

# Jigar Doshi

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PERