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

Google Research. Staff Research Scientist, 2015 – present.
Conduct and publish research. Managing and leading the team that built the AI behind Google Clips (`g.co/clips`).

Adobe Systems. Principal Scientist, 2012 – 2015.
Senior Research Scientist, 2008 – 2012,
Research Scientist, 2006 – 2008.
Conducted and published research in computer graphics and vision. Shipped my research in multiple forms: Warp Stabilizer in After Effects, and the panoramic stitcher, Auto-Blend Layers, Perspective Warp, and Adaptive Wide-Angle in Photoshop.

University of Washington. Affiliate associate professor, 2016 – present.
Affiliate assistant professor, 2006 – 2016.

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

Ziwei Liu, Raymond Yeh, Xiaoou Tang, Yiming Liu, Aseem Agarwala. "Video frame synthesis using deep voxel flow," *International Conference on Computer Vision (ICCV 2017)*, pp. 4473–4481, 2017. (oral)

Peter O'Donovan, Aseem Agarwala, Aaron Hertzmann. "DesignScape: Design with Interactive Layout Suggestions," *Proceedings of CHI 2015*, pp. 1221–1224, 2015.

Peter O'Donovan, Janis Libeks, Aseem Agarwala, Aaron Hertzmann. "Exploratory Font Selection Using Crowdsourced Attributes," *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2014)*, 33(4), pp. 92:1–92:9, 2014.

Elena Garces, Aseem Agarwala, Diego Gutierrez, Aaron Hertzmann. "A Similarity Measure for Illustration Style," *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2014)*, 33(4), pp. 93:1–93:9, 2014.

Guang Chen, Jianchao Yang, Hailin Jin, Jonathan Brandt, Eli Shechtman, Aseem Agarwala, Tony Han. "Large-scale visual font recognition," *IEEE Computer Vision and Pattern Recognition (CVPR 2014)*, pp. 3598–3605.

Jiamin Bai, Aseem Agarwala, Maneesh Agrawala, Ravi Ramamoorthi. "User-Assisted Video Stabilization," *Computer Graphics Forum (EGSR 2014)*, 33(4), pp. 61–70, 2014.

Peter O'Donovan, Aseem Agarwala, Aaron Hertzmann. "Collaborative Filtering of Color Aesthetics," *International Symposium on Computational Aesthetics in Graphics, Visualization, and Imaging (CAe 2014)*, pp. 33–40, 2014.

Su Xue, Aseem Agarwala, Julie Dorsey, Holly Rushmeier. "Learning and Applying Colors Styles From Feature Films," *Computer Graphics Forum (Proceedings of Pacific Graphics 2013)*, 32(7): pp. 255-264, 2013.

Jiamin Bai, Aseem Agarwala, Maneesh Agrawala and Ravi Ramamoorthi. "Automatic Cinemagraph Portraits," *Computer Graphics Forum (EGSR 213)*, 32(4), pp. 17-25, 2013.

Gierad Laput, Mira Dontcheva, Gregg Wilensky, Walter Chang, Aseem Agarwala, Jason Linder, Eytan Adar. "Pixeltone: A Multimodal Interface for Image Editing," *Proceedings of CHI 2013*, pp. 2185-2194, 2013.

Jiamin Bai, Aseem Agarwala, Maneesh Agrawala, Ravi Ramamoorthi. "Selectively De-Animating Video," *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2012)*, 31(4), pp. 66:1–66:1, 2012.

Su Xue, Aseem Agarwala, Julie Dorsey, Holly Rushmeier. "Understanding and Improving the Realism of Image Composites," *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2012)*, 31(4), pp. 84:1–84:10, 2012.

Alex Colburn, Aseem Agarwala, Aaron Hertzmann, Brian Curless, Michael Cohen. "Image-based Remodeling," *IEEE Transactions on Visualization and Computer Graph-*

ics, 2012.

Juliet Bernstein, Aseem Agarwala, Brian Curless. "Candid Portrait Selection From Video," *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2011)*, 30(6), pp. 128:1–128:8, 2011.

Peter O'Donovan, Aseem Agarwala, Aaron Hertzmann. "Color Compatibility from Large Datasets", *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2011)*, 30(4), pp. 63:1–63:12, 2011.

Feng Liu, Michael Gleicher, Jue Wang, Hailin Jin, Aseem Agarwala. "Subspace Video Stabilization", *ACM Transactions on Graphics (Presented at SIGGRAPH 2011)*, 30(1), pp. 4:1–4:10, 2011.

Robert Carroll, Aseem Agarwala, Maneesh Agrawala. "Image Warps for Artistic Perspective Manipulation", *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2010)*, 29(4), pp. 43:1-43:9, 2010.

Soonmin Bae, Aseem Agarwala, Fredo Durand. "Computational Re-Photography", *ACM Transactions on Graphics (Presented at SIGGRAPH Asia 2010)*, 29(3), pp. 24:1-24:15, 2010.

Brandon Smith, Li Zhang, Hailin Jin, Aseem Agarwala. "Light Field Video Stabilization," *International Conference on Computer Vision (ICCV 2009)*, pp. 341-348, 2009. (oral)

Robert Carroll, Maneesh Agrawala, Aseem Agarwala. "Optimizing Content-Preserving Projections for Wide-Angle Images," *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2009)*, 28(3), pp. 43:1-43:9, 2009.

Feng Liu, Michael Gleicher, Hailin Jin, Aseem Agarwala. "Content-Preserving Warps for 3D Video Stabilization," *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2009)*, 28(3), pp. 44:1-44:9, 2009.

Ke Colin Zheng, Alex Colburn, Aseem Agarwala, Maneesh Agrawala, Brian Curless, David Salesin, Michael Cohen. "Parallax Photography: Creating 3D Cinematic Effects from Stills," *Proceedings of Graphics Interface 2009*, pp. 111-118, 2009. (best student paper award)

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

31 patents issued. Multiple 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

Associate Editor of ACM Transactions on Traphics

SIGGRAPH 2013, SIGGRAPH 2012, SIGGRAPH Asia 2012, ICCP 2012, EGSR 2012, SIGGRAPH Asia 2011, ICCP 2010, EGSR 2010, ICCP 2009, EGSR 2009, EGSR 2008, SIGGRAPH 2008, SIGGRAPH 2007, NPAR 2007, ICCV 2007 Workshop on Interactive Computer Vision, Pacific Graphics 2006.

Reviewing

ACM SIGGRAPH, ACM SIGGRAPH Asia, ACM Transaction on Graphics, IEEE Pattern Analysis and Machine Intelligence (PAMI), International Journal of Computer Vision (IJCV), IEEE Transactions on Visualization and Computer Graphics, ACM Journal on Graphics Tools, Pattern Recognition, Eurographics, Eurographics Symposium on Rendering (EGSR), 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

Hollywood Post Alliance Tech Retreat, "Three-dimensional Video Stabilization," February 2010.

Visual Effects Society, "Three-dimensional Video Stabilization," October 2009.

University of Washington Colloquia, "Content-Preserving Warps for Video Stabilization and Wide-Angle Imaging," April 2009.

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.