

# Kalyan Sunkavalli

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## EDUCATION

**Harvard University**, Cambridge, MA  
Ph.D., Computer Science, May 2012  
Advisor: Hanspeter Pfister  
Thesis: Models of Visual Appearance for Analyzing and Editing Images and Videos

**Columbia University**, New York, NY  
M.S., Computer Science, May 2006  
Advisor: Ravi Ramamoorthi

**Indian Institute of Technology**, New Delhi, India  
B. Tech., Electrical Engineering, May 2003

## WORK EXPERIENCE

**Adobe Research**, San Jose, CA  
Research Scientist, Jul 2012 – present

**Harvard University**, School of Engineering and Applied Sciences, Cambridge, MA  
Graduate Research Assistant, Sep 2007 – May 2012

**Microsoft Research**, Interactive Visual Media Group, Redmond, WA  
Research Intern, May – Aug 2009

**Adobe Systems, Inc.**, Advanced Technology Labs, Newton, MA  
Research Intern, May – Sep 2008

**Mitsubishi Electric Research Labs**, Cambridge, MA  
Research Intern, Aug 2006 – Jul 2007

**Columbia University**, Department of Computer Science, New York, NY  
Graduate Research Assistant, Aug 2004 – May 2006

**Talisma Corporation**, Bangalore, India  
Software Development Engineer, Jun 2003 – Jun 2004

**Hebrew University**, Department of Computer Science, Jerusalem, Israel  
Research Intern, May – Aug 2002

**Indian Institute of Science**, Department of Electrical Engineering, Bangalore, India  
Summer Research Fellow, May – Aug 2001

## AWARDS AND HONORS

Siebel Scholar, 2012  
John A. and Elizabeth S. Armstrong Fellowship, Harvard University, 2009  
Graduate Research Assistantship, Columbia University, 2004 – 2006  
Summer Research Fellowship, Jawaharlal Centre for Advanced Scientific Research, 2001  
National Talent Search Examination Scholarship, 1997 – 2003

## PUBLICATIONS

### Journal Publications

- [1] Time-lapse Photometric Stereo and Applications  
Fangyang Shen, **Kalyan Sunkavalli**, Nicolas Bonneel, Szymon Rusinkiewicz, Hanspeter Pfister, and Xin Tong  
*Computer Graphics Forum (Proc. Pacific Graphics)*, 2014
- [2] Automatic scene inference for 3D object compositing  
Kevin Karsch, **Kalyan Sunkavalli**, Sunil Hadap, Nathan Carr, Hailin Jin, Rafael Fonte, Michael Sittig, and David Forsyth  
*ACM Transactions on Graphics*, 33(3), 32:1–32:15, 2014
- [3] Example-based Video Color Grading  
Nicolas Bonneel, **Kalyan Sunkavalli**, Sylvain Paris, and Hanspeter Pfister  
*ACM Transactions on Graphics (Proc. SIGGRAPH)*, 32(4), 39:1–39:12, 2013
- [4] Video Snapshots: Creating High-Quality Images from Video Clips  
**Kalyan Sunkavalli**, Neel Joshi, Sing Bing Kang, Michael F. Cohen, and Hanspeter Pfister  
*IEEE Transactions on Visualization and Computer Graphics*, 18(11), 1868–1879, 2012
- [5] Video Face Replacement  
Kevin Dale, **Kalyan Sunkavalli**, Micah K. Johnson, Daniel Vlasic, Wojciech Matusik, and Hanspeter Pfister  
*ACM Transactions on Graphics (Proc. SIGGRAPH Asia)*, 30(6), 130:1–130:10, 2011
- [6] Multi-scale Image Harmonization  
**Kalyan Sunkavalli**, Micah K. Johnson, Wojciech Matusik, and Hanspeter Pfister  
*ACM Transactions on Graphics (Proc. SIGGRAPH)*, 29(4), 125:1–125:10, 2010
- [7] Factored Time-Lapse Video  
**Kalyan Sunkavalli**, Wojciech Matusik, Hanspeter Pfister, and Szymon Rusinkiewicz  
*ACM Transactions on Graphics (Proc. SIGGRAPH)*, 26(3), 730–301, 2007
- [8] Time-Varying BRDFs  
Bo Sun, **Kalyan Sunkavalli**, Ravi Ramamoorthi, Peter Belhumeur, and Shree Nayar  
*IEEE Transactions on Visualization and Computer Graphics*, 13(3), 595–609, 2007
- [9] First steps toward an electronic field guide for plants  
Gaurav Agarwal, Peter Belhumeur, Steven Feiner, David Jacobs, W. John Kress, Ravi Ramamoorthi, Norman A. Bourg, Nandan Dixit, Haibin Ling, Dhruv Mahajan, Rusty Russell, Sameer Shirdhonkar, **Kalyan Sunkavalli**, and Sean White  
*Taxon*, 55(3), 597–610, 2006

