

Nikhil Naik

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EDUCATION	<i>Ph.D., Media Arts & Sciences</i> , Massachusetts Institute of Technology Advisors: Ramesh Raskar, Edward Glaeser, Alex Pentland, and César Hidalgo.	Expected 2016
	<i>S.M., Media Arts & Sciences</i> , Massachusetts Institute of Technology Thesis: “Multibounce Light Transport Analysis using Ultrafast Imaging for Material Acquisition” Advisors: Ramesh Raskar, Joseph Paradiso, and Kavita Bala.	2012
	<i>B.Tech., Electronics & Telecommunication</i> , College of Engineering Pune, India Thesis: “Multiple Object Tracking using Color Features” Advisors: Madhuri Joshi and Aditya Abhyankar.	2010
HONORS AND AWARDS	Dhirubhai Ambani Undergraduate Scholarship	2006 - 2010
	National Talent Search Scholarship, Government of India	2004 - 2010
	S.V. Chandrasekhar Aiya Memorial Prize	2009
	First Prize in Annual IEEE All India Project Competition	2009
PUBLICATIONS	Naik, Philipoom, Raskar, and Hidalgo. “Quantifying Urban Appearance using Computer Vision and Crowdsourcing”, American Economic Review: Papers & Proceedings, (2016), Accepted.	
	Naik, Kadambi, Rhemann, Izadi, Raskar, Kang. “A Light Transport Model for Mitigating Multipath Interference in Time-of-flight Sensors”, Proceedings of the IEEE Conference on Computer Vision & Pattern Recognition, (2015):73-81.	
	Naik, Philipoom, Raskar, and Hidalgo. “Streetscore–Predicting the Perceived Safety of One Million Streetscapes”, Proceedings of the IEEE Conference on Computer Vision & Pattern Recognition Workshops, (2014):793-799. http://streetscore.media.mit.edu .	
	Raviv, Barsi, Naik, Feigin, and Raskar. “Pose Estimation using Time-resolved Inversion of Diffuse Light”, Optics Express, (2014):22(17), 20164-20176.	
	Naik, Barsi, Velten, and Raskar. “Estimating Wide-angle, Spatially Varying Reflectance using Time-resolved Inversion of Backscattered Light”, Journal of Optical Society of America A, (2014):31(5), 957-963. Selected by Editors to appear in a Special Issue of Virtual Journal of Biomedical Optics.	
	Wu, Wetzstein, Barsi, Willwacher, O’Toole, Naik, Dai, Kutulakos, and Raskar. “Frequency Analysis of Transient Light Transport with Applications in Bare Sensor Imaging”, Proceedings of European Conference on Computer Vision, Springer, (2012):542-555.	
	Naik, Zhao, Velten, Raskar, and Bala. “Single View Reflectance Capture using Multiplexed Scattering and Time-of-flight Imaging”, ACM Transactions on Graphics, (2011):30(6), 171-179.	
	Naik, Patil, and Joshi. “A Fragment Based Scale Adaptive Tracker with Partial Occlusion Handling”, Proceedings of IEEE TENCON, (2009):1-6.	
	Naik, Patil, and Joshi. “A Scale Adaptive Tracker Using a Hybrid Color Histogram Comparison Method”, Proceedings of IEEE ICETET, (2009):279-284.	

