

Sanjeev J. Koppal

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Research Sensors, Computational Photography, Computer Vision, Optics, Image/Video Processing

- Experience and Education*
- Assistant Professor, (2014-present)
Director of the Florida Optics and Computational Sensor (FOCUS) Lab
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University of Florida, Electrical and Computer Engineering Department
 - Member of Technical Staff, (2012-2014)
Texas Instruments Imaging R&D Group
 - Post-doctoral Research Associate, (2009-2012)
Harvard University
Mentor: Prof. Todd Zickler
 - Research Assistant, (2003-2009)
Robotics Institute, Carnegie Mellon University
Ph.D. in **Robotics**, August 2009, GPA: 3.79
Advisor: Prof. Srinivasa Narasimhan
 - Undergraduate Research and Coursework, (1999 to 2003)
University of Southern California
Bachelors in **Computer Science**, May 2003, GPA: 3.93

Accepted Journals

- A survey on computational photography in the small
IEEE Signal Processing Magazine, 2016
S. J. Koppal
- Wide-angle structured light with a scanning MEMS mirror in liquid
Optics Express, 2016
X. Zhang, **S. J. Koppal**, R. Zhang, L. Zhou, E. Butler and H. Xie
- Beyond perspective dual photography with illumination masks
Transactions on Image Processing, 2015
S. J. Koppal and S. G. Narasimhan
- Generalized assorted camera arrays: robust cross-channel registration and applic.
Transactions on Image Processing, 2015
J. Holloway and K. Mitra and **S. J. Koppal** and A. Veeraraghavan
- Towards wide-angle micro nision sensors
Transactions on Pattern Analysis and Machine Intelligence, 2013
S. J. Koppal, I. Gkioulekas, T. Young, H. Park, K. Crozier, G. Barrows and T. Zickler
- Exploiting DLP illumination dithering for reconstruction and photography of high-speed scenes
International Journal on Computer Vision, 2011.
S. J. Koppal, S. Yamazaki and S. G. Narasimhan

- A viewer-centric editor for stereoscopic cinema
IEEE Computer Graphics and Applications, 2011.
S. J. Koppal, L. Zitnick, M. Cohen, S. Kang, B. Ressler and A. Colburn
- Appearance derivatives for iso-normal clustering of scenes
Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2008.
S. J. Koppal and S. G. Narasimhan

Journals in Review

- Precapture privacy for small vision sensors
Transactions on Pattern Analysis and Machine Intelligence (PAMI) 2016
F. Pittaluga and **S. J. Koppal**
- Leveraging gaze data for segmentation and effects on comics
Transactions on Multimedia Computing (TOMM) 2016
I. Thirunarayanan, **S. J. Koppal**, J. Shea and E. Jain

Selected Conferences: CVPR, ICCV, ECCV and ICCP

- Focal flow: Measuring distance and velocity with defocus and differential motion
Winner of Best Student Paper Award
European Conference on Computer Vision, 2016
E. Alexander, Q. Guo, **S.J. Koppal**, S.J. Gortler, and T. Zickler
- Sensor-level privacy for thermal cameras
International Conference on Computational Photography, 2016
F. Pittaluga, A. Zivkovic and **S. J. Koppal**
- Privacy preserving optics for miniature vision sensors
Conference on Computer Vision and Pattern Recognition, 2015
F. Pittaluga and **S. J. Koppal**
- Wide-angle micro sensors for vision on a tight budget
Conference on Computer Vision and Pattern Recognition, 2011.
S. J. Koppal, I. Gkioulekas, T. Zickler and G. Barrows
- Shadow cameras: Reciprocal views from illumination masks
International Conference on Computer Vision, 2009.
S. J. Koppal and S. G. Narasimhan
- Temporal dithering of illumination for fast active vision
European Conference on Computer Vision, 2008.
S. G. Narasimhan, **S. J. Koppal** and S. Yamazaki
- Novel depth cues from uncalibrated near-field lighting
International Conference on Computer Vision, 2007.
S. J. Koppal and S. G. Narasimhan
- Clustering appearance for scene analysis
Conference on Computer Vision and Pattern Recognition, 2006.
S. J. Koppal and S. G. Narasimhan

