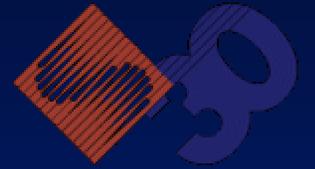


Using a 3D Virtual World to Establish a Community and Sense of Place in a DL



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Outline

- **Description of ACM SIGGRAPH Education Committee (ASEC) and the Digital Library (ASECDL)**
- **Issues and Opportunities**
- **Technology Considerations and Goals**
- **ASEC World**
- **ASEC Help**
- **Future & Conclusion**



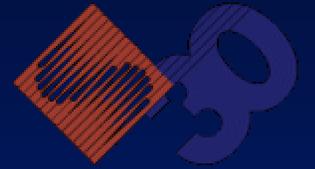
ASEC Objective

- **To support both Computer Graphics & Visualization education and the use of these in education (Computer Science, Mathematics, Art & Design, other areas)**
- **Target age groups: K - Gray**
- **ASEC has many different projects and members from around the world**
- **Annual budget of \$50 – \$100,000 from ACM SIGGRAPH (5,000 members and annual SIGGRAPH Conference has 30-50,000 attendees)**

ASEC Digital Library (ASECDL) **(www.education.siggraph.org)**



- **Contains Curriculum Recommendations, Activities, Results of Special Projects, Education Directory, and Instructional Materials**
- **ASECDL is large and rapidly increasing in size**
 - **Currently 650 mbytes and > 6500 individual files**
 - **Doubled in size in past two years**
- **Educator usage is increasing: In past 6 months have gone from 300 to almost 500 visits per day from > 80 countries**



ASECDL Materials

- **From SIGGRAPH Conference (Reviewed)**

- **Course Notes**
- **Education Slide Sets**
- **Educators Program Papers**
- **SIGGRAPH Video Reviews (SVRs)**
- **SPACE Posters**

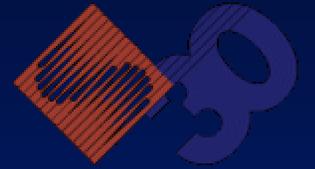
- **Other Sources**

- **HyperGraph & HyperVis (Supported by previous NSF Grants and an AGOCG Grant (Ken Brodlie, Leeds))**



Issues and Opportunities

- **Visual Community – want a Visual Interface**
- **Want to create a “sense of place” for ASECDL**
- **Want to create a sense of community, a meeting place**
- **Solution: Create a 3D Virtual ASECDL – “ASEC World”**
 - **Web-based Multi-User Shared Environment (MUSE)**



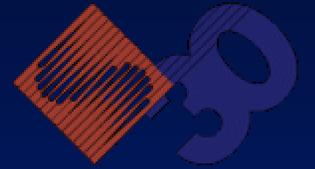
Technology Considerations

- **Computer Hardware**

- **Current CPU very fast (500 Mhz PIII) & doubling every 12 months (Moore's Law)**
- **Current Graphics chips very fast & doubling every 9 months (Games)**

- **Software**

- **VRML 97, X3D (requires a VRML Plug-in – Blaxxun)**
- **Java 3D, Java 2 + OpenGL (current browsers only support Java 1)**



Technology Considerations

- **Network Bandwidth**
 - Internet speeds about 30-50 Kbytes/sec
 - Many people still use dial-up (4 -5 Kbytes/sec)
- **For a complex world: Download once (or have on a CD-ROM)**
 - Blaxxun stores in local disk cache



Technology Goals of Virtual ASECDL

- **Use Standard Technology (W3C, Web3D)**
- **Choice of Avatars (including your own head (Image Based Modeling))**
- **Easy interaction with other Avatars – Text & Voice input/output**
- **Avatar behaviors (walking, gesticulation)**
- **Realistic worlds and objects (NURBS)**
- **Ability to incorporate improved real time rendering**



ASEC World

- **Using DeepMatrix Server by Geometrek**
 - Java based, Open source
 - Client is any VRML Browser
 - Allows user to choose from a list of Avatars or specify the URL of their own Avatar



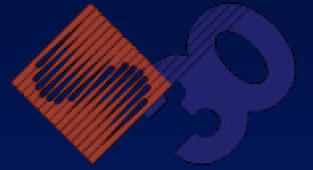
ASEC World - Architecture

- **Central entry point with different parts of ASECDL accessible through “doorways”**
- **Each part of ASECDL is represented in ASEC World**
- **Have started with the SPACE Poster Gallery**

