

# Aseem Agarwala

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## EDUCATION

**Ph.D.**, Computer Science and Engineering, June 2006  
**University of Washington, Seattle, WA**  
Dissertation: Authoring effective depictions of reality by combining multiple samples of the plenoptic function  
Honorable Mention (runner-up), 2006 ACM Doctoral Dissertation Award  
Advisor: David Salesin

**M.S.**, Computer Science and Engineering, Spring 2002  
**University of Washington, Seattle, WA**  
Thesis: Video matting: two methods for producing trimaps  
Advisors: David Salesin and Brian Curless

**M.Eng.**, Computer Science, Fall 1999  
**Massachusetts Institute of Technology, Cambridge, MA**  
Thesis: Volumetric surface sculpting  
Advisors: Julie Dorsey and Leonard McMillan

**B.S.**, Computer Science, June 1998  
**Massachusetts Institute of Technology, Cambridge, MA**  
Thesis: Interactive furniture design using deformable models  
Advisor: Matthew Brand

## EXPERIENCE

**Adobe Systems.** Senior Research Scientist, 2008 – present,  
Research Scientist, 2006 – 2008.

**University of Washington.** Affiliate assistant professor, 2006 – present.

**University of Washington.** Research assistant, 2001 – 2006.

**Microsoft Research.** Research intern, Summers 2003 – 2005.

**Starlab NV** Brussels, Belgium. Research scientist, 1999 – 2001.

**MIT Computer Graphics Group.** Research assistant, 1998 – 1999.

**Mitsubishi Electric Research Lab (MERL).** Research intern, 1997 – 1999.

**MIT Media Laboratory.** Undergraduate research assistant, 1995-1998.

## TEACHING

**University of Washington.** Co-instructor for computer graphics and vision seminar, 2004.

**University of Washington.** Teaching assistant for graduate-level computer vision, 2003.

## PUBLICATIONS

Sujit Kuthirummal, Aseem Agarwala, Dan Goldman, Shree Nayar. “Priors for Large Photo Collections and What they Reveal about Cameras,” *European Conference on Computer Vision (ECCV 2008)*, to appear (oral).

Qi Shan, Leo Jiaya Jia, Aseem Agarwala, “High-Quality Motion Deblurring From a Single Image,” *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2008)*, to appear.

Richard Szeliski, Ramin Zabih, Daniel Scharstein, Olga Veksler, Vladimir Kolmogorov, Aseem Agarwala, Marshall Tappen, Carsten Rother, “A Comparative Study of Energy Minimization Methods for Markov Random Fields”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*. 30(6), pp. 1068-1080, 2008.

Yuanzhen Li, Edward Adelson, Aseem Agarwala, “ScribbleBoost: Adding Classification to Edge-Aware Interpolation of Local Image and Video Adjustments,” *Computer Graphics Forum (Proceedings of EGSR 2008)*, to appear.

Aseem Agarwala. “Efficient gradient-domain compositing using quadtrees,” *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2007)*, 26(3), pp. 94:1-94:5, 2007.

Pravin Bhat, C. Lawrence Zitnick, Noah Snavely, Aseem Agarwala, Maneesh Agrawala, Brian Curless, Michael Cohen, and Sing Bing Kang. “Using Photographs to Enhance Videos of a Static Scene,” *Eurographics Symposium on Rendering (EGSR 07)*, 2007.

Aseem Agarwala, Maneesh Agrawala, Michael Cohen, David Salesin, Rick Szeliski. “Photographing long scenes with multi-viewpoint panoramas,” *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2006)*, 25(3), pp. 853–861, 2006.

Rick Szeliski, Ramin Zabih, Daniel Scharstein, Olga Veksler, Vladimir Kolmogorov, Aseem Agarwala, Marshall Tappen, and Carsten Rother. “A Comparative Study of Energy Minimization Methods for Markov Random Fields,” *European Conference on Computer Vision (ECCV 2006)*, pp. 7–16, 2006 (oral).

Pravin Bhat, Noah Snavely, Colin Zheng, Aseem Agarwala, Maneesh Agrawala, Michael Cohen, Brian Curless. “Piecewise object registration in the presence of multiple large motions,” *IEEE Computer Vision and Pattern Recognition (CVPR 2006)*, pp. 2491–2497, 2006.

Aseem Agarwala, Colin Zheng, Chris Pal, Maneesh Agrawala, Michael Cohen, Brian Curless, David Salesin, and Rick Szeliski. “Panoramic video textures,” *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2005)*, 24(3), pp. 821–827, 2005.