### Refereed Conference Publications

- [10] Visibility Subspaces: Uncalibrated Photometric Stereo with Shadows  
**Kalyan Sunkavalli**, Todd Zickler, and Hanspeter Pfister  
*In Proc. European Conference on Computer Vision (ECCV)*, 2010
- [11] Image Restoration using Online Photo Collections  
Kevin Dale, Micah K. Johnson, **Kalyan Sunkavalli**, Wojciech Matusik, and Hanspeter Pfister  
*In Proc. IEEE International Conference on Computer Vision (ICCV)*, 2009
- [12] What do color changes reveal about an outdoor scene?  
**Kalyan Sunkavalli**, Fabiano Romeiro, Wojciech Matusik, Todd Zickler, and Hanspeter Pfister  
*In Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2008 (**oral presentation**)
- [13] Time-Varying BRDFs  
Bo Sun, **Kalyan Sunkavalli**, Ravi Ramamoorthi, Peter Belhumeur, and Shree Nayar  
*In Proc. Eurographics 2006 Workshop on Natural Phenomena*, 2006
- [14] Parsing News Video Using Integrated Audio-Video Features  
**S. Kalyan Krishna**, Raghav Subbarao, Santanu Chaudhury, and Arun Kumar  
*In Proc. International Conference on Pattern Recognition and Machine Intelligence*, 2005

## PATENTS

- [1] Generating a composite image from video frames  
Neel Joshi, Sing Bing Kang, Michael Cohen, and **Kalyan Sunkavalli**  
*United States Patent No. 8,750,645 B2.*
- [2] Image decomposition  
**Kalyan Sunkavalli**, Sylvain Paris, and Wojciech Matusik  
*United States Patent No. 8,520,972 B2.*
- [3] System and method for factorizing light in a sequence of images  
Hanspeter Pfister, Wojciech Matusik, **Kalyan Sunkavalli**, and Szymon M. Rusinkiewicz  
*United States Patent No. 7,756,356 B2.*

Three additional patents pending.

## TEACHING AND MENTORING

### Interns

Joon-Young Lee, Korea Advanced Institute of Science and Technology, 2014  
Fabian Langguth, Technical University, Darmstadt, 2013, 2014  
Siyang Liu, University of Illinois, Urbana-Champaign, 2013  
Jason Holloway, Rice University, 2013  
Kevin Karsch, University of Illinois, Urbana-Champaign, 2012

### Mentoring

Michael Cioffi, Harvard University  
Senior Engineering Design Project, "A Portable Time-lapse Camera System", Sep 2010 – May 2011  
Manish Kumar, Harvard Extension School  
Graduate Thesis, "Multi-View Factored Time-Lapse Video", Jan 2008 – May 2009  
*Dean's Prize for Outstanding A.L.M Thesis in Information Technology*

### Teaching

Introduction to Graphics, Harvard University  
Teaching Assistant, Fall 2010  
Visualization, Harvard University  
Teaching Assistant, Spring 2009  
Machine Learning, Columbia University  
Teaching Assistant, Spring 2006

## PROFESSIONAL ACTIVITIES

### Reviewer / Program Committee

IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Visualization and Computer Graphics, Journal of the Pattern Recognition Society, IEEE Transactions on Image Processing, IEEE Transactions on Multimedia, Journal of the Optical Society of America A  
ACM SIGGRAPH, ACM SIGGRAPH Asia, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), IEEE International Conference on Computer Vision (ICCV), European Conference on Computer Vision (ECCV), Eurographics, Pacific Graphics, IEEE Visualization, Expressive

### Member

Association of Computing Machinery (ACM), 2007 –  
Institute of Electrical and Electronics Engineers (IEEE), 2008 – 2013