How Layton Construction Improved ROI using Collaborative Virtual Reality

Peter Pang, Senior Product Manager, NVIDIA

Jon Ferguson, Corporate Visualization Manager, Layton Construction

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How can I save time and expense using VR?



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Layton Construction

How VR impacts ROI





Peter Pang

Senior Product Manager

NVIDIA

- Senior Product Manager
- Holodeck PM
- Customer-focused, UI/UX, and app workflow.
- 17-years in the Automotive industry, Toyota Design
- Art Center College of Design, Industrial Design



Jon Ferguson

Corporate Manager of Visualization

Layton Construction

- Visualization expert
- 13 years’ experience in the AEC Industry
- Developed industry leading innovations & applications
- 208% growth in revenue generated
- $2 Billion dollars in acquired new work

ABOUT LAYTON CONSTRUCTION

23

LARGEST CONTRACTOR IN THE UNITED STATES (2019, ENR'S TOP 100 CMR FIRMS)

4

LARGEST HEALTHCARE CONTRACTOR IN THE UNITED STATES (2019 MODERN HEALTHCARE, TOP GENERAL CONTRACTORS)

30

LARGEST DATA CENTER CONTRACTOR IN THE UNITED STATES (2019, BUILDING DESIGN & CONSTRUCTION'S GIANTS 300)

