Finding Paths through the World’s Photos

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SIGGRAPH 2008
3D navigation – Photo Tourism

- Photo Tourism: Exploring Image Collections in 3D

Noah Snavely, Steven M. Seitz, Richard Szeliski, SIGGRAPH 2006
3D navigation – Photo Tourism

Input photographs downloaded from internet

Scene reconstruction

Relative camera positions and orientations
Point cloud

Photo Explorer
3D navigation – Photo Tourism

PhotoSynth [www.photosynth.com]
Continuous navigation

Demo
3D navigation controls

Problem: 3D scenes are difficult to navigate

Problem: Controls are scene dependent
• Our approach: Derive good controls from the distribution of viewpoints in a large photo collection
Scene Specific Controls
Scene-specific navigation controls

- Orbits
- Panoramas
- Representative viewpoints
- Optimized paths between views
Pantheon
[Simon, et al., Scene summarization for Online Image Collections, ICCV ’07]
Optimized paths between views
Path planning
Personal photo tour
Personal photo 3D slideshow
Home-made object movie

Mark Twain
(input images)
Challenges

• More general types of paths

• More flexible appearance stabilization

• Appearance controls

• Scaling up to entire cities
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Demo of the system in CSE 291