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Education

UNIVERSITY OF CALIFORNIA, BERKELEY — Berkeley, USA
Postdoc, EECS Department — 2009 – Present
Research Area: *Computer Vision and Graphics*

UNIVERSITY OF CALIFORNIA, SAN DIEGO — La Jolla, USA
Ph.D., CSE Department — 2003 – 2009
Research Area: *Computer Vision*

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY — Mumbai, India
B.Tech., EE Department — 1999 – 2003

Research Experience

UNIVERSITY OF CALIFORNIA, BERKELEY — Berkeley, USA
Postdoctoral Researcher, EECS Department — September 2009 – present

UNIVERSITY OF CALIFORNIA, SAN DIEGO — La Jolla, USA
Graduate Student Researcher, CSE Department — September 2003 – August 2009

HONDA RESEARCH INSTITUTE — Mountain View, USA
Intern, Real-Time SFM for ASIMO — May 2008 – December 2008

MICROSOFT RESEARCH — Cambridge, UK
Intern, Machine Learning and Perception Group — June 2006 – September 2006

GRAZ UNIVERSITY OF TECHNOLOGY — Graz, Austria
Intern, Electrical Measurement and Signal Processing — May 2002 – July 2002

Teaching Experience

UNIVERSITY OF CALIFORNIA, SAN DIEGO — La Jolla, USA
Teaching Assistant, CSE 152 (Introduction to Computer Vision). — Spring 2006

Honors

IEEE Computer Society **Outstanding Reviewer Award**, ICCV 2009.

Winner of CSE Dissertation Award for **Best Doctoral Thesis**, UCSD, 2009.

Nominee for ACM Doctoral Dissertation Award, 2009.

Marr Prize Honorable Mention for Best Paper, ICCV 2007.

UC San Diego and Cal(IT)^2 Fellowship, 2003-04.

Nominee for Best Undergraduate Research Survey (EE, IIT-Bombay), 2002.

Ranked in top 30 in Indian National Chemistry Olympiad, 1999.

Ranked 1^{st} in state in Regional Mathematics Olympiad, 1998.

Ranked 2^{nd} in India in Association of Mathematics Teachers' Talent Tests, 1997.

National Talent Search Scholarship awarded by Govt. of India, 1997 (ranked 9^{th} in state).

PhD Thesis

From Pictures to 3D: Global Optimization for Scene Reconstruction. University of California, San Diego, 2009. **[Winner, UCSD CSE Dissertation Award for Best Thesis] [Nominee, ACM Dissertation Award]**

Journal Articles [††]

M.K. Chandraker, J. Bai, T.-T Ng and R. Ramamoorthi. *On the Duality of Forward and Inverse Light Transport.* IEEE Transactions on Pattern Analysis and Machine Intelligence, PAMI, 2011 *[accepted, to appear]*.

M.K. Chandraker, S. Agarwal, D.J. Kriegman and S. Belongie. *Globally Optimal Algorithms for Stratified Autocalibration.* International Journal of Computer Vision, IJCV 90(2):236-254, November 2010.

F. Kahl, S. Agarwal, M.K. Chandraker, D.J. Kriegman and S. Belongie. *Practical Global Optimization for Multiview Geometry.* International Journal of Computer Vision, IJCV 79(3):271-284, September 2008.

Conference Papers [‡‡]

M.K. Chandraker and R. Ramamoorthi. *What an Image Reveals About Material Reflectance.* IEEE International Conference on Computer Vision, ICCV 2011. **[oral presentation]**

M.K. Chandraker, J. Bai and R. Ramamoorthi. *A Theory of Differential Photometric Stereo for General Isotropic BRDFs.* IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2011. **[oral presentation]**

J. Bai, M.K. Chandraker, T.-T. Ng and R. Ramamoorthi. *A Dual Theory of Inverse and Forward Light Transport.* European Conference on Computer Vision, ECCV 2010.

M.K. Chandraker, J. Lim and D.J. Kriegman. *Moving in Stereo: Efficient Structure and Motion Using Lines.* IEEE International Conference on Computer Vision, ICCV 2009.

