Achuta Kadambi

Assistant Professor of Electrical Engineering
Assistant Professor of Computer Science
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Research Mission

Teaching robots how to see by building smart cameras and algorithms.

Education

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

Appointments

Assistant Professor	UCLA Computer Science	2021-
Assistant Professor	UCLA Electrical & Computer Engineering	2018-
Co-founder	Akasha Imaging	2018-

Awards

2021 NSF CAREER Award
2020 Google Faculty Award
2020 Senior Member National Academy of Inventors
2019 Forbes 30 under 30, Science
2019 NSF CRII Research Initiation Award
2019 Young Faculty Award, Sony Imaging
2018 Best Paper Award, 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
2015 World Changing Idea, Scientific American
2014 Qualcomm Innovation Fellowship
2013 Draper 5-year PhD Fellowship
2011 Regent and Chancellor Scholar, UC Berkeley

Awards won by Students

2020 Guru Krupa Graduate Fellowship, UCLA (C. Talegaonkar)
2019 Best Undergraduate Demo, Annual Research Review (A. Padhye et al.)
2019 Best Poster Award, runner up, SoCal Machine Learning Day (Y. Ba et al)

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 Labs (MERL), Cambridge MA

Invited Talks

2020 SPIE Workshop on Computational Imaging
2020 Army Research Lab, Adelphi MD
2020 CVPR Visual Physics, Seattle WA
2019 DARPA/MEC workshop on AI, San Jose CA
2019 Stanford EE Department, Stanford CA
2019 MIT Media Lab, Cambridge MA
2019 Lemelson-MIT Eurekafest, Cambridge MA
2019 Computational Light Transport Summit, Banff Canada
2019 Indian Institute of Science, EE Department, Bangalore India
2019 Machine Learning Summer School, Bangalore India
2019 Honeywell Technology Symposium, Phoenix AZ
2019 Annual Research Review, UCLA, Los Angeles CA
2018 University of California, Los Angeles CA
2018 Carnegie Mellon University, Pittsburgh PA
2018 MIT CSAIL, Cambridge MA
2017 University of Tokyo, Tokyo JP
2017 Cymer Semiconductor Equipment, San Diego CA
2017 Computer Vision and Information Processing Society of Japan, Nagoya JP
2016 Honeywell Technology Symposium, Phoenix AZ
2016 Columbia CS, New York City, NY
2016 Cornell Tech, CS New York City, NY
2016 Mitsubishi Electric Research Lab (MERL), Boston MA
2016 University of Pennsylvania GRASP Lab, Philadelphia PA
2016 Princeton CS, Princeton, New Jersey
2016 Weizmann Institute of Science, Rehovat Israel
2016 Technion CS Department, Haifa Israel
2016 Mass General Hospital (MGH), Boston MA
2016 OSA Invited Talk, Heidelberg Germany
2016 Analog Devices, Cambridge MA
2015 Computational Imaging Summit, Daghstuhl Germany
2015 Microsoft Research, Redmond WA
2014 Qualcomm Research, San Diego CA
2014 Technion, Haifa Israel
2014 Microsoft iToF Workshop, Ein Gadi Israel
2014 IIT-Bombay, Bombay India
2013 Nokia Research, Bangalore India

Professional Service

Program chair, CVPR CCD 2020
Program chair, Industry relations, ICCP 2020
Program committee, Pacific Graphics 2019

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
Reviewer, SIGGRAPH
Reviewer, SIGGRAPH Asia
Reviewer, ICCV
Reviewer, CVPR
Reviewer, ECCV
Reviewer, ICCP
Reviewer, IEEE Trans Comp Imaging (TCI)
Reviewer, Various OSA journals
University Service, UCLA, PhD thesis award committee
University Service, MIT, undergrad admissions committee
University Service, Lemelson-MIT student prize selection committee
IEEE, ACM, and OSA member

Textbook

TB.1 *Computational Imaging (450 pages).* **MIT Press,** to appear 2021. Joint work with A. Bhandari and R. Raskar

Papers (Including CS Conferences)

P.17 Y. Ba, A. Gilbert, F. Wang, J. Yang, R. Chen, Y. Wang, B. Shi and **A. Kadambi.** *Deep Shape from Polarization.* ECCV 2020.

