Nvidia A5000 GPU, Core i9 processor, 128GB RAM, 2TB NVME SSD, 1Gb network card)

Space Requirements:

- 16:9 aspect ratio wall and floor projection area
- Minimum 12 ft ceiling height

Purpose & Vision

AIM is designed to facilitate the sharing, creation, and standardization of immersive interactive projection experiences across museums and similar institutions.

It establishes a set of modular specifications that allow content to be interoperable between institutions while maintaining creative and technical flexibility.

AIM aims to lower barriers for content development and implementation through standardization and accessible toolkits.

Evaluation highlights

Project		Question
	Alliance for Immersion in Museums (AIM)	What do visitors consider “digitally immersive”? What are the desired characteristics of immersive spaces?
	A Drop of New England Water	How are visitors using the (reconfigured) immersive room space?
	Innovation: Earth – Sustainable City	How does the presence of an immersive room influence visitors' experience of an exhibition?
	ReRooted: What’s Hair Got to Do with It?	How do visitors respond to different storytelling techniques in an immersive room? (e.g. classic story arcs, first person)
	Immersive: Mars	
	Greenhouse AI Trainer	Do visitors understand how to use the interface? What do visitors learn from the immersive room?

Each exhibit included a digitally immersive component



Exploring AI
(DALL-E)



All Aboard! Trains
(Virtual Conductor)



Perception Playground
(Vection)



Innovation Earth
(Sustainable City)



Feeling of **immersion** was impacted by perceptions of "control" and feeling "inside" the experience

Responses to: What made this feel very digitally immersive?

Code	Number of Groups (n=31)	Example quote
[perception of] you're controlling it	27	"The ability to control it, see the things on the screen also the physical parts like the wipers were cool." (Trains)
Felt real/like you were in it	18	"Enclosed space, the walls were all digital, like you're in an environment" (Trains)
Takes up your field of vision/surrounding	7	"The fact that you are surrounded by screens and you are influencing the stuff happening around you (Innovation: Earth)
Experience is responsive	5	"Action and results, how it senses the person so you see the outline on the floor that follows you" (Innovation: Earth)
Interesting content	5	"We're majors in environmental science so that content is more for us, being able to choose the options in the room " (Innovation: Earth)
Using your physical body	5	"Choosing the character is immersive and it's interactive. They get to move their whole body" (Exploring AI)



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Being **interactive** was related to being "hands-on", responsive, and sense-engaging

Responses to: What made the exhibit feel more interactive?

Code	Number of Groups (n=28)	Example quote
Experience is "hands-on"	8	"There are more pieces that are hands on" (Trains)
Experience is responsive	5	"it felt like you made choices and can see results, 'Vection' was more like a ride" (Exploring AI)
Experience engages the senses	5	"Because the topic area was senses, everything involved your participation. The setting of the exhibit with the black walls also helped, felt more closed off than open and you were in it doing stuff." (Perception Playground)
[perception of] you're controlling it	4	"You can control it" (Trains)
Experience is tactile	4	"There were more things to touch" (Innovation: Earth)
There are more activities / options	4	"There were more options at the train and the train tables" (Trains)
Using your physical body	3	"again dall-e is more physical and it was fun to watch the kids interact with it" (Exploring AI)
You can press buttons	3	"More that you could do that you could push the buttons of the art thing with your feet" (Exploring AI)
Interesting content	1	"I'm more interested in it." (Trains)
It is good for all ages	1	"More things for the family to do, it was good for all ages" (Trains)



A Drop of New England Water

a **joyful** (positive, high energy) experience that feels **interactive** (physically, whole-body)



Isopod

[CF touches wall, looks and pets isopod]



Squid

[CM1 dances by shaking their body and flailing their arms left-right downwards (like the squid)]



Bristleworm

CF: I'm riding one! [sits on bristleworm]



Jellyfish

[CM laughs and scoots next to jellyfish on the floor to lean in and look closer]



Surprise! Visitors describe digital immersives in ways we don't expect

DALL-E
feels "hands on"



A Drop of New England Water
feels "interactive"



Vection
feels "enveloping"



Virtual Conductor
feels like it provides "agency"



Thank you



This project was made possible in part by the Institute of Museum and Library Services (MG-252985-OMS-23). The views, findings, conclusions or recommendations expressed in this presentation do not necessarily represent those of the Institute of Museum and Library Services.