44

ENR'S TOP 400 CONTRACTORS IN THE UNITED

Layton

CONSTRUCTING WITH INTEGRITY

Layton Construction



Layton Construction

Workflow

2016: REVIT > 3DS MAX > Stingray > Vive

TODAY: REVIT > 3DS MAX > Holodeck > Vive

TODAY: REVIT > 3DS MAX > UE4 > Vive

Layton Construction

HCA Health Care of America

Layton Client

North Alabama Medical Center

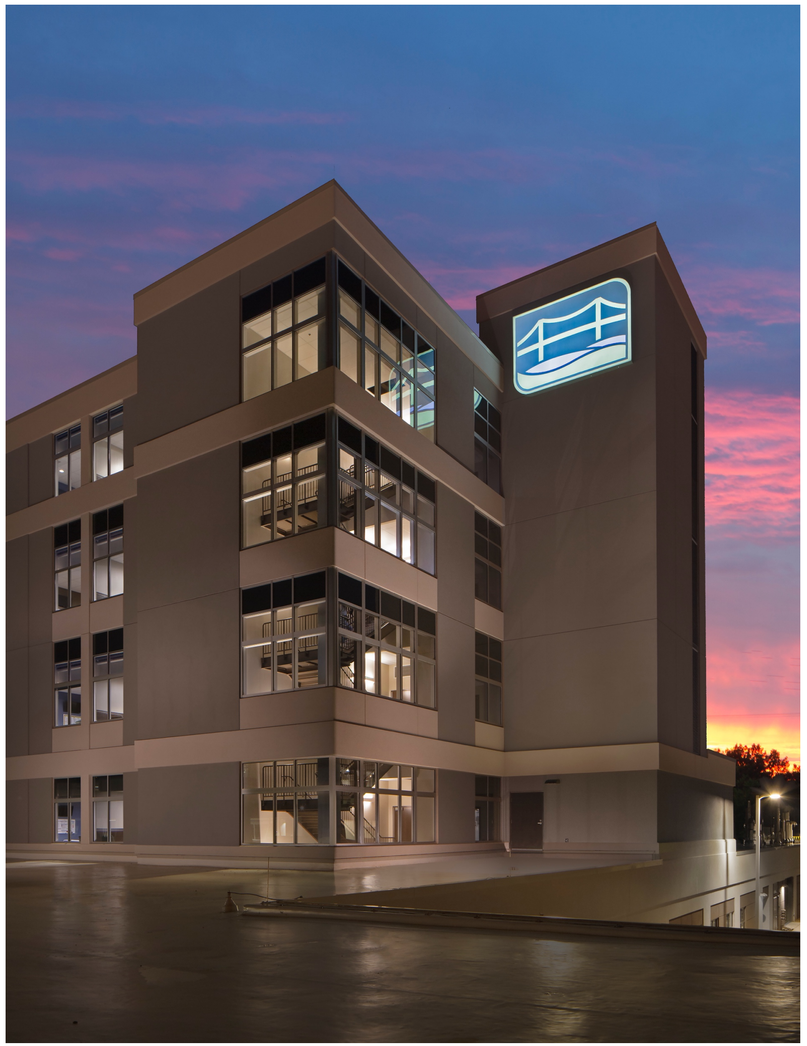
Project Location

Florence Alabama, USA

VR Use Case

Virtual Mockups: NICU, Labor & Delivery, ORs, ICUs

Patient Rooms



Layton Construction

Our client using VR

VR Work Space

VR user space / logistics

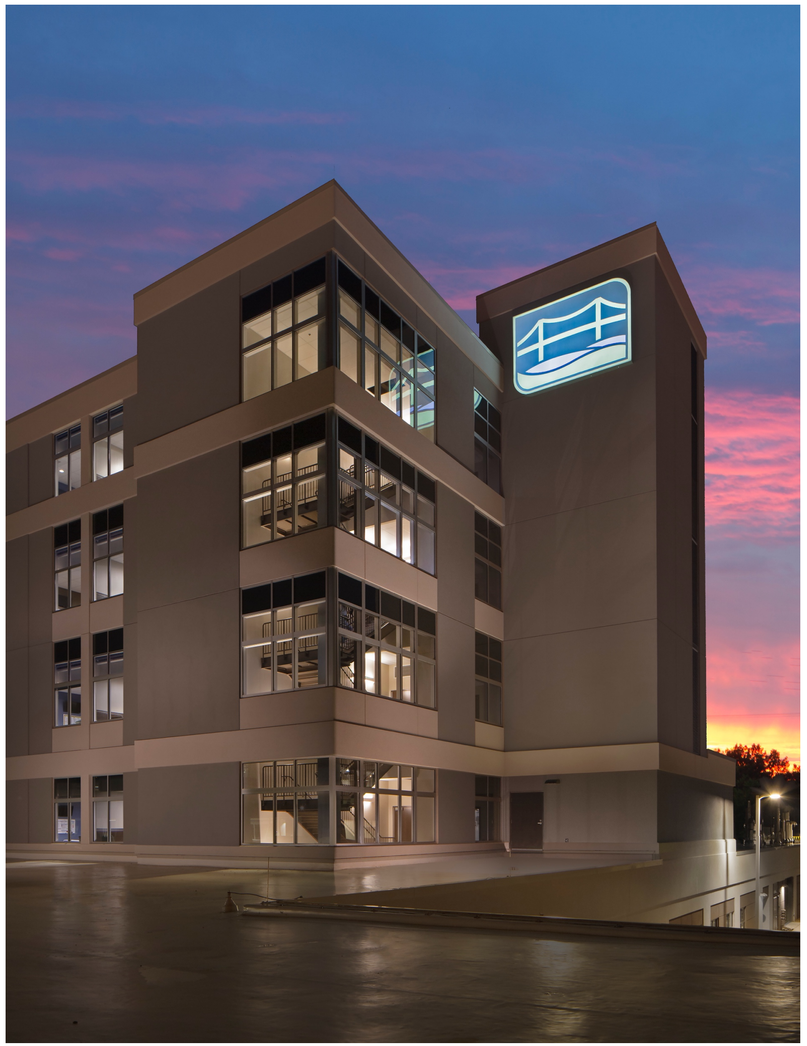
Clients Using VR

Duration

Client Feedback about VR

Key take-aways / feedback

Surprises / Unplanned but beneficial results



Layton Construction: ROI

Qualitative ROI Points

Major Coordination Systems

VR Impact on Layton and AEC



Layton Construction: ROI

Quantitative ROI Points

Project Schedule

Project Savings / Cost

Project Efficiency



Photos of completed spaces

FINAL RECOMMENDATIONS

HOW BEST TO ACHIEVE IMMEDIATE AND LONG TERM ROI USING VR?

