
Design + Theater + CC

Virtual Reality project for CAVE2
In Collaboration with IBM



Daria Tsoupikova (Design, UIC)
Andrew Johnson(Computer Science, UIC)
Farah Kamleh(CS)
Jeff Nyhoff (IBM+CS+Theater)
Karla Rangel (IBM)



Content

- Introduction - Why Design + Theater?
- *Hummingbird* VR+Design+Theater performance
- Jeff Nyhoff- Design+ Theater+ Computer history
- How can we design the future?
- Project concepts
- Methods, logistics and schedule
- Assignment 2



Experimental

Design+Theater VR Project

IBM badge

Open Project Developer Level I



Time: Months

Open Project Developer Level I

Issued by [IBM](#)

This badge earner has demonstrated their ability to apply design thinking and develop a new service-based asset aligned to Open Projects initiatives sponsored by IBM and Industry Partners. This individual understands how to use agile tools, including the IBM Cloud, to accelerate their pace of innovation, how to use APIs and microservices, and to effectively collaborate across teams to build open source systems that use data to learn and contribute to socially responsible cognitive solutions.

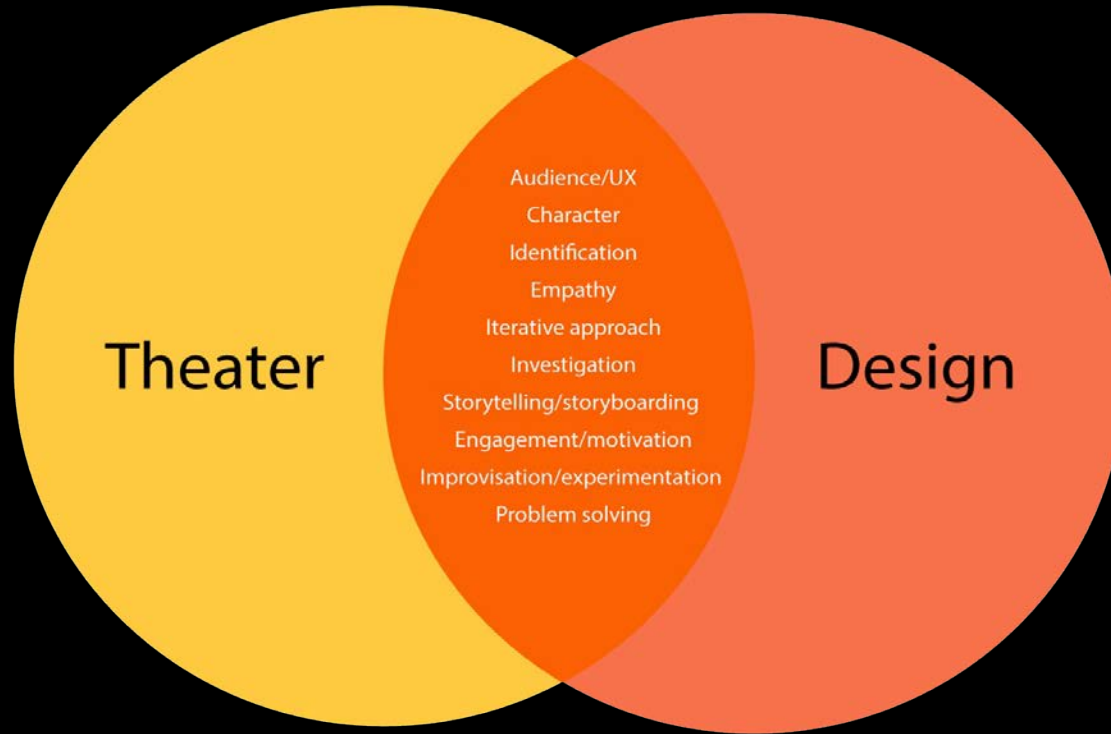
Skills



Why design + theater + science?



Theater & Design Skills



NEW STAGES

FESTIVAL

HUMMINGBIRD

By **Jo Cattell**

Created by **Daria Tsoupikova, Sai Priya Jyothula, Andrew Johnson, Arthur Nishimoto** and **Lance Long** at the Electronic Visualization Laboratory in the University of Illinois of Chicago.

December 3 - 6, 2021

Around 35 - 45 minutes and can vary depending on audience gameplay

Performances of *Hummingbird* take place at the Electronic Visualization Laboratory at UIC (842 West Taylor Street, #2032, Chicago, IL 60607)

QUESTIONS?

