BHEF Innovation Fellowship 2025

Doctor of Design a C-MAR program

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Traditional Built Environments

Historically, built environments have been designed primarily in response to visual principles. However, humans explore the world through multisensory perception.



Casa Estudio Luis Barragán



21st-Century Built Environments

"Exploration and Discovery only exist within the context of the Unknown."

- VINCE KADLUBEK, CEO OF MEOW WOLF

Forward-thinking architectural environments have the potential to offer interactive multisensory experiences.



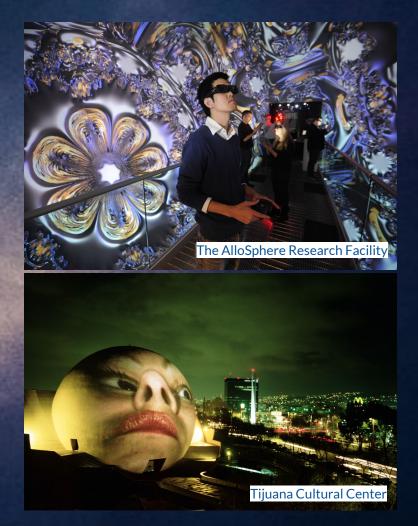
Meow Wolf Las Vegas' Omega Mart



TeamLab planets: An Interactive Pond of Computer-Generated Koi Fish

21st-Century Building Technologies

Today's architects and designers are able to create fully immersive, responsive spaces through the use of technologies such as AR/VR, sensors, scent diffusers, environmental controls, and projection mapping.





Educational & Industry Gap

Tools & Skills

Experiences

Sensor-based Technologies

•••

Interdisciplinary
Design

Gap

Multisensory Immersive Spatialized

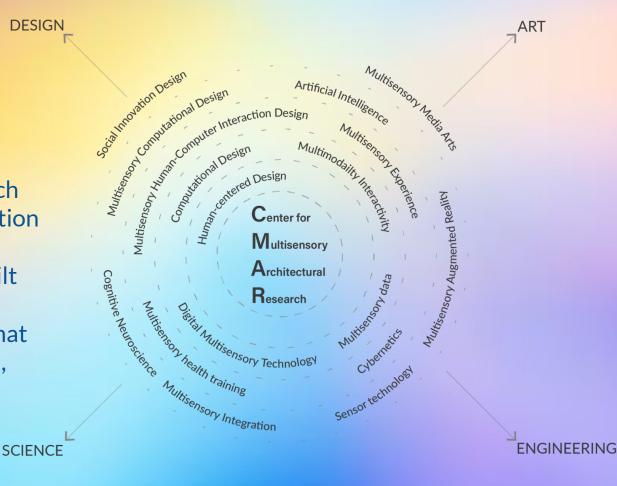
How can interdisciplinary design education prepare students for an industry that enhances spatialized experiences in built environments?



Gap Solution

C-MAR

An interdisciplinary research hub for the innovative creation of digital products and commercial services for built environments through multisensory approaches that consider sight, sound, smell, taste, touch, and somatosensation.





C-MAR Roadmap

Interdisciplinary **Multisensory Research Research Output Potential Industry Partners Researchers Scholars Facility** Apple San Diego Campus, Museums, Qualcomm, Acoustic and Visual Conference Art Industry Presentations Design Design Innovation Research Dexcom. Neurocrine **Exhibitions** Application C-MAR Product **Biosciences** Engineering **Publications** AECOM, Gensler, Biocom Science California AIA, Adv Materials Innovations **Product Prototypes Culinary Industry Patents** Art and Culture, Meow Wolf



Project Model

Situation

Very little design consideration of multisensory experience in the building environment

Inputs

Funding, Industry partners, Time, Research facility, Researchers, Staff, Ph.D. Students and Postdoc, Material, Equipment, Technology

Activities

What we do

Design
Research
Activities,
Training,
Workshop,
Design
Product,
Collaboration,
Outreach and
public
engagement

Audience

Design student
Design
practitioner
Partner agency
Policy maker
Public

Short Term

Multisensory technology advancement, Multisensory design skill, Awareness Knowledge

Mid Term

Multisensorv Culture Impacts on Design Attitude Community, Change, Building Behavior Industry, Change Human Curriculum wellness. change. Social. Industry Culture. practice Economic. change and Administration

Long Term

Assumptions

High level of industry, student, and public interest in the project

External Factors

Funding and partnerships



Train Next-Generation Innovators

- Create a doctoral program in Interdisciplinary Design (Doctor of Design).
- Cultivate future innovative architects and designers.
- Train the future leaders in multisensory innovation.

CSU Interdisciplinary Studies

Doctoral Program

San Diego State University

MA

MS

Chico, Dominguez Hills, Fresno, Los Angeles, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, Sonoma, Stanislaus

BA

BS

Bakersfield, Dominguez Hills, Fresno, Humboldt, Los Angeles, Northridge, Pomona, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, San Luis Obispo, San Marcos, Stanislaus



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CSU Design Programs

Doctoral Program

San Diego State University

MA MS MFA MDES MCRP

East Bay, Fullerton, Long Beach, Los Angeles, Northridge, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, San Luis Obispo

Chico, Dominguez Hills, East Bay, Fresno, Fullerton, Long Beach, Los Angeles, Monterey Bay, Northridge, Pomona, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, San Luis Obispo, San Marcos



Become A Nationally Recognized Leader in Design



Current PhD in Design programs in the U.S.A (2025)

Arizona State University
Harvard University
Illinois Institute of Technology
North Carolina State
University
University of Minnesota

Future program
San Diego State University



Vision

C-MAR is a next-generation built-environment innovation hub that engages the full spectrum of human perception and emotion to promote worldwide health and well-being.

The Doctor of Design degree at San Diego State University will be a leading design program for interdisciplinary research and innovation.



Goals

- Foster interdisciplinary research collaborations.
- **Train** next-generation creative innovators in interdisciplinary design research.
- **Develop** tools for multisensory design innovations.
- **Establish** a Certificate in Multisensory Architectural Design Leadership.



Interdisciplinary Faculty Team



Matthew AndersonPhysics



Sara Saghafi Moghaddam Art and Design



Qi Wang Aerospace



Chris Warren Music



Yin Yu Art and Design

Timeline





C-MAR: Center for Multisensory Architectural Research