Aseem Agarwala, Mira Dontcheva, Maneesh Agrawala, Steven Drucker, Alex Colburn, Brian Curless, David Salesin, and Michael Cohen. “Interactive Digital Photomontage,” *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2004)*, 23(3), pp. 294–302, 2004.

Aseem Agarwala, Aaron Hertzmann, Steve Seitz, and David Salesin. “Keyframe-based Tracking for Rotoscoping and Animation,” *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2004)*, 23(3), pp. 584–591, 2004.

Yung-Yu Chuang, Aseem Agarwala, Brian Curless, David Salesin, and Richard Szeliski. “Video Matting of Complex Scenes,” *ACM Transactions on Graphics (Proceedings of*

*SIGGRAPH 2002*), 21(3), pp. 243–248, 2002.

Aseem Agarwala. “SnakeToonz : A Semi-Automatic Approach to Creating Cel Animation from Video,” *Proceedings of the Second International Symposium on Non-Photorealistic Animation and Rendering (NPAR 2002)*, pp. 139–146, 2002.

David Anderson, James Frankel, Joe Marks, Aseem Agarwala, Paul Beardsley, Jessica Hodgins, Darren Leigh, Kathy Ryall, Eddie Sullivan, and Jonathan Yedidia. “Tangible Interaction + Graphical Interpretation: a New Approach to 3D Modeling,” *Proceedings of SIGGRAPH 2000*, pp. 393–402, 2000.

#### PATENTS

Carol Strohecker, Edith Ackermann, Aseem Agarwala. “Systems and methods for constructive-dialogic learning,” *Patent #6,464,501*.

David Anderson, Aseem Agarwala, Paul Beardsley, Joseph Marks. “System and method for recognizing scanned objects with deformable volumetric templates,” *Patent #6,259,815*.

Aseem Agarwala, Maneesh Agrawala, Michael Cohen, David Salesin, Richard Szeliski. “Photographing big things,” *Patent pending*.

Aseem Agarwala. “Gradient-domain compositing,” *Patent pending*.

#### AWARDS

- 2006 ACM Doctoral Dissertation Award, Honorable Mention (runner-up)
- 2006 William Chan Memorial Dissertation Award
- Microsoft Fellowship, 2004–2005
- ARCS (Achievement Rewards for College Scientists) Fellowship, 2001–2003
- National Merit Scholarship, 1998
- Advanced Placement National Scholar, 1998
- Rensselaer Math and Science Award, 1998
- Robert C. Byrd Scholarship, 1998

#### PROGRAM COMMITTEES

EGSR 2008, SIGGRAPH 2008, SIGGRAPH 2007, NPAR 2007, ICCV 2007 Workshop on Interactive Computer Vision, Pacific Graphics 2006.

#### REVIEWING

ACM SIGGRAPH, ACM Transaction on Graphics, IEEE Pattern Analysis and Machine Intelligence (PAMI), IEEE Transactions on Visualization and Computer Graphics, ACM Journal on Graphics Tools, Pattern Recognition, Eurographics, Eurographics Symposium on Rendering, IEEE Computer Graphics & Applications, IEEE Visualization, Computers & Graphics, Pacific Graphics, Non-Photorealistic Animation and Rendering (NPAR), IEEE Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV), European Conference on Computer Vision (ECCV).

#### INVITED TALKS

Intel Research Seattle. “Matching the Mind’s Eye: Getting more from our Photos and Videos,” May 2008.

University of Leuven. “Efficient gradient-domain compositing in Photoshop CS3,” May 2007.

FMX 07, Stuttgart, Germany. “Beyond the traditional image: creative photo and video manipulation,” May 2007.

UCSD, “Beyond the traditional image: depicting reality by merging multiple photographs and videos,” April 2006.

NYU, “Beyond the traditional image: depicting reality by merging multiple photographs and videos,” March 2006.

University of Pennsylvania, “Beyond the traditional image: depicting reality by merging multiple photographs and videos,” March 2006.

McGill University, “Beyond the traditional image: depicting reality by merging multiple photographs and videos,” March 2006.

Brown University, “Beyond the traditional image: depicting reality by merging multiple photographs and videos,” March 2006.

Industrial Light & Magic. “Keyframe-based Tracking for Rotoscoping and Animation,” July 2004.

MIT Computer Graphics Group. “Vision-based tools for interactive manipulation of digital images and video,” November 2004.