Contact the box office at
312.443.3800 (12noon - 5pm, daily).

Hummingbird

Hummingbird is a theatrical adventure that questions reality, connection and social responsibility in a digital society. The performance merges the real and virtual worlds in a shared collaborative multi-user interaction. The project was designed for the Goodman Theater New Stages showcasing experimental and ground-breaking theater works.

A gutsy teen has to outsmart her mother's narcissistic boss and survive dangerous new technology in *Hummingbird*: a live, immersive adventure that transforms theatrical storytelling utilizing cutting-edge, virtual reality technology.

10 performances

More than 150 people including 50 VR participants

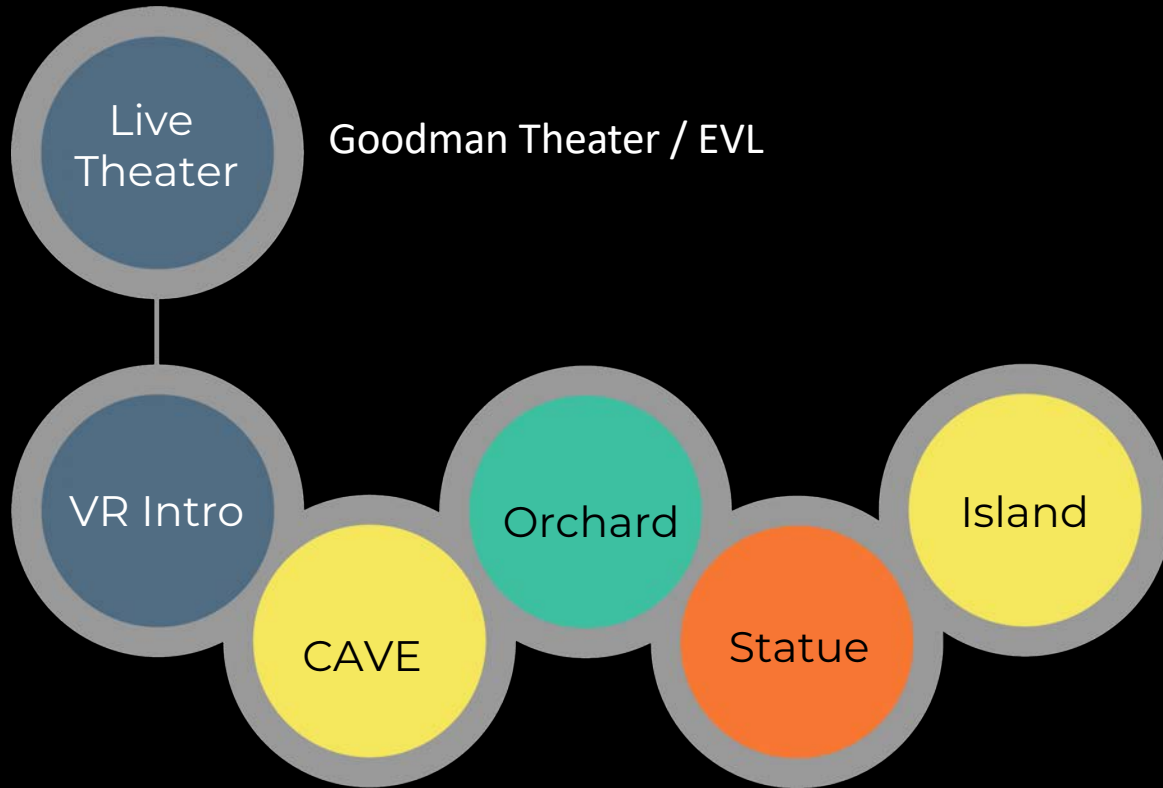


Team: Design + Theater + Computer Science

- Daria Tsoupikova (Professor, School of Design)
- Jo Cattell (project Playwright/Theater Director)
- Dr. Andrew Johnson (project Scientific Director, Professor of Computer Science and the Director of Research at the Electronic Visualization Laboratory (EVL))
- Lance Long (project Network Director, a Sr. Research Programmer, EVL)
- Arthur Nishimoto (PhD candidate in Computer Science, EVL)
- Sai Priya Jyothula (PhD candidate in Computer Science, EVL)
- Designers from Creative Coding 2019, 2020
- Megumi Katayama (Music composer)
- Actors, sound engineer, production manager and many more



