CannonDesign is an integrated global design firm that unites a dynamic team of architects, engineers, strategists, researchers, futurists, and industry specialists driven by a singular goal – to help solve our clients’ and society’s greatest challenges.
#3 US Education Firm  Building Design + Construction
#6 Global Health Firm  World Architecture 100
#8 Science + Technology Design Firm  World Architecture 100
#16 Top Design Firm  Architect 50
Top 10 Innovative Arch. Firm in the World  Fast Company
Top 25 Office Design Firm  Building Design + Construction
Top 10 US Interiors Firm  Interior Design Magazine
Top 10 Engineering Firm  World Architecture 100

500+ total design awards won in the last 15 years

900+ designers
TOP 10
MOST INNOVATIVE ARCHITECTURE FIRM IN THE WORLD
Hilda Espinal, AIA, LEED AP+C, CDT, MCSE

Hilda Espinal is CannonDesign’s Chief Technology Officer, responsible for the evolution and implementation of the firm’s emerging technologies through leveraging computational tools and workflows, digital intelligence, immersive realities, building information modeling, and advanced building analysis and visualization. A licensed architect and technology leader for more than 16 years, she helps clients and project teams around the world leverage technology and intelligent data to make informed decisions early in the design process — reducing risk and maximizing the impact of investments.

Hilda sits on the national board of directors for Women for Economic Leadership and Development (WELD), is the chair for CannonDesign’s Diversity + Inclusion Council and is very involved in multiple partnership in the technology space. She is a Microsoft-certified systems engineer, a regularly speaker at both national and international industry events, and has been active in the Autodesk Executive Council, Builtworlds Hackathon Judges panel, Mars Home Urbanization Challenge and the AIA’s CIO/CTO Large Firm Roundtable. In 2016, Hilda was named one of the “Top Women in Technology” by the Dallas Business Journal.
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HOLODECK @ CANNONDESIGN:

ENHANCING THE DESIGN PROCESSES...
IMMERSIVE EXPERIENCE: NAVIGATION
IMMERSIVE EXPERIENCE: PHOTOREALISM
INTERACTIVE : SPATIAL AWARENESS
INTERACTIVE : ANNOTATION
SOCIAL: SEEING + HEARING THE SAME...
SOCIAL: INCREASED COMFORT
SOCIAL: READING BODY LANGUAGE + CUES
PREDICTIVE: SEEING THE UN-SEEABLE
COLLABORATIVE: FOR THE DESIGN TEAM
COLLABORATIVE : FOR THE DESIGN TEAM
COLLABORATIVE : FOR THE CLIENT !!!
HOLODECK @ CANNONDESIGN:

THE OPERATIONAL CASE...
A GLOBAL + INTEGRATED PRACTICE...

19 OFFICES
WORLDWIDE (AND GROWING!)

1000+
CANNONDESIGNERS
Reduce Geographical Barriers

Design teams are in primarily in the USA and Amsterdam. Consultants are geographically dispersed.
Cut Expenses

We foresee reducing travel costs and avoiding expensive change orders, due to miscommunication.
Reduce Time

By being in the same virtual space, to make decisions and test them, in real-time, and with all stakeholders present.
MEETING (OR SURPASSING) CLIENT EXPECTATIONS

Stay True to Client’s Vision

Client is very interested in using the technology in their exhibit space and lab. It is a state of the Art Technology space, after all!
HOLODECK @ CANNONDESIGN:
THE STRATEGIC CASE...
Virtual reality is increasing demand; expected in most cases.
Technology innovation is growing as competitive advantage.
SHAPING HOLODECK

CANNONDESIGN’S COLLABORATION WITH NVIDIA
Ernesto Pacheco, Firm Visualization Leader

VizNet is led by Ernesto Pacheco, who was recently promoted to the role of Firm Visualization Leader. In this role, Ernesto directs the development and management of digital graphic resources throughout CannonDesign for design visualization, from still renderings to animations and immersive technologies (VR, AR, XR) and promotes our capabilities to enhance visual communication and presentation deliverables.

Ernesto Pacheco leverages expert knowledge of visualization applications in supporting project teams and pursuits. As the Firm Visualization Leader at CannonDesign, Ernesto is a “Go-to” person for all project related aspects of visualization. He is primarily responsible for research and implementation of new technologies into the visual communications process. Ernesto started his career studying Architecture at the Universidad de las Americas-Puebla Mexico, before moving to the United States. He continued his studies in Interactive Design at Maryville University in St. Louis, MO. Ernesto has 18 years of experience in the Architectural field and has worked on several high-profile projects since joining CannonDesign. Most recently, Ernesto has been a key participant to the Holodeck partnership between CannonDesign and NVIDIA to develop tools geared towards Architectural Design.

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HOLODECK: THE BEGINNING
Thank you for applying to NVIDIA Holodeck Early Access.

If selected, you will be notified about the next steps via email.

<table>
<thead>
<tr>
<th>Products</th>
<th>Resources</th>
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</tr>
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<tr>
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</tr>
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</tbody>
</table>
HOLODECK: THE BEGINNING
"Scity" (pronounced "city") is a city infused with science and scientific creativity. SciTech Scity is a collaboration between the City of Jersey City and Liberty Science Center, New Jersey’s most visited cultural institution, to bolster local education and economic growth in key STEM sectors.

WHERE THE FUTURE COMES ALIVE
Recommendations for AEC Use

• Video and 360 image output
• Scale factors (Holotable)
• More live section options
• Sun Studies (Holotable)
• Saved views (Holotable via Beacons)
• Sketch on geometry
• Call in from desktops (Google Hangouts support)
IT’S MY OFFICE, IT’S OUR MODEL!
HOLODECK @ CANNONDESIGN

WORKFLOWS + BEST PRACTICES
INCLUSIVE PARTICIPATION: GOOGLE HANGOUTS
GUIDE YOUR AUDIENCE...
CAPTURE CHANGES
BEST PRACTICES

• Holodeck’s UI and tools are intuitive
• It is a stable Multi-User VR platform
• 3dsmax + IRay required
• One mesh per interactive object
• Pivot placement is important
• For custom texture maps use Asphalt (AEC/Ground)
• Center to origin
As our information technology leader, Andrew is responsible for developing and maintaining a complete technology infrastructure that aligns with our firm’s broader goals to remain a leader in the industry. In this role, he has been integral in setting up our state-of-the-art data center and transitioning our firm into a virtual environment where employees can access their files and workstations from anywhere. He also oversees our robust team of in-house IT personnel — ensuring our information systems and staff are supporting our firm’s operational needs and goals.
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LESS THAN IDEAL EXPERIMENTATION

- Software and Hardware were prohibitively expensive.
- Visuals were not photo-realistic.
- Collaboration with Avatars was not natural.

Please...
move...
..wall.
HOME GROWN APPROACH...
TODAY’S IMPLEMENTATION
Next Generation Multi-user
NEXT?

DEVELOPMENT POTENTIAL..
WISH LIST…

- Augmented Multi-Sensory Experiences
- Enhanced Simulation
- Virtual Coordination
- Deep Learning by Immersion
- Revit and Rhino Integration
- Roundtrip Changes with Authoring Software
WISH LIST…

• Multi ID material support
• Customizable environments
• Physics
• Customizable MDL library
• IES lights support
• Rhino plugins
• Snaps and grid system
WISH LIST…

OTHERS?
THANK YOU!

March 19, 2019 - GTC Silicon Valley : San Jose, CA