

# Achuta Kadambi

Assistant Professor  
Electrical Engineering Department  
University of California, Los Angeles

Email: [achuta@ucla.edu](mailto:achuta@ucla.edu)  
Lab Website: <http://visual.ee.ucla.edu>

## Research

Imaging the invisible by jointly studying optics and computer science.

## Education

PhD	MIT Media Lab / EECS	2017
MS	Yale	2012
BS	Berkeley	2011

## Recognitions

2019	Forbes 30 Under 30, Science
2018	Best Paper Award, IEEE ICCP
2016	Lemelson-MIT Student Prize
2016	Rahamimoff Award, US-Israel Science Foundation
2016	Best Papers Special Issue Selection, ICCV
2016	Best Presentation Award, CVPR VIEW workshop
2015	World Changing Idea, Scientific American
2015	Qualcomm Innovation Fellowship
2013	Draper 4-year PhD Fellowship
2011	Regent and Chancellor Scholar, UC Berkeley

## Visiting Positions

2017	Visiting researcher, Harvard Medical School, Boston MA
2016	Visiting student, Technion Electrical Engineering, Israel
2015	Intern, Microsoft Research, Redmond WA
2014	Intern, Mitsubishi Electric Research Lab (MERL), Cambridge MA

## Keynote/Plenary Talks

2017	Computer Vision and Information Processing Society of Japan, Nagoya JP
2016	Honeywell Technology Symposium, Phoenix, AZ

## Invited Talks (Selected)

2019	Computational Light Transport Summit, Banff Canada
2018	Carnegie Mellon University, Pittsburgh PA
2018	UCLA Electrical Engineering, Los Angeles CA
2018	Harvard University, Cambridge MA
2018	MIT CSAIL, Cambridge MA
2017	University of Tokyo, Tokyo JP
2017	Cymer Semiconductor Equipment, San Diego CA
2016	Columbia CS, New York City, NY
2016	Cornell Tech, CS, New York City, NY
2016	Mitsubishi Electric Research Labs (MERL), Boston MA
2016	University of Pennsylvania GRASP Lab, Philadelphia PA
2016	Princeton CS, Princeton, New Jersey
2016	Weizmann Institute of Science, Rehovot, Israel
2016	Technion CS Dept, Haifa, Israel
2016	Mass General Hospital (MGH), Boston
2016	SIGGRAPH, Anaheim, CA
2016	Computer Vision and Pattern Recognition, Las Vegas, NV
2016	OSA Imaging Systems and Applications, Heidelberg, Germany
2016	Analog Devices, Cambridge MA
2015	Computational Imaging Junior Researcher Summit, Dagstuhl, Germany

2015 Microsoft Research, Redmond, WA  
 2015 International Conference on Computer Vision, Santiago, Chile  
 2015 New England Computer Vision Workshop, Amherst MA  
 2015 SIGGRAPH, Los Angeles, CA  
 2014 Qualcomm Research, San Diego, CA  
 2014 Technion Institute of Technology, Haifa, Israel  
 2014 Microsoft iToF Workshop, Ein Gadi, Israel  
 2014 Indian Institute of Technology, Bombay, India  
 2014 SIGGRAPH, Vancouver, Canada  
 2014 International Conference on Computational Photography, Santa Clara, CA  
 2013 OSA Computational Optical Sensing and Imaging, Arlington, VA  
 2013 Nokia Research, Bangalore, India  
 2013 SIGGRAPH Asia, Hong Kong

## Teaching

T.7 Instructor, ECE.211, “Digital Image Processing”, UCLA Spring ’19.  
 T.6 Instructor, ECE.239, “Computational Imaging”, UCLA Fall ’18.  
 T.5 Coinstructor, MAS.S65, “Society of Autonomous Vehicles”, MIT Spring ’18.  
 T.4 Coinstructor, MAS.132/532, “Mathematical Methods in Imaging”, MIT Spring ’14.  
 T.3 Coinstructor, ”Computational Time of Flight Imaging”, IEEE ICCV 2015.  
 T.2 Coinstructor, “Computational 3D Imaging”, ACM SIGGRAPH 2015.  
 T.1 Coinstructor, “3-D Imaging with Time of Flight Cameras”, ACM SIGGRAPH 2014.  
 T.0 Teaching assistant for various courses.