HOW TO GET STARTED USING VR?



Virtual Reality Mockups



Photos of completed spaces

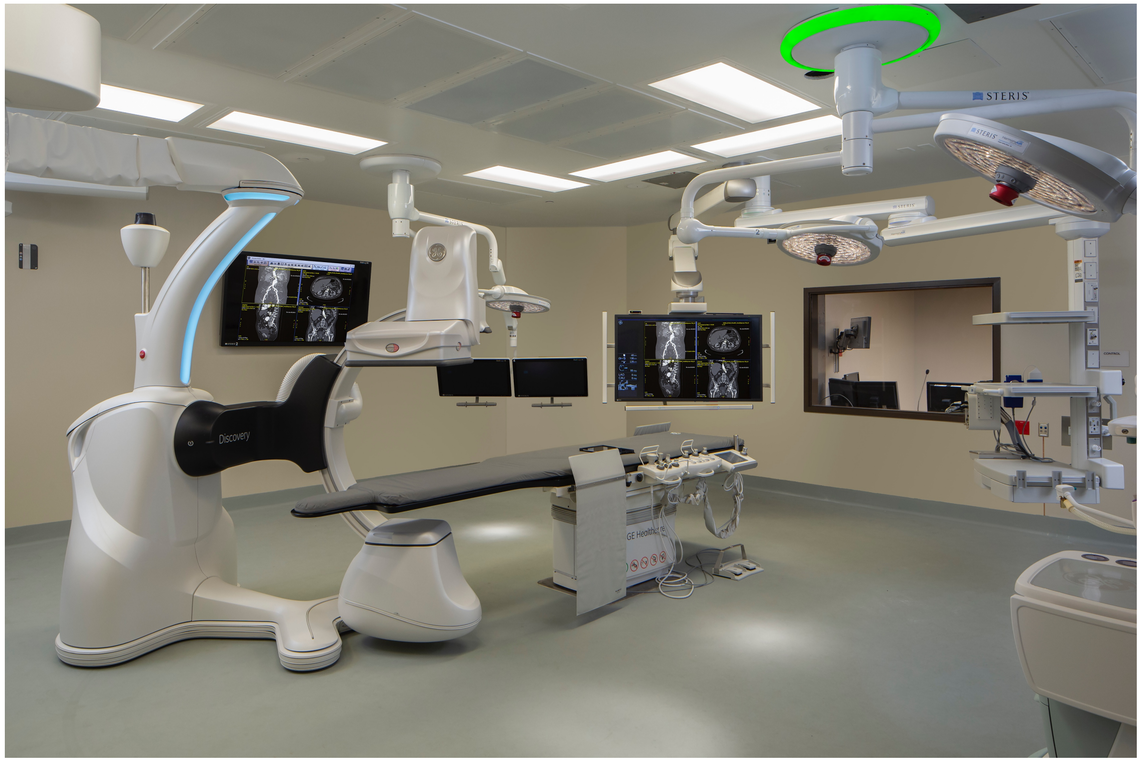
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Virtual Reality Mockups



