Data-driven science
Visualization
Spaces in Libraries
Visualization Spaces in Libraries
Visualization Spaces in Libraries
Visualization
Spaces in Libraries
NCSU was well positioned
Postmodern Culture
1990
A Technology Program for the Hunt Library

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March 2009
preparation by
Maurice York and Kristin Antelman
Technology vision

- Make emerging technologies available to the entire NC State community
- Provide diverse, technology-rich learning spaces
- Empower users to engage actively and creatively
- Provide technologies that are open, integrated, and accessible
162,000 gsf
~$100 m construction | $8.5 m technology
Opened January 2013
Maddie Poole
@maddie_poole
Not sure if I walked into Hunt Library or the future...

Trevian White
@TrevianW
Back at Hunt Library...the only place I can truly be productive. I feel energized to study when I enter the doors. @ncsulibraries

Sarah Wechsberg
@TheEcofoodie
Startup Madness at the new Hunt Library at NCSU. Very impressive student entrepreneurs launching real companies #smad13

LUG @ NC State
@ncsulug
Today's hack day was great! Thanks to everyone who came out and @ncsulibraries for letting us use the fishbowl. Next one'll be in April!

NC State University
@NCState
Woodson: "Place matters." #CentCampus, #HuntLibrary create spirit of entrepreneurship, serendipity that drive innovation. #ncsuinnovation

DowntownRaleighDigs
@dtrdigs
Wow. Have you been to the Hunt Library at NCSU? Coolest place in town. ow.ly/i/1yLmh #Iwanttogobacktoschool
Research
Spaces & Infrastructure
Research Spaces & Infrastructure

Core Focus Areas:
Large-Scale Display & Visualization
Interactive Computing
Communications and collaboration
Piloting & developing new technologies
Black box / White box Spaces
Teaching & Visualization Lab
Black box / White box Spaces
Teaching & Visualization Lab

- Teaching and research
- Technology R&D
- Immersive environments
- Visualization & Sonification
Black box / White box Spaces
Creativity Studio
Black box / White box Spaces
Creativity Studio

- Brainstorming
- Technology R&D
- Simulation
- Active collaboration
Black box / White box Spaces

Creativity Studio

- Brainstorming
- Technology R&D
- Simulation
- Active collaboration

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Large-Scale Interactive Display Spaces

Immersion Theater, Game Lab
Large-Scale Interactive Display Spaces
Immersion Theater, Game Lab

- Game research
- Simulation & Visualization
- Presentation
- Data analysis and problem solving

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Monday, April 15, 2013
Large-Scale Interactive Display Spaces

Immersion Theater, Game Lab

- Game research
- Simulation & Visualization
- Presentation
- Data analysis and problem solving
Display Walls
Display Walls

- Community Engagement
- Interactive computing
- Showcasing research & classroom products
- Real-time data analysis
- Collaborative problem solving
Cloud Spaces
Cloud Spaces

Core Focus Areas:
Graphics intensive applications
Rendering & Visualization
Anytime, Anywhere, Any Device Project Space
Mobility and communications
Integration with campus and college infrastructure
VM Environment

- Commodity Desktops
- Commodity Laptops
- Kiosk/light use
- Group Studies
- Mobile devices

High-end graphics workstations
- Video walls
- Visualization and compute-intensive tasks

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Monday, April 15, 2013
RESEARCH INFRASTRUCTURE

- Private Cloud & Systems Orchestration
- HPC / Render Farm
- Display Servers
- High-Performance Storage
- 40G / 10G / 1G IP Network & Fiber AV Network
- Archive Data
- Backup / DR
- Conference / Capture
- Project Space
- Any-to-any Display Environment
- Maurice York. NCSU Libraries. maurice_york@ncsu.edu

Monday, April 15, 2013
Ultra High-Speed Backbone
Ultra High-Speed Backbone

Cloud Infrastructure
Large-Scale Display

Media Production

Collaboration and Communication

Interactive Computing

Graphics intensive applications
Early prototyping and POC

Concept development, Ideation and design

Critique, game play and demonstration

Cinematics, graphics, animation
Critique, game play and demonstration

Concept development, Ideation and design

Game Research Hub

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Monday, April 15, 2013
Game Research Hub
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Monday, April 15, 2013
Platform Research
Platform Research

Compact HPC and Graphics Infrastructure - Dell, NVIDIA, Intel
Large-Scale Display and Scaling - Christie
Cloud Computing, Software-Defined Data Center - VMware
Media Infrastructure - Cisco, Extron
Storage Infrastructure - EMC, Dell
Applications Research
What I would have loved to see is an API for Hunt Library itself. Imagine if students actually had an interface where they could write Apps for the library, where students could launch the apps from any of the displays or study rooms in the building? Enterprising developers could leverage the touch screens and Microtile displays for any number of artistic, social, and educational purposes.... Give us the tools to add to the library! There is wisdom in the crowd, especially the crowd of Computer Science and Engineering students looking to make their mark on the world!

Barry Peddycord III
Computer Science Ph.D. Candidate
Applications Research
Applications Research

Video Wall Orchestration
Virtual Environment Modeling
Intelligent sensor arrays and interactive computing
Dynamic Visualization - Mobile Device Interaction
Self-service Usability Lab Interface
Academic Research
Academic Research
Proof of Concept Faculty Projects

- **Big Data Harvester and Business Analytics**
  - College of Management

- **Maritime Skills Simulator**
  - US Naval Training Command

- **Game Design, Game AI & HCI**
  - Computer Science, Electrical & Computer Engineering, Design

- **Virtual Crime Scene Investigation**
  - Textiles Forensics, Computer Science

- **Virtual Forestry Environment**
  - College of Natural Resources

- **Virtual Recreation: St. Paul’s Cathedral, 1622**
  - Department of English
Digital Humanities: Virtual Paul’s Cross

JOHN WALL, JOSHUA STEPHENS, DAVID HILL

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Monday, April 15, 2013
Digital Humanities: Virtual Paul’s Cross

JOHN WALL, JOSHUA STEPHENS, DAVID HILL
Visualization & Sonification

Rendered in Unity Game Engine

3D Sonification:
Aural Representation of Data in 3D Sound Space
Visualization & Sonification

3D Visualization:
Plant Cell component mobility through the cell wall
Rendered in Unity Game Engine

3D Sonification:
Aural Representation of Data in 3D Sound Space

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Monday, April 15, 2013
Research Platform