- Structured light from scattering media
International Conference on Computer Vision, 2005.
S. G. Narasimhan, S. K. Nayar, B. Sun and **S. J. Koppal**

*All Other
Publications*

- Leveraging Gaze Data for Segmentation and Effects on Comics
ACM Symposium on Applied Perception Poster, 2016
I. Thirunarayanan, **S. J. Koppal**, J. Shea and E. Jain
- A Wide-angle Immersed MEMS Mirror and Its Application in OCT
International Conference on Optical MEMS and Nanophotonics, 2016
X. Zhang, L. Zhou, C. Duan, D. Zheng, **S. J. Koppal**, and H. Xie
- Data Fusion for a Vision-Radiological System: Calibration Algorithm Response to Sensor Location
INMM 2016
K. Stadnikia, A. Martin, P. Riley, K. Henderson, **S. J. Koppal** and A. Enqvist
- Low-cost depth and radiological sensor fusion to detect moving sources
3DV, 2015
P. Riley, A. Enqvist and **S. J. Koppal**
- Data Fusion for a Vision-Radiological System for Source Tracking and Discovery
Advancements in Nuclear Instrumentation Measurement Methods and their Applic., 2015
A. Enqvist and **S. J. Koppal**
- MEMS mirrors submerged in liquid for wide-angle scanning
International Conference on Solid-State Sensors, Actuators and Microsystems, 2015
X. Zhang, R. Zhang, **S. J. Koppal**, E. Butler, X. Cheng and H. Xie
- A low-power structured light sensor for outdoor scene reconstruction and dominant material identification
International Workshop on Projector-Camera Systems, 2012
C. Mertz, **S. J. Koppal**, S. Sia and S. G. Narasimhan
- Illustrating motion through DLP Photography
PROCAMS, 2008
S. J. Koppal and S. G. Narasimhan
- Taylor Series of Appearance Functions
CMU-Robotics Institute Technical report, 2006
S. J. Koppal, A. Datta, S. G. Narasimhan and K. Nishino

Patents

- S.J. Koppal, S.B. Kang, C.L. Zitnick, M.F. Cohen, and B.K. Ressler
Stereo movie editing, US Patent 8,330,802
- U.F. Office of Tech. Licensing UF #15360
(F. Pittaluga and S. J. Koppal)

Funding Awards

- Novel Micro-LIDAR design and sensing algorithms for flapping-wing Micro-aerial Vehicle (2015-2018)
National Science Foundation, ~ \$200,000
- Radiological Source Detection and Tracking Based on Multi-Sensor Data Fusion (2014-17)
Department of Homeland Security, ~ \$460,000
- Texas Instruments Embedded Processing University Funding Award (2013)

Teaching

- Computational Photography, Fall 2014-2016
Average 4.38 rating for undergraduates and 4.25 for graduates
- Signals and Systems, Spring 2015-2017
Average 3.6 rating for undergraduates

Awards

- Best Student Paper Award (ECCV 2016)
- Outstanding Reviewer Award (ECCV 2016)
- USC Computer Science Award for Outstanding Achievement (2003)
- USC Trustee Scholarship (full tuition) (1999-2003)
- USC Undergraduate Engineering Research Award (1999-2003)

Reviewing Activities

- Journal Reviewer (International Journal of Computer Vision (IJCV) 2006-present, Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2006-present)
- Conference Reviewer (Computer Vision and Pattern Recognition (CVPR) 2006-present, International Conference on Computer Vision (ICCV) 2006-present), European Conference on Computer Vision (ECCV) 2006-present)
- Conference Reviewer (International Conference on Computational Photography (ICCP) 2009-present)

Ph.D. Students

- Francesco Pittaluga, Kristofer Henderson, Xiaoyang Zhang (co-advised), Nathaniel Dake

Other information

- Languages: English, Hindi, Kannada
- Citizenship: India
- Immigration Status: U.S. Permanent Resident
- Lab Website: focus.ece.ufl.edu