WORKING PAPERS	Naik, Kominers, Raskar, Glaeser, and Hidalgo. <i>“Do People Shape Cities, or Do Cities Shape People? The Co-evolution of Physical, Social, and Economic Change in Five Major U.S. Cities”</i> , NBER Working Paper No. 21620, (2015).	
	Glaeser, Kominers, Luca, and Naik. <i>“Big Data and Big Cities: The Promise and Limitations of Better Measures of Urban Life.”</i> , Economic Inquiry, <i>Invited Paper</i> .	
	Naik, Raskar, Sampson, and Hidalgo. <i>“Some Broken Windows: Correlating Variations in Urban Appearance and Crime”</i> .	
	Dubey, Naik, Raviv, Sukthankar, and Raskar. <i>“Coreset-Based Learning from Streaming Data”</i> . IEEE Transactions on Pattern Analysis & Machine Intelligence (PAMI), <i>In Submission</i> .	
CONFERENCE PRESENTATIONS	Naik, Barsi, Velten, and Raskar. <i>“Time-resolved Reconstruction of Scene Reflectance Hidden by a Diffuser”</i> , Proceedings of OSA CLEO: Science and Innovations, (2013).	
	Pandharkar, Naik, Agrawal, and Raskar. <i>“Invertible Masking of Light Field Images for Enhanced Resolution”</i> , Proceedings of IEEE International Conference on Computational Photography, (2011).	
	Naik, Patil, and Joshi. <i>“A Comparative Study of Color Histogram Similarity Statistics”</i> , IET NCSIPA, (2009), <i>Best Presentation Award</i> .	
PATENTS	Naik and Mistry. <i>“Three-Dimensional Image Capture System With Image Conversion Mechanism and Method of Operation Thereof”</i> , U.S. Patent Pending WO 2014046427 A1, 2014.	
	Raskar, Naik, Barsi, and Velten. <i>“Time-resolved System for Imaging in Scattering Media and Resolving Multipath Interference”</i> , U.S. Patent Pending, 2013.	
RESEARCH INTERNSHIPS	Microsoft Research, Redmond WA	Summer 2014
	<i>Mentor: Sing Bing Kang, Principal Researcher, Interactive Visual Media Group</i> Developed a novel method to improve depth accuracy of Microsoft Kinect One sensor.	
	Samsung Research America, San Jose CA	Summer 2012
	<i>Mentor: Pranav Mistry, Global Vice President, Samsung Electronics</i> Developed the optical design of a novel 3D camera and its applications for gesture recognition.	
	Indian Institute of Technology, Delhi	Summer 2009
PRESENTATIONS & TALKS	<i>Mentor: Sumantra Dutta Roy, Professor of Electrical Engineering, IIT Delhi</i> Worked on fingerprint recognition using local feature descriptors and minutiae matching.	
	Indo-U.S. Research Academy for Undergraduates	Fall 2008
	<i>Mentor: Bishakh Bhattacharya, Professor of Mechanical Engineering, IIT Kanpur</i> Designing low power interfaces for vibration-based piezoelectric sensors.	
	<i>Streetscore – Quantifying Urban Appearance</i> TEDxBeaconStreet (11/2015), The Conference on Digital Experimentation (10/2015), TripAdvisor (09/2015), City of Boston Mayor’s Office (11/2014), Asian Development Bank (10/2014), MIT School of Architecture (10/2014), Boston Properties University (09/2014), MIT City Science Workshop (09/2014), Microsoft Research (07/2014), CVPR Workshop on Web-scale Vision and Social Media (06/2014).	
	<i>Reflectance Estimation with Ultrafast Imaging</i> Cornell University (04/2012), ACM SIGGRAPH Asia Hong Kong (12/2011), MIT Computer Graphics Seminar (10/2011), MIT Media Lab Crit Day (09/2011).	

ACADEMIC ACTIVITIES	Teaching Assistant: MIT MAS.531:Computational Camera, <i>Fall 2013</i>. Lectures: MIT Advances in Imaging Course (11/2014, 07/2015), MIT Computational Camera Course (10/2013). Refereeing: ACM Transactions on Graphics, ACM SIGGRAPH, ACM SIGGRAPH Asia, IEEE Pervasive Computing.
UNDERGRADUATE MENTORING	Huy Pham, '<i>Learning to Rank from Pairwise Comparisons</i>', Summer 2015. Abhimanyu Dubey, '<i>Online Learning for Object Detection</i>', Fall 2014. Jade Philipoom, '<i>Visualizing Streetscore with Interactive Maps</i>', Spring 2014. Michael Wu, '<i>Learning Human Perception of Urban Scenes</i>', Summer 2013. Shannon Kao, '<i>Data-driven Rendering of Urban Scenes</i>'², Summer 2013. Teasha Feldman-Fitzthum, '<i>BRDF Acquisition using Ultrafast Imaging</i>', Fall 2011.
LEADERSHIP & SERVICE	<i>Co-Organizer</i>, DARPA ISAT Seminar on Computational Techniques, Spring 2015. <i>Co-Organizer</i>, MIT Media Lab 'What's Next' Career Fair, Spring 2015. <i>Organizer</i>, MIT Nepal Earthquake Relief Hackathon, Spring 2015. <i>Member</i>, MIT Media Lab Student Committee, 2012 - 2015. <i>Organizer</i>, MIT Media Lab Computational Imaging Talks Series, 2012 - 2014. <i>Co-Organizer</i>, COEP Sesquicentennial Alumni Meet. 2010.
POPULAR PRESS	My research has been featured in The Economist, The Atlantic, The Guardian, New Scientist, Daily Mail, and Fast Company, among others.
SKILLS	Languages: C/C++, Python. Tools & Libraries: MATLAB, OpenCV, Mathematica, psql. Applications: Version Control - GIT & SVN, $\text{\LaTeX}$.