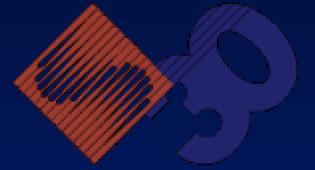
ASEC World – Entry Point

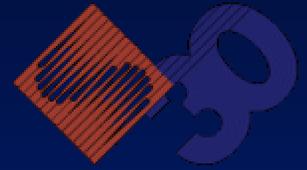


The Real Stonehenge



ASEC World – SPACE Poster Gallery





ASEC World Help

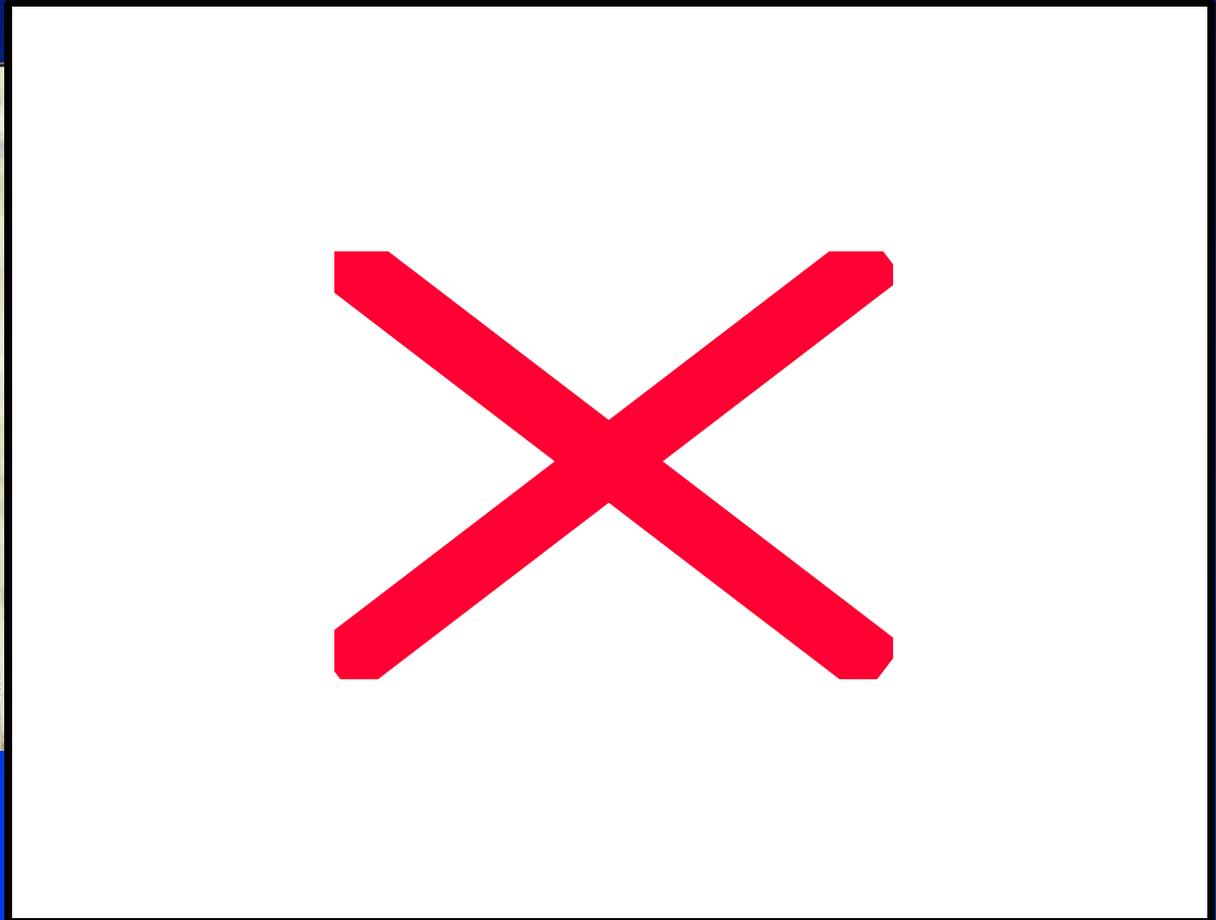
- **“Student Volunteers” – Intelligent Agents as Avatars (Baseball cap)**
 - **Visitors can ask simple questions**
 - **“Where is Mike McGrath in ASEC World?”**
 - **SV Avatars can connect to Lore database via Java programs**
 - **If cannot understand/answer question, ask a “Pathfinder”**
- **“Pathfinder” – human volunteer on duty**

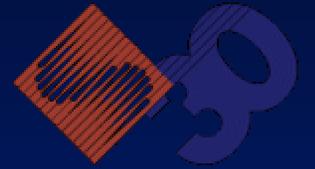


Future Use of ASEC World

- **Virtual Classroom**
 - **Have a distance learning class on surface mapping**
 - **Meet in special area of “surface Mapping Gallery” at specified time**
 - **Instructor walks group through Gallery discussing each image**
 - **Students look at high quality image + text in browser**

Surface Mapping Class





Conclusion

- **Creating a 3D Virtual representation of the ASECDL to help establish a sense of place and community**
- **Leveraging external Hardware/Software Developments**
- **Incorporating advances in AI for Intelligent Agents**
- **Incorporating advances in graphics technology (physically based modeling)**
- **Evolve into instructional environment**