M.K. Chandraker and D.J. Kriegman. *Globally Optimal Bilinear Programming for Computer Vision Applications.* IEEE Conference on Computer Vision and Pattern Recognition 2008. **[oral presentation]**

M.K. Chandraker, S. Agarwal, D.J. Kriegman and S. Belongie. *Globally Optimal Affine and Metric Upgrades in Stratified Autocalibration.* IEEE International Conference on Computer Vision, ICCV 2007. **[oral presentation] [Marr Prize Honorable Mention for Best Paper]**[**]

A. Agarwal, S. Izadi, M.K. Chandraker and A. Blake. *High Precision Multi-touch Sensing on Surfaces using Overhead Cameras.* IEEE Tabletop 2007.

M.K. Chandraker, S. Agarwal and D.J. Kriegman. *ShadowCuts: Photometric Stereo with Shadows.* IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2007.

M.K. Chandraker, S. Agarwal, F. Kahl, D. Nistér and D.J. Kriegman. *Autocalibration via Rank-Constrained Estimation of the Absolute Quadric.* IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2007.

[††]IJCV and PAMI have among the highest ISI impact factors across all computer science categories. In 2006, IJCV was ranked first with 6.085. In 2008, PAMI was ranked third (ISI 5.960) and IJCV fourth (ISI 5.358) among all computer science journals.

[‡‡]ICCV, CVPR and ECCV are premier conferences in computer vision. For each, typical number of submissions is around 1200. Oral presentations have an acceptance rate of about 4% and poster presentations about 20%.

[**]The Marr Prize is one of the top honors in computer vision, awarded once in two years to the best paper at ICCV.

S. Agarwal, M.K. Chandraker, F. Kahl, D.J. Kriegman and S. Belongie. *Practical Global Optimization for Multiview Geometry.* European Conference on Computer Vision, ECCV 2006. **[oral presentation]**

M.K. Chandraker, F. Kahl and D.J. Kriegman. *Reflections on the Generalized Bas-Relief Ambiguity.* IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2005. **[oral presentation]**

M.K. Chandraker, C. Stock and A. Pinz. *Real-Time Camera Pose in a Room.* International Conference on Computer Vision Systems, ICVS 2003.

C. Stock, U. Mühlmann, M.K. Chandraker and A. Pinz. *Subpixel Corner Detection for Tracking Applications using CMOS Camera Technology.* Austrian Association of Pattern Recognition, AAPR 2002.

Book Chapters *The Bas-Relief Ambiguity.* Encyclopedia of Computer Vision (Springer, ed. K. Ikeuchi).

Selected Talks A Theory of Differential Reconstruction for General, Unknown BRDFs. *CVPR 2011, Colorado Springs.*

Complex Reflectance and Light Transport in 3D Reconstruction. *EECS Seminar, UC Merced, January 2011.*

From Pictures to 3D: A Global Optimization Approach. *Invited Talk, Data Mining and Optimization Session, INFORMS 2009, San Diego.*

New Methods in Geometric and Photometric Reconstruction. *UC Berkeley, April 2009.*

Better, Faster, Stronger Optimization for Structure and Motion. *University of North Carolina, Chapel Hill, February 2009.*

Globally Optimal Bilinear Programming. *CVPR 2008, Anchorage, Alaska.*

Globally Optimal Stratified Autocalibration. *ICCV 2007, Rio de Janeiro, Brazil.*

Practical Global Optimization for Multiview Geometry. *ECCV 2006, Graz, Austria.*

Inter-reflections Resolve the Bas-Relief Ambiguity of Photometric Stereo. *CVPR 2005, San Diego.*

Patents M.K. Chandraker and J. Lim. *Line-Based Stereo Structure and Motion Solvers.* Honda Research Institute, USA Inc.

A. Agarwal, M.K. Chandraker and A. Blake. *Image Segmentation Using Polarization.* Microsoft Research, Cambridge [Provisional]

Reviewing Services

International Journal of Computer Vision (Springer)
IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Conference on Computer Vision and Pattern Recognition
IEEE International Conference on Computer Vision
European Conference on Computer Vision (Springer)

References Available on request.