Project Structure



2021









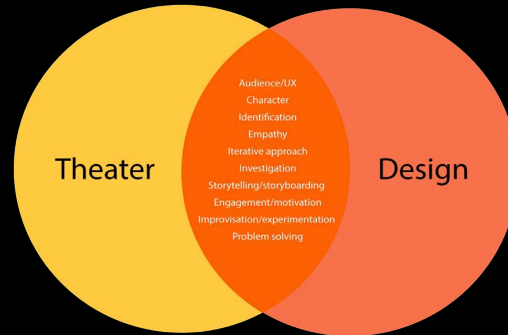
Hummingbird Video

<https://www.youtube.com/watch?v=4JueeyZqh5c>



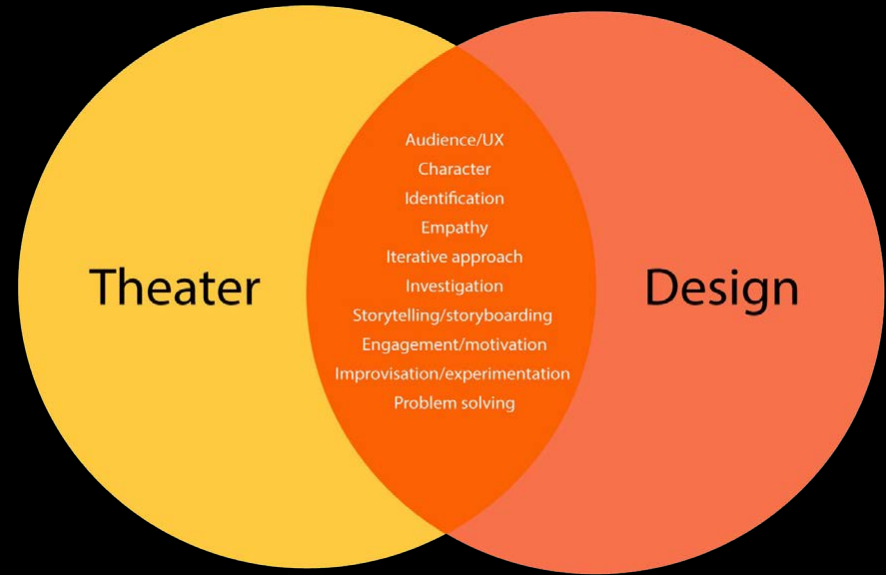
Design + Theater

- Audience/user experience
- Character (typographic vs theater character)
- Identification
- Empathy
- Iterative approach
- Investigation / Theoretical Research / dramaturgy/ comparative analysis
- Storytelling/storyboarding / plot/ events
- Engagement/motivation
- Improvisation – experimentation
- Problem solving skills – constraints / limitations / resources: time/funding/space



VR Project Concepts based on 17 UN Sustainable Goals

No Poverty
Zero Hunger
Good Health and Well-being
Quality Education
Gender Equality
Clean Water and Sanitation
Affordable and Clean Energy
Decent Work and Economic Growth
Industry, Innovation and Infrastructure
Reduced Inequality
Sustainable Cities and Communities
Responsible Consumption and Production
Climate Action
Life Below Water
Life on Land
Peace, Justice and Strong Institutions
Partnerships for the Goals



CHI2024 Student Design Competition



[Home](#) [Blog](#) [Authors](#) [Reviewers](#) [Attendees](#) [Accessibility](#) [Sponsors, Exhibitors, and Recruiters](#) [Press and Media](#) [Organizing](#)

[Home](#) » [For Authors](#) » [Student Design Competition](#)

Recent Posts

- [CHI in Hawai'i](#)
- [Help to Support Maui Fire Relief](#)
- [CHI'24 Updates to the R&R Process](#)

Student Design Competition

Quick Facts

CHI 2024 is structured as a hybrid conference from May 11-16, 2024 in Honolulu, Hawai'i, USA.