P.16 K. Tanaka, Y. Mukaigawa, and **A. Kadambi.** *Polarized Non-line-of-sight Imaging.* CVPR 2020

P.15 A. Kalra, V. Taamazyan, S. Rao, K. Venkataraman, R Raskar, and **A. Kadambi.** *Deep Polarization Cues for Transparent Object Segmentation.* CVPR 2020 (Oral)

P.14 P. Chari, C. Talegaonkar, Y. Ba, and **A. Kadambi**. *Visual Physics: Discovering Physical Laws from Video*. arXiv:1911.11893, 2019

P.13 Y. Ba, G. Zhao, and **A. Kadambi**. *Blending Diverse Physical Priors with Neural Networks.* arXiv:1910.00201, 2019

P.12 K. Tanaka, N. Ikeya, T. Takatani, H. Kubo, T. Funatomi, V. Ravi, **A. Kadambi**, and Y. Mukaigawa. *Time-resolved Far Infrared Light Transport Decomposition for Thermal Photometric Stereo.* IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2020

P.11 T. Maeda, Y. Wang, R. Raskar, and **A. Kadambi.** *Thermal Non-line-of-sight Imaging.* IEEE ICCP 2019

P.10 T. Maeda, **A. Kadambi,** Y. Schechner, and R. Raskar. *Dynamic heterodyne interferometry.* IEEE ICCP 2018 **(Best Paper Award)**

P.9 **A. Kadambi** and R. Raskar. *Rethinking Machine Vision Time of Flight with GHz Heterodyning.* IEEE Access 2017

P.8 **A. Kadambi**, V. Taamazyan, B. Shi, and R. Raskar. *Depth sensing using geometrically constrained polarization normals.* In IJCV 2017 (**Best Papers Issue)**

P.7 **A. Kadambi**, J. Schiel, and R. Raskar. *Macroscopic Interferometry: Rethinking Depth Estimation with Frequency-Domain Time of Flight*. IEEE CVPR 2016 **(Oral, 3% acceptance rate).**

P.6 **A. Kadambi**, H. Zhao, B. Shi, and 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, and R. Raskar. *Polarized 3D: enhanced 3D sensing fusing depth and polarization cues.* ICCV 2015 (**Oral, 3% acceptance rate)**

P.4 N. Naik, **A. Kadambi**, C. Rhemann, S. Izadi, R. Raskar and S. Kang. *A light transport model for mitigating multipath interference in ToF sensors.* In CVPR 2015.

P.3 A. Bhandari, **A. Kadambi**, R. Whyte, C. Barsi, M. Feigin, A. Dorrington, and R. Raskar. *Resolving multi-path interference in time-of-flight imaging via modulation frequency diversity and sparse regularization*. Optics Letters, 2014

P.2 **A. Kadambi**, A. Bhandari, R. Whyte, A. Dorrington and R. Raskar. *Demultiplexing Illumination via low-cost sensing and nanosecond coding.* ICCP 2014.

P.1 **A. Kadambi**, R. Whyte, A. Bhandari, L. Streeter, C. Barsi, A. Dorrington, and R.

Raskar. *Coded time of flight cameras: sparse deconvolution to address multipath interference and recover time profiles.* ACM Transactions on Graphics (pres SIGGRAPH Asia 2013).

Selected Conference Papers

C.3 **A. Kadambi*,** A. Cramer*, D. Lanza, R. Raskar, and R. Gupta. *Computational X-ray Imaging with Document Scanners.* OSA COSI 2018

C.2 **A. Kadambi** and P. Boufounos. *Compressive, coded aperture, 3D LIDAR.* ICASSP 2015

C.1 A. Bhandari, **A. Kadambi,** and R. Raskar. *Sparse linear operator identification without sparse regularization?* ICASSP 2014

Granted US Patents

US.13 *Depth maps with polarization cues.* **US Patent 10,557,705**

US.12 *X-ray imaging from temporal measurements.* **US Patent 10,527,562**

US.11 *Time-of-flight sensor.* **US Patent 10,488,520**

US.10 *Fluorescent lifetime with periodically modulated light.* **US Patent 10,337,993**

US.9 *Depth maps with polarization cues.* **US Patent 10,260,866**

US.8 *Methods and apparatus for time-of-flight imaging.* **US Patent 10,191,154**

US.7 *Fluorescence lifetime imaging with pulsed light*. **US Patent 10,190,983**

US.6 *Methods and apparatus for virtual sensor array.* **US Patent 9,897,699**

US.5 *Intensity-based depth sensing system and method.* **US Patent 9,897,698**

US.4 *Methods and apparatus for coded time-of-flight camera*. **US Patent 9,778,363**

US.3 *Depth sensing using optical pulses and fixed coded aperture.* **US Patent 9,638,801**

US.2 *Methods and apparatus for demultiplexing illumination.* **US Patent 9,451,141**

US.1 *Methods and apparatus for multi-frequency camera.* **US Patent 9,405,008**