

**Vita**  
**Brian E. Smits**  
**November 20, 2000**

**Current Address**

Pixar Animation Studios  
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**Professional Experience**

2000 – present	Pixar Animation Studios	Graphics Research and Development
1998 – 2000	University of Utah	Research Assistant Professor (Dept. of Computer Science)
1997 – 1998	University of Utah	Post Doctoral Associate (Dept. of Computer Science)
1994 – 1997:	Lightscape Technologies	Software Engineer

**Education**

Ph.D.	Computer Science	Cornell University	1994
B.A.	Computer Science / Mathematics	University of Oregon	1990

**Areas of Interest**

Computer Graphics, Finite Element Analysis, Hierarchical Computation, Interactive Computing, Realistic Image Synthesis, Software Engineering,

**Professional Activities**

Program Committee Eurographics Rendering Workshop 2000  
Program Committee Eurographics Rendering Workshop 2001

**Reviewer**

Siggraph 94-00  
Eurographics Rendering Workshop 97-99  
Transactions on Graphics 93-95,99,00  
Transactions on Visualization and Computer Graphics 99,00  
Computer Graphics and Applications 00  
Journal of Graphics Tools 99  
Graphics Interface 98  
Parallel Rendering Symposium 97

**Siggraph Publications**

1. A. J. Preetham, P. Shirley, B. Smits, "A Practical Analytic Model for Daylight", SIGGRAPH '99.
2. B. Smits, J. Arvo, D. Greenberg, "A Clustering Algorithm for Radiosity in Complex Environments", SIGGRAPH '94.

3. D. Lischinski, B. Smits, D. Greenberg, "Bounds and Error Estimates for Radiosity", SIGGRAPH '94.
4. J. Arvo, K. Torrance, B. Smits, "A Framework for the Analysis of Error in Global Illumination Algorithms", SIGGRAPH '94.
5. C. Schoeneman, J. Dorsey, B. Smits, J. Arvo, D. Greenberg, "Painting with Light", SIGGRAPH '93.
6. B. Smits, J. Arvo, D. Salesin, "An Importance-Driven Radiosity Algorithm", SIGGRAPH '92.

### **Journal Publications**

1. C. Madison, W. Thompson, D. Kersten, P. Shirley, B. Smits, "Use Of Interreflection And Shadow For Surface Contact", Journal of Perception and Psychophysics.
2. B. Smits, "An RGB to Spectrum Conversion", Journal of Graphics Tools, 1999. (appeared Summer 2000)
3. B. Smits, "Efficiency Issues for Ray Tracing", Journal of Graphics Tools, 1998. (appeared Spring 1999.)

### **Refereed Conferences**

1. B. Smits, P. Shirley, M. Stark "Direct Ray Tracing of Displacement Mapped Triangles" Eurographics Workshop on Rendering 2000.
2. E. Reinhard, B. Smits, C. Hansen, "Dynamic Acceleration Structures for Interactive Ray Tracing", in Eurographics Workshop on Rendering 2000.
3. H. Hu, A. Gooch, W. Thompson, B. Smits, J. Riser, P. Shirley, "Visual Cues for Imminent Object Contact in Realistic Virtual Environments" in Visualization 2000.
4. S. Parker, W. Martin, P.-P. Sloan, P. Shirley, B. Smits, C. Hansen, "Interactive Ray Tracing", in I3D, April 1999.
5. B. Smits, G. Meyer, "Newton's Colors: Simulating Interference Phenomena in Realistic Image Synthesis", First Eurographics Workshop on Rendering, 1990.

### **Other Publications**

1. B. Smits, H. Jensen, "Global Illumination Test Scenes", U of Utah Tech Report UUCS-00-013, 2000, and presented at Dagstuhl Workshop on Rendering, June 2000.
2. S. Parker, P. Shirley, B. Smits, "Single Sample Soft Shadows", U of Utah Tech Report UUCS-98-019, 1998.
3. W. Thompson, P. Shirley, B. Smits, D. Kersten, C. Madison, "Visual Glue", U of Utah Tech Report UUCS-98-007, 1998.
4. P. Shirley, H. Hu, B. Smits, E. Lafortune, "Light Reflection Models for Realistic Computer Graphics", Pacific Graphics '97 (invited paper).

## Invited Talks

1. “Direct Ray Tracing of Displacement Mapped Triangles” Stanford University Graphics Cafe, April 2000.
2. “Thoughts on Global Illumination” Dagstuhl Workshop on Rendering, Germany, June 2000

## Code Released

**Daylight Model** Implementation from 1999 Siggraph paper.

**PRIS** Predictive Realistic Images Synthesis design, in the form of up-to-date class documentation and header files.

## Teaching

**Radiosity** Univ of Utah, Spring 1998 (graduate level)

## Student Committees

**A. J. Preetham** MS Committee, “A Practical Analytic Model for Daylight”, Computer Science, University of Utah, 1999.

**Tushar Udeshi** MS Committee, “Hybrid Rendering”, Computer Science, University of Utah, 1999.

**Dean Brederson** Computer Science, University of Utah, Expected Completion 2000.

**Bill Martin** Computer Science, University of Utah, Expected Completion 2001.

**Michael Ashikhmin** Computer Science, University of Utah, Expected Completion 2001.

**Simon Premoze** Computer Science, University of Utah, Expected Completion 2001.

## Research Funding

**Generating an Accurate Sense of Depth and Size Using Computer Graphics** NSF-ITR (Thompson PI) \$394,668 2000-2003.

**Interactive Ray Tracing for Visualization** NSF (Hansen PI) \$526,779 1999-2002.

**Acquisition of an Experimental Testbed for Computer Graphics** NSF Major Instrumentation (Hansen PI) \$718,839 1999-2002.

**Global Illumination: Why Bother?** (with Cornell) NSF Graphics and Visualization STC Director’s Pool (Shirley PI) \$60,000 1998-2000.

**Realistic Graphics for Natural Scenes** NSF CISE-CCR (Shirley PI) \$366,928 1998-2001.

**User-Directed Hybrid Deterministic and Monte Carlo Parallel Light Transport Algorithms** NSF CISE-CCR (Shirley PI) \$398,000, 1997-2000.

**Realistic Computer Graphics for Design and Advertising** Honda Motor Company (Shirley PI) \$30,000, 1997-1998.