Important Dates

All times are in Anywhere on Earth (AoE) time zone. When the deadline is day *D*, the last time to submit is when *D* ends AoE. [Check your local time in AoE.](#)

- Submission deadline: **Thursday, January 18th, 2024**
- Notification: **Thursday, February 8th, 2024**
- e-rights completion deadline: **Thursday, February 15th, 2024**
- Publication-ready deadline: **Thursday, February 29th, 2024**
- TAPS Closes: **Thursday, March 7th, 2024**

Submission Details

Table of Contents

Quick Facts

- [Important Dates](#)
- [Submission Details](#)
- [Selection Process](#)

Message from the Chairs

- [What is the SDC?](#)
- [The Design Brief](#)
- [Team Requirements](#)

Preparing and Submitting

- [Metadata Integrity](#)
- [Accessibility](#)

Selection Process

Competition Structure

- [1. Paper Submission](#)
- [2. Poster](#)
- [3. Final Presentation](#)

Upon Acceptance

Design Competition Guidelines

- Is your design clearly linked to one of the Sustainable Development Goals?
- Does your design specify and solve a relevant and “burning” problem?
- Does your design use technology in an appropriate and novel way?
- Was the design well-crafted and effectively presented?
- Was the design validated in an appropriate and valid way to demonstrate the fulfillment of your design goal?
- Was relevant prior work properly identified and cited?
- Were analysis, synthesis, design, and evaluation systematic and sufficient?
- Was the design developed far enough to demonstrate the key ideas?
- Were genuine stakeholders involved in the process of research, development, and evaluation?
- Were the research process and the involvement of stakeholders ethically appropriate (e.g., were institutional guidelines followed)?
- Did the team explore the entire ecosystem of stakeholders, conditions, and contexts?



Project Methods

- Typography
- Sound
- Materials
- Color
- First person perspective
- Navigation
- Interaction (collisions, triggers/events, linear/non-linear)
- FXs



Work in teams (3)

Research / ideation

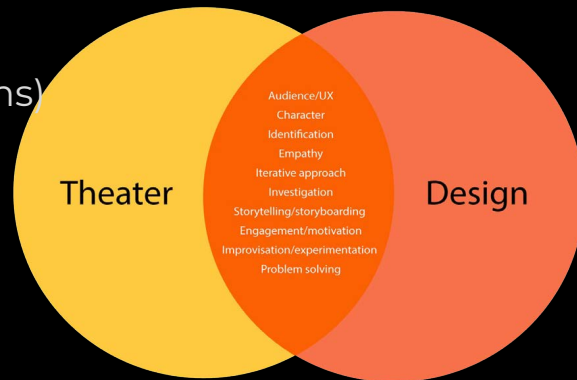
Collaborative development (G;uon, Github, other platforms)

Testing in the CAVE2 (2 Tests)

CAVE2 project review / exhibition

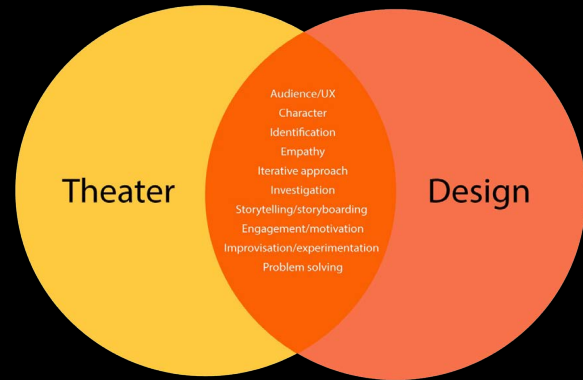
IBM online Gallery / Streaming

Submission to the Student Design Competition



Schedule

- 2-4 Concept proposal / Research / Storyboard
- 5 VRE assets/scene
- 6 VRE aesthetics
- 7 Basic Interaction
- 8 Interaction
- 9 Final interaction/ Audio
- 10 Testing 1 CAVE2 (VRE, aesthetics, basic interaction)
- 11 Testing 2 CAVE2 (Interaction)
- 12 Exhibition CAVE2
- 13 CAVE video session
- 14-15 Project documentation / Submission



Assignment 2 – VR Project Proposal

1. VR Project Proposal

Start by choosing your team preferred VR project **concept** (slide 17)

Brainstorm about your project ideas with your team. Conduct relevant research.

Write project proposal/statement.

- Project Title
- Strong concept defines your project. Introduce a new perspective, interpretation, justification, evaluation, an argument or an idea.
- The concept needs convey the purpose / meaning of the project, and only be partially descriptive.
- Describe using specific example, sketches:
 - (1) How this project can help to advance this research,
 - (2) How the project uses Virtual Reality technology as a medium.



