

# Achuta Kadambi

Assistant Professor of Electrical Engineering  
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## Research Mission

Imaging the invisible, for safer autonomy and more equitable digital health.

## Education

PhD	MIT Media Lab / EECS	2018
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-
Co-founder	Vayu Robotics	2022-

## Awards

2021	NSF CAREER Award
2021	DARPA Young Faculty Award
2021	Army Research Office Young Investigator Award (ARO YIP)
2021	National Academy of Engineering (NAE) Frontiers of Engineering
2020	Google Faculty Award
2020	Senior Member National Academy of Inventors
2019	Forbes 30 under 30, Science
2019	NSF CRII Research Initiation Award
2019	Sony Imaging Young Faculty Award
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

2021	Cisco PhD Fellowship (P. Chari)
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

2021 MIT AeroAstro Department (Cambridge, MA)  
2021 Boston University Electrical Engineering Department (Boston, MA)  
2021 EPFL, Lausanne Switzerland (Rescheduled - COVID)  
2021 UCLA School of Medicine Grand Rounds, Los Angeles CA (Los Angeles, CA)  
2021 Snap Inc. (Virtual)  
2021 Cornell AI in Medicine Seminar (Virtual)  
2021 ETH Zurich Computer Vision Seminar (Zurich, Switzerland)  
2021 Amazon + UCLA Science Hub Kickoff Event (Los Angeles, CA)  
2021 Pixel Cafe at UCSD (Virtual)  
2021 UC Berkeley Bioengineering, Guest Lecturer for Medical Device Design (Virtual)  
2021 Black in Neuro Panel, Imperial College London (Virtual)  
2021 Army Research Lab A2I2 Summit (Virtual)  
2021 ICCV GigaVision Workshop (Virtual)  
2021 CLEO Panel on AI and Photonics (Virtual)  
2021 Army Research Lab Workshop on Synthetic Data (Virtual)  
2020 SPIE Workshop on Computational Imaging (Virtual)  
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, Rehovot 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, Dagstuhl 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

SIGGRAPH Professional Advocacy  
 Guest Editor, Applied Sciences, Special Issue on Computational Photography  
 Program chair, CVPR CCD 2021  
 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, MS admissions committee  
 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 A. Bhandari, **A. Kadambi**, R. Raskar, *Computational Imaging (450 pages)*. MIT Press, 2022 (E-PDF at [imagingtext.github.io](https://imagingtext.github.io))

## Papers

- P.20 **A. Kadambi**, *Achieving Fairness in Medical Devices*. **Science** 2021 no. 372.6537
- P.19 A. Kalra, B. Brown, G Stoppi, R. Agrawal, and **A. Kadambi**. *Towards Rotation Invariance in Object Detection*. **ICCV** 2021.
- P.18 **A. Kadambi** and A. Madni, *Artificial Intelligence: From Ancient Greeks to Self-Driving Cars and Beyond*, **Nat'l Academy of Engineering Bridge** 2021
- 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 (**Top 3% paper**)
- 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).

US Patents (15 utility patents granted, 30 pending)

- US.15 *Systems and methods for characterizing object pose detection and measurement systems*. US Patent 11,195,303

- US.14 *Methods and apparatus for gigahertz time-of-flight imaging.* **US Patent 11,181,623**
- 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**