## Professional Service

**Program committee** ICCP 2019  
**Program committee** CVPR 2019  
**Program committee** ICCP 2018  
**Program committee** CVPR 2018  
**Program committee** ICCP 2017  
**Program committee** CVPR 2017  
**Program committee** ICCV PBDL Workshop 2017  
**Program committee** CVPR 2016  
**Organizer** Marvin Minsky Memorial Lecture  
**Reviewer** SIGGRAPH  
**Reviewer** SIGGRAPH Asia  
**Reviewer** ICCV  
**Reviewer** CVPR  
**Reviewer** ECCV  
**Reviewer** ICCP  
**Reviewer** IEEE Transactions on Computational Imaging (TCI)  
**Reviewer** Various OSA journals  
**University Service** MIT, undergrad admissions committee  
**University Service** MIT, laser safety representative  
**University Service** Lemelson-MIT student prize, selection committee  
**IEEE, ACM, and OSA Member**

## Textbook

- TB.1 *Computational Imaging (235 pages)* Published by **MIT Press**, To appear online in 2019 and in print by 2020. Joint work with A. Bhandari and R. Raskar.

## Full Papers

- P.11 T. Maeda, A. Kadambi, Y. Schechner, R. Raskar. *Dynamic Heterodyne Interferometry*. IEEE ICCP 2018. **(Best Paper Award)**
- P.10 A. Kadambi, R. Raskar. *Rethinking Machine Vision Time of Flight with GHz Heterodyning*. IEEE Access 2017
- P.9 A. Kadambi, J. Schiel, R. Raskar. *Frequency-domain Time of Flight Cameras for Multi-depth Imaging*. Under revision for IJCV 2018.
- P.8 A. Kadambi, V. Taamazyan, B. Shi, R. Raskar. *Depth sensing using geometrically constrained polarization normals*. In IJCV 2017. **(Best Papers Issue)**
- P.7 A. Kadambi, J. Schiel, R. Raskar. *Macroscopic Interferometry: Rethinking Depth Estimation with Frequency-Domain Time-of-Flight*. In IEEE CVPR (Oral), 2016. **(3% acceptance rate)**
- P.6 A. Kadambi, H. Zhao, B. Shi, R. Raskar. *Occluded Imaging with Time of Flight Sensors*. In ACM Transactions on Graphics (pres SIGGRAPH 2016)
- P.5 A. Kadambi, V. Taamazyan, B. Shi, R. Raskar. *Polarized 3D: Enhanced 3D sensing fusing depth and polarization cues*. In IEEE ICCV (Oral), 2015 **(3% acceptance rate)**
- P.4 N Naik, A Kadambi, C Rhemann, S Izadi, R Raskar, SB Kang. *A Light Transport Model for Mitigating Multipath Interference in TOF Sensors*. In IEEE CVPR, 2015.
- P.3 A. Bhandari, A. Kadambi, R. Whyte, C. Barsi, M. Feigin, A. Dorrington, R. Raskar. *Resolving multi-path interference in time-of-flight imaging via modulation frequency diversity and sparse regularization*. In Optics Letters 2014.
- P.2 A. Kadambi, A. Bhandari, R Whyte, A Dorrington, R Raskar. *Demultiplexing Illumination via Low Cost Sensing and Nanosecond Coding*. In IEEE ICCP (Oral), 2014.
- P.1 A. Kadambi, R. Whyte, A. Bhandari, L. Streeter, C. Barsi, A. Dorrington, R. Raskar. *Coded time of flight cameras: sparse deconvolution to address multipath interference and recover time profiles*. In ACM Transactions on Graphics (pres SIGGRAPH Asia 2013)

## Selected Conference Papers

- C.5 A. Kadambi\*, A. Cramer\*, D Lanza, R Raskar, R Gupta. *Computational X-ray Imaging with Document Scanners* OSA COSI, 2018
- C.4 A. Kadambi, J. Schiel, R. Raskar. *Macroscopic Interferometry with Electrons rather than*

*Photons*. In OSA IS, 2016.