Design Competition Guidelines

- Is your design clearly linked to one of the Sustainable Development Goals?
- Does your design specify and solve a relevant and “burning” problem?
- Does your design use technology in an appropriate and novel way?
- Was the design well-crafted and effectively presented?
- Was the design validated in an appropriate and valid way to demonstrate the fulfillment of your design goal?
- Was relevant prior work properly identified and cited?
- Were analysis, synthesis, design, and evaluation systematic and sufficient?
- Was the design developed far enough to demonstrate the key ideas?
- Were genuine stakeholders involved in the process of research, development, and evaluation?
- Were the research process and the involvement of stakeholders ethically appropriate (e.g., were institutional guidelines followed)?
- Did the team explore the entire ecosystem of stakeholders, conditions, and contexts?



A2- VR Project Proposal

A description of your chosen design focus and proposed solution, with a summary of the approaches taken within your design process, the real life problems that you are solving, and your main claims for your proposed solution with evaluation results.

Reference to design principles, sources of inspiration, and HCI theory where appropriate and relevant.

Acknowledgement of partial or incomplete solutions.

Acknowledgement of any assistance drawn from outside the student team (e.g., advisors, domain experts, existing solutions, users, etc.)



A2- VR Project Proposal Storyboard

2. Storyboard

Using 6 images / sketches

any drawing/sketching techniques

To Illustrate how your solution addresses the chosen sustainable development goals.

Visualize your concept and interaction in a series of sketches connected into a storyboard. The Storyboard combines everything in a walk-through VR experience. How participant interacts with your solution inside the CAVE2?

1 – scene before interaction (what do we see when we enter the CAVE2)?

2 – first interaction

3 – result of the first interaction

4 – interaction #2

5 – result of the interaction #2

6 – final scene / conclusion



A2- VR Project Proposal Storyboard

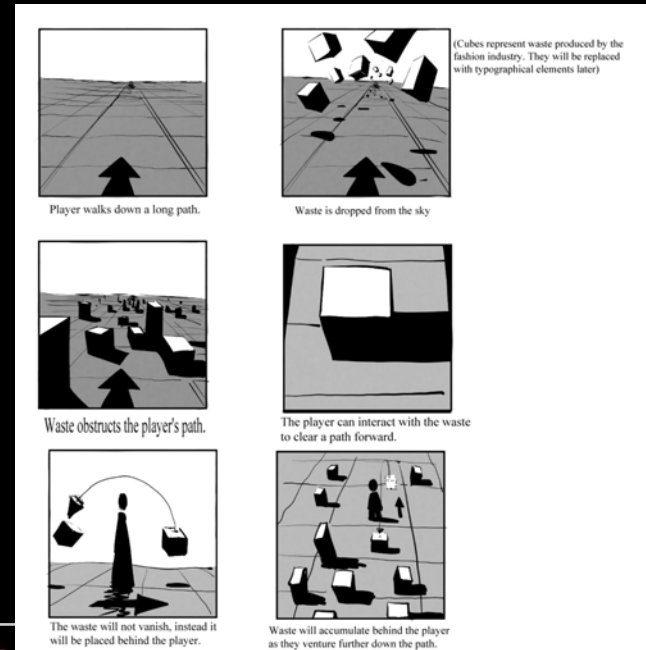
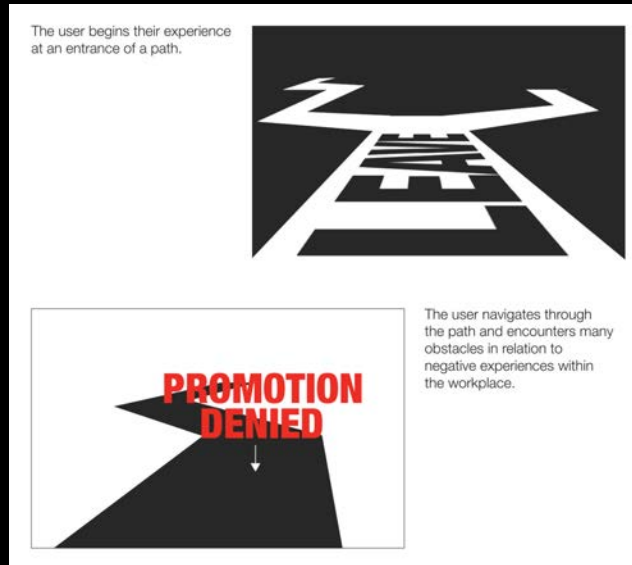
Guidelines:

