

SIGGRAPH 2000 Course on 3D Photography

<http://www.cs.cmu.edu/~seitz/course/3DPhoto.html>

Introduction

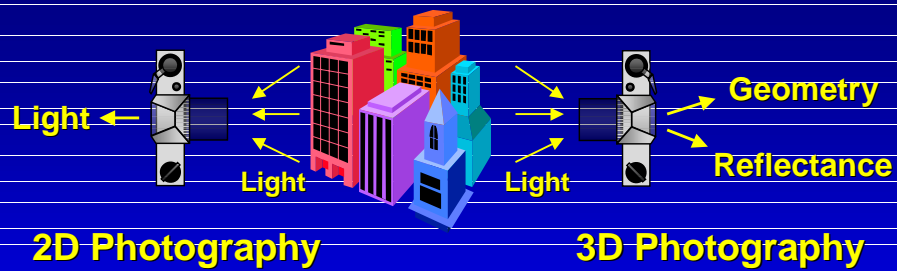
Steve Seitz

Carnegie Mellon University

Brian Curless

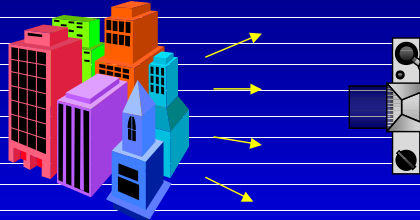
University of Washington

3D Photography



3D Photography from 2D Photography

Objects Radiate Visible Light



This Pattern of Light Depends On

- Scene illumination
- Surface geometry
- Surface reflectance

Cameras Capture This Light

- Enables analysis of scene structure

Passive vs. Active 3D Photography

Objective

- Infer structure from radiated light

Two Styles

- **Passive** sensing of light already in environment

- > widely applicable
- > cheap
- > brittle, less accurate

← Morning Session

- **Active** control of illumination

- > not always viable
- > expensive but getting cheaper
- > extremely accurate

← Afternoon Session

Speakers

Jean-Yves Bouguet, Intel Corporation

Brian Curless, University of Washington

Paul Debevec, University of Southern California

Marc Levoy, Stanford University

Shree Nayar, Columbia University

Steven Seitz, Carnegie Mellon University

Speakers (Morning Session)

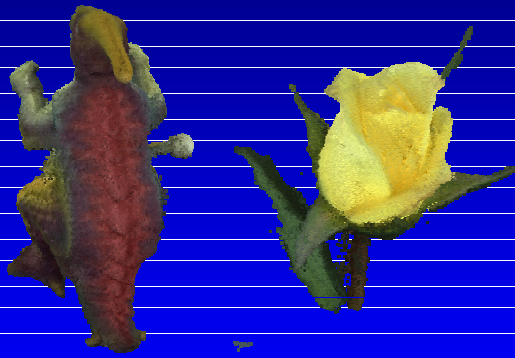
Shree Nayar Columbia University



8:40am *Sensing for Vision and Graphics*

Speakers (Morning Session)

Steven Seitz Carnegie Mellon University / U. Washington



9:30am *Overview of Passive Vision*

10:30am *From Images to Voxels*

Speakers (Morning Session)

Paul Debevec U.S.C, Institute for Creative Technologies



11:15am *Facade: Modeling Architectural Scenes*

Speakers (Afternoon Session)

Brian Curless University of Washington



1:30pm **Overview of Active Vision**

3:15pm **Shape and Appearance from Images and Range Data**

Speakers (Afternoon Session)

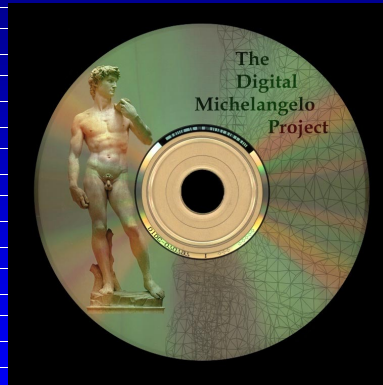
Jean-Yves Bouguet Intel Corporation



2:15pm **Desktop 3D Photography**

Speakers (Afternoon Session)

Marc Levoy Stanford University



3:55pm *The Digital Michelangelo Project*

Course Objectives

What Not to Expect

- “Build-your-own” 3D camera instructions

What to Expect

- Practical understanding of issues
- Overview of major approaches
- Latest research results
- Current capabilities, limitations

Course Notes

<http://www.cs.cmu.edu/~seitz/course/3DPhoto.html>

Slides

- Acrobat versions of speakers' slides

Abstracts

- Digital Michelangelo Project
- Passive vision intro
- Modeling architecture from photographs

Models, Movies, Online Presentations

- VRML models, HTML
- Quicktime movies

Papers

- Electronic versions of relevant publications