- C.3 A. Kadambi, P. Boufounos. *Compressive, Coded Aperture, 3-D LIDAR*. In IEEE ICASSP, 2015.
- C.2 A. Bhandari, A. Kadambi, R. Raskar. *Sparse Linear Operator Identification without Sparse Regularization?* In IEEE ICASSP, 2014.
- C.1 A. Kadambi, H. Ikoma, X. Lin, G. Wetzstein, R. Raskar. *Subsurface Enhancement through Sparse Representations of Multispectral Direct/Global Decomposition*. In OSA Computational Sensing and Imaging (COSI), 2013.

## US Patent Filings

- US.13 A. Kadambi, T. Maeda, A. Bhandari, B. Heshmat, R. Raskar. *Undisclosed LIDAR technique*. MIT Case #19963T
- US.11 A. Bhandari, C. Barsi, A. Kadambi, R. Raskar. *Methods and Apparatus for FLI with pulsed light*. US Patent App. 15/487,438
- US.10 A. Kadambi, A. Bhandari, R. Whyte, R. Raskar. *Optical frequency domain illumination multiplexing*. MIT Case #16702T
- US.8 A. Kadambi, R. Raskar, A. Pan, R. Gupta. *Methods and Apparatus for X-Ray Imaging from Temporal Measurements*. US Patent App. 15/58,169
- US.9 A. Kadambi, V. Taamazyan, B. Shi, R. Raskar. *Methods for enhancing 3D maps with polarization*. US Patent App. 14/979,433 ([Granted by USPTO in 2019](#))
- US.12 A. Bhandari, C. Barsi, A. Kadambi, R. Raskar. *Methods and Apparatus for FLI with modulated light*. US Patent App. 15/487,435 ([Granted by USPTO in 2019](#))
- US.7 A. Kadambi, J. Schiel, V. Taamazyan, A. Bhandari, R. Raskar. *Macroscopic Interferometry*. US Patent App. 15/431,713 ([Granted by USPTO in 2018](#))
- US.6 P. Boufounos, A. Kadambi. *Intensity-based Depth Sensing System and Method*. US Patent App. 14/628,360 ([Granted by USPTO in 2018](#))
- US.5 A. Kadambi, H. Zhao, B. Shi, A. Bhandari, R. Raskar. *Methods and Apparatus for Virtual Sensor Array* US Patent App. 14/795,113 ([Granted by USPTO in 2018](#))
- US.4 A. Kadambi, R. Whyte, A. Bhandari, L. Streeter, C. Barsi, A. Dorrington, R. Raskar. *Methods and Apparatus for Coded Time-of-Flight Camera*. US Patent App. 14/523,708 ([Granted by USPTO in 2017](#))
- US.3 P. Boufounos, A. Kadambi. *Depth Sensing Using Optical Pulses and Fixed Coded Aperture*. US Patent App. 14/551,394 ([Granted by USPTO in 2017](#))

- US.2      A. Kadambi, A. Bhandari, R. Raskar. *Methods and Apparatus for Demultiplexing Illumination*. US Patent App. 14/690,159 ([Granted by USPTO in 2016](#))
- US.1      R. Raskar, A. Kadambi, A. Bhandari, C. Barsi. *Methods and apparatus for multi-frequency camera*. US Patent App. 14/280,284 ([Granted by USPTO in 2016](#))