Typography only

No characters nor photorealism (limited time)

No games but gamification is welcome

See examples of the past Projects on the class website



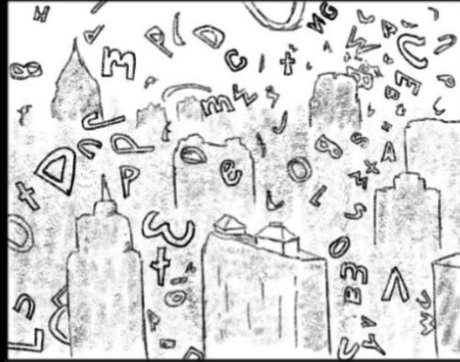
A2- VR Project Proposal Storyboard example

Problem

Current power infrastructure



Causing smog & pollution

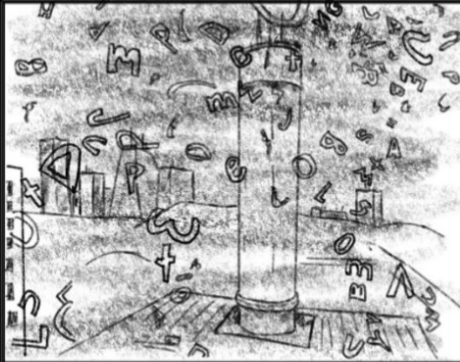


User's View becomes blocked by smog

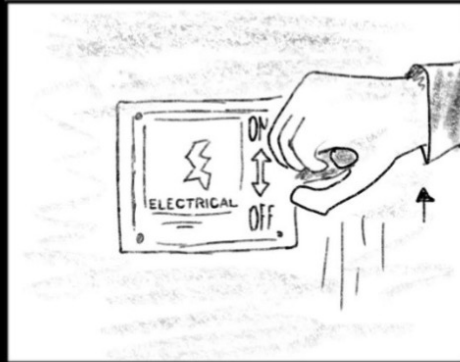


Solution

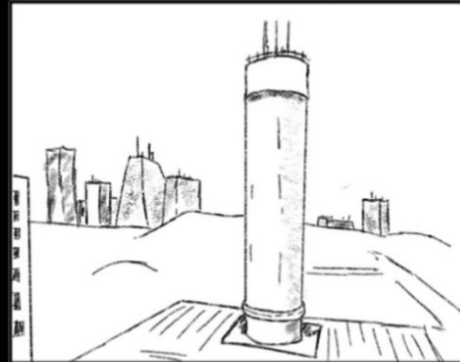
User has to find air purifier



Turn on the Power/Activate Purifier



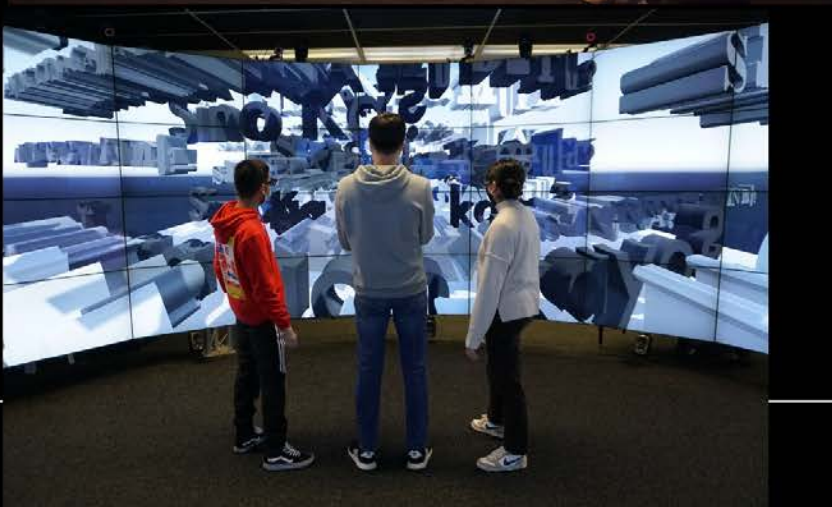
Air purifier removes smog



Example student projects



Coding



Example CHI Student Design Projects

2017

<https://www.youtube.com/watch?v=H09-1PgMQTI>

2016

<https://www.youtube.com/watch?v=Ylt67aR4Dlo>

