Achuta Kadambi

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Research Mission

Expanding the reach of computer vision to a wide diversity of scene, object, and people types.

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
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	UCLA School of Medicine Grand Rounds, Los Angeles CA
2021	Cornell AI in Medicine Seminar (Virtual)
2021	ETH Zurich Computer Vision Seminar (Zurich, Switzerland)
2021	Pixel Cafe at UCSD (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)
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, 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

SIGGRAPH Professional Advocacy
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   *Computational Imaging (450 pages)*. **MIT Press,** accepted, currently printing. Joint
        work with A. Bhandari and R. Raskar

Papers (Including CS Conferences)

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).

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**