Photos of completed spaces

FINAL RECOMMENDATIONS

Virtual Reality Mockups









ENTERPRISE VR

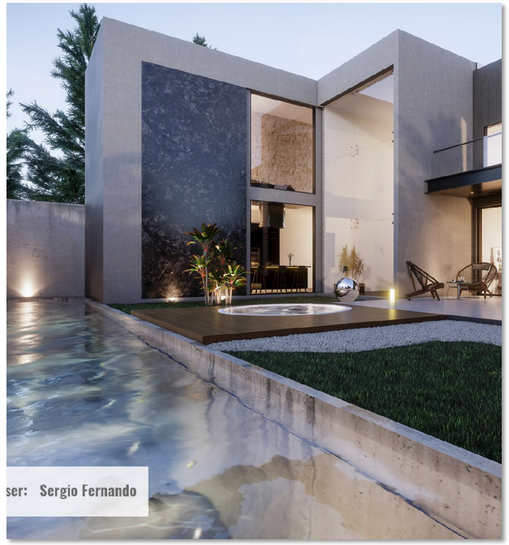
How NVIDIA advances your VR development

MANUFACTURING



Engineering, Design, Marketing/sales

AEC



Design, Sales, Moving to Construction

M&E



Virtual Production

TRAINING



Nearly Every Market

LBE



Enterprise/Consumer

ENTERPRISE VR

How NVIDIA advances your VR development



- RT Cores
- Tensor Cores

- CUDA® Cores
- GDDR6 Memory

- NVLink™
- 4x DP 1.4 + 1x Virtual Link™

- VR Ready
- Quadro Sync II

NVIDIA VRWORKS

Comprehensive SDK for VR Developers

GRAPHICS



LENS MATCHED SHADING



VR SLI



MULTIRES SHADING



VARIABLE RATE SHADING



SINGLE PASS STEREO



MULTI-VIEW RENDERING

HEADSET



CONTEXT PRIORITY



DIRECT MODE



FRONT BUFFER RENDERING

TOUCH & PHYSICS



PHYSX

AUDIO



VRWORKS AUDIO

PROFESSIONAL



WARP & BLEND



SYNCHRONIZATION



GPU AFFINITY

VIDEO



VRWORKS 360 VIDEO



GPUDIRECT FOR VIDEO

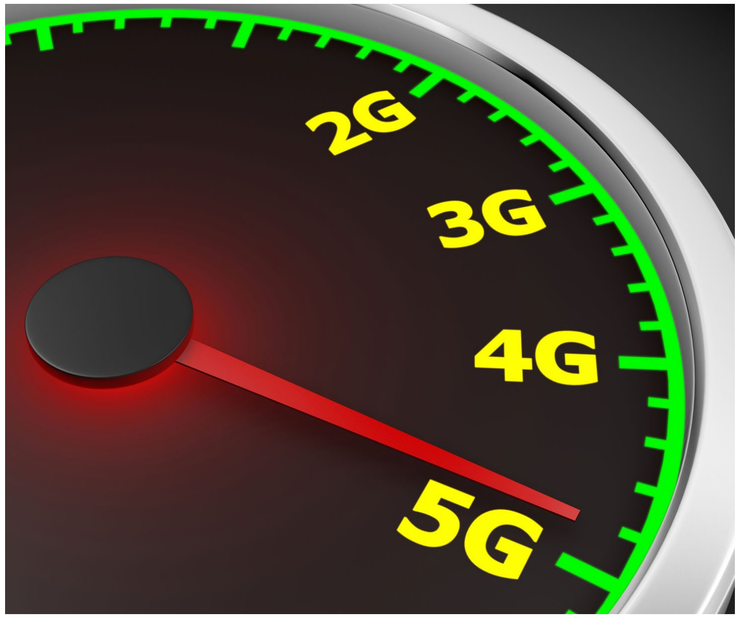
PROVIDING VR/AR/VGPU OVER 5G

A Convergence of Visual Compute, 5G and New Edge Topology



Powerful GPUs

Incredible compute capabilities redefining graphics



High Bandwidth and Ultra-Low Latency

Both are required for VR/AR



Compute is at the Edge

Very few hops – Low Latency

WIRELESS AR/VR

The Near Future 5G On Premise Dedicated Network

- Wireless VR
  - More users than wi-fi will support
  - Better signal security
- AI on the manufacturing floor in AR and VR
- RTX server streaming to the manufacturing floor
- Customer impact: Layton Construction
- NVIDIA DEMOS: VRS, RTX Server, and CloudXR
- AUTODESK DEMO: 5G





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END



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