<https://www.museumimmersion.org/>

Darrell Porcello

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What do we do
with this space?



team
Lab ★



Community Garden Jordan Graves + Children's Museum Pittsburgh





Web-driven immersive space cookbook

iPads/Phones



Website



Proj 1

Proj 2

Proj 3

**Reasonable costs
with vendors or in-
house staff**

You can do this!

- **Costs for equipment is coming down**
- **Barriers for coding, web hosting, etc. are far less intimidating**

As always, consider your audience.

- **Relaxing + peaceful or controlled mayhem, it is up to you**
- **Light control should not be underestimated**

Thanks!

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Christine Brubaker

**Associate Professor, Drama,
School of Creative & Performing Arts (SCPA)
&**

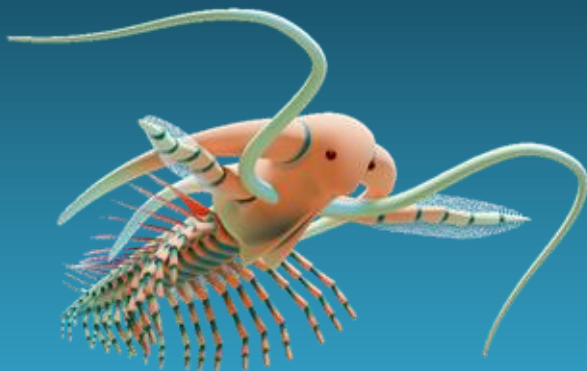
Awstin Davies

**Creative Technical Director
MFA Interdisc, UCalgary**

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Rella's Cambrian Dream

Digital Immersion Gallery Pilot at TELUS Spark



A partnership between



UNIVERSITY OF
CALGARY

SSHRC  CRSH
Social Sciences and Humanities Research Council
Conseil de recherches en sciences humaines

TELUS
Spark*
SCIENCE CENTRE

 **calgaryarts**
development

**ACTION
PANTS**

Parex Innovation
Fellowship Funds

What?

8 week Residency between
University of Calgary & TELUS Spark Science Centre

Piloted an offsite 'studio' replica of the
TELUS Spark's 3000 sq ft Digital Immersion Gallery (DIG)

Built and presented a 25-minute Live Performance demo of
Rella's Cambrian Dream for invited audiences at TELUS Spark

Rella's Cambrian Dream

Science Fantasy Adventure for Family Audiences



Interdisciplinary Collaboration

Research potential for live performance and theatrical narrative in a digital immersion gallery.

Theatre design/rehearsal process + Tech Dev process

Interdisciplinary collaborators to develop a new pipeline for responsive/live content for digital immersive spaces.

Why did we do it?

Challenge our understanding of ‘immersion’

Prioritize Human Connection

Increase the Diversity of Voices

Findings?

Live performance works in the DIG
REALLY WORKS!!

An offsite studio environment is highly effective to prepare new projects for digital immersive spaces

Operational Norms and Realities

What's Next?

More research across live performance and technologies
in these galleries

Connecting with cultural organizations, science centres
and small producers

Work with TELUS Spark to create the full version of Rella's
Cambrian Dream for 2028/29

Connect with us

We are looking for institutional AND small producing partners on upcoming grants!

If you want to talk about liveness in digitized spaces,
please reach out, we'd love to connect.

Christine.brubaker@ucalgary.ca & [www.actionpants](http://www.actionpants.ca)
[.ca](http://www.actionpants.ca)

Resources, Reminders and Q&A

NISE Network Related Resources

- **Online Workshop Recording:
DIY NASA Exhibits with Earth
Information Center &
ViewSpace (recorded 2025)
nisenet.org/DIY-NASA-Exhibits**



Resources & Opportunities



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Thank You



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