Visualization Studio

Two Years of Experience at the University of Calgary

John Brosz & Shawna Sadler

CNI Spring Meeting
April 1, 2014
Presentation Outline

Shawna
1. Intent, mandate & strategy
2. Design with faculty & graduate students
3. Build phase
4. Pictures of the Visualization Studio
5. Policies
6. Hiring Manager, qualifications, job description

John
1. Marketing & awareness
2. Data analysis of usage
3. Examples of work
4. Evaluations
5. Upgrading
6. Lessons Learned
Taylor Family Digital Library

Library welcomes students
The Taylor Family Digital Library opens Sept. 6 with all six floors available for studying, research and collaborative learning.
The Vision

State-of-the-art Learning and Research Centre

Providing outstanding support for Scholarship, Learning and the Creation of Knowledge, Libraries and Cultural Resources is a key component in the University’s Excellence in Research, Teaching and Community Service.

We will fulfill this vision through a convergence of our Libraries, Museum, Archives, Special Collections and University Press and through campus, community, national and international partnerships.

We Should Imagine Greatness
The Taylor as an Instrument of Research
Themes

- **Agile** – All spaces and technology infrastructures must be easily adaptable to changing student and researcher needs
- **Contemporary** – Spaces and technologies must remain cutting edge, so to give our UofC Community unique access to innovation
- **Inspiring** – Technologies must leverage opportunities for our students and researchers in exciting new ways
- **Innovative** – The Library Technology staff must apply a high-level of creativity to selecting and employing technologies in the library
Intent

Dedicated space in the library for faculty and graduate students to conduct research with cutting edge technologies

Tom Hickerson
Vice Provost, Libraries and Cultural Resources, University Librarian
University of Calgary
Mandate

Provide meaningful space, technologies and services to enhance the research effort of the University of Calgary faculty and graduate students.
Strategy

Engage faculty and graduate students in the design, purchase, and operationalization of the new space.

Architecture  Computer Science  Environmental Design  Geology  Library  Medicine  Sociology
Original idea... 3D CAVE

http://pauillac.inria.fr/~codognet/VR.html
Design with Faculty & Grad Students

Dr. Sheelagh Carpendale

Dr. Miguel Nacenta

Dr. Uta Hinrichs
1. An environment for collaborative discovery
2. Will allow you to do things that you can’t at your desktop
3. Should be a similar experience to working on your computer
4. Future proof so the room can remain cutting edge for years to come
5. Dedicated staff to support researchers in the room
6. No bezels to interrupt the image(s) on the screen
7. Design to respect research data and the ethical use of using sensitive data
8. Keep policies to a minimum so not to constrain research activities
1. **An environment for collaborative discovery**
   
   Lots of moveable furniture, electrical plugs, good wireless infrastructure, virtual collaboration opportunities

2. **Will allow you to do things that you can’t at your desktop**
   
   Big screen, easily share content with colleagues, does not require special programming to run applications in the environment

3. **Future proof so the room can remain cutting edge for years to come**
   
   Make sure your operating budget can keep this space useful
1. Dedicated staff to support researchers in the room
   We’re tired of not having the support we need to conduct our research

2. No bezels to interrupt the image(s) on the screen
   Example- dataset

3. Design to respect research data & the ethical use of using sensitive data
   Protect sensitive data, no windows, secure door, secure physical and virtual environment

4. Keep policies to a minimum so not to constrain research activities
   Let me do what I need to do, ie. Cater and serve alcohol in the space
Concept

- High-definition Touch Wall
- Interactive Rotatable Displays
- Small Auxiliary Interactive Tabletops
- Large Interactive Tabletop
The New Design

• Hi resolution wall (touch or gesture)
• Configurable display wall (touch)
• Large central multi-touch table
• Several small multi-touch tables
• A sofa
High Definition Displays

Key Feature, High Definition Displays

To display large amounts of data

To display high resolution (research quality) data

To enable collaboration among researchers
Configurable Space
15 projectors
Color & brightness balanced
Small bezels (1mm)
7.1 Surround Sound
Tech Specs

- 34.5 million pixels (9600 X 3600)
- 16’ X 6’
- Windows OS
- Dual Xeon E5-2687 3.1 GHz Processors w/ 96 GB RAM
- 4 NVidia Quadro K5000 graphics cards
- 55” LCD HD Touch Table

- 27” All-in-One PC – Presentation Console
- 7.1 Surround Sound
- 5 DVI + 5 VGA video inputs
- 1mm bezels
- Christie Entero DLP Projectors – 60,000 hr bulb life
Hiring the Manager

What we needed as per committee...

Technical
• Programming languages, C ++, C Sharp and Java
• Graphics programming libraries and/or frameworks
• Hardware experience, large display environments

People Skills
• Experience working in team environments
• Presentation skills
• Some evidence of self-motivation
• Leadership
Hiring the Manager

What we asked for on the job description...

Qualifications/Expertise Required:

Education:
A minimum of a Masters degree in Computer Science or other relevant masters degree is required. Ideally, education will reflect a combination of technology and visualization courses.

Required Experience:
Five to ten years of experience related to technical support and visualization is required.

Strong leadership skills and the ability to exercise responsibility over a physical area and the equipment within it.
Desired Experience:
Ability to balance priorities and workloads, working both independently and collaboratively
Strong verbal, written and presentation skills
Extensive customer service and troubleshooting skills
Previous experience with budget preparation and grant proposals
Must have the capability to successfully manage multiple competing priorities with minimal supervision and direction

Technical Skills:
PC Support
Experience with Windows OS, PC hardware, troubleshooting in a PC environment and providing public support in a PC environment

Visualization Software Support
Experienced at supporting research-level use of visualization software.

Visualization Support
Superior knowledge of visualizations in various forms and extensive knowledge and participation in visualization communities.
Hiring the Manager

Who we hired...

John Brosz, Ph.D. Computer Science

Background in Data Visualization & 3D Graphics
Hiring the Manager

Why researchers value John...

1. Ph.D.
2. Has conducted research himself
3. Has published work
4. Computer Science background, comfortable tackling difficult issues
5. Approachable & accessible
6. Cares and is interested in the research brought to the Studio
Dan Perry, Photography by Dave Brown
Frank Maurer, Chris Burns, Daniel Sabourin, Patrick King, & Teddy Seyed
ASE Lab http://ase.cpsc.ucalgary.ca
1 or more bookings by the same person.
Software Used in the Visualization Studio

- SPSS
- NVivo
- Stata
- ArcGIS
- MATLAB
- Mathematica
- Tableau
- AutoCAD
- 3DSMax
Original PC good at running multiple applications, particularly multiple real-time applications.

A year after the studio opened a PC became available to render 3D images on the large screen.
Valuable Characteristics

**Visualization Studio**

- Politically neutral position on campus
- Collaborative Workspace
- No windows, protect privacy of data
- High Resolution
- Lots of digital Real-Estate
- Wall looks great in P.R. photos & video
- Flexible furniture available to arrange the room in various configurations
- Open to new uses of the space
Valuable Policies

Visualization Studio
- Allow food & drink, encourage catered events in the space
- Restricted to Faculty & Graduate Students (no undergrads)
- Can reserve the studio a maximum of 7 consecutive days
- Access the studio when the library is open (7am to 11pm, 7 days a week)
- Card access to specific researchers
## Evaluating Usage

<table>
<thead>
<tr>
<th>Standard Measures</th>
<th>Count:</th>
<th>Available to researchers, July 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-use questionnaire</td>
<td>Bookings, Tours, Faculty, Students, Research areas, Publications, Days in use</td>
<td></td>
</tr>
</tbody>
</table>
Evaluating Usage

Bookings & Tours Per Month

- Bookings
- Tours
- Linear (Bookings)
- Linear (Tours)
Lessons Learned

Staff

1. Research Coordinator (John)
2. Technical assistance to assist John when needed
3. Marketing, promotions, event planning
4. Library administrator to liaise with campus researchers
Lessons Learned

Another room or a moveable wall
- A smaller more intimate space
- A larger space for teaching and big events
Lessons Learned

Vendor shootout
Thanks
library.ucalgary.ca/visualizationstudio

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Extra Slides
Visualization Studio
Visualization Studio
Visualization Studio
Visualization Studio
2. Image Analysis

Image from
http://eamonokane.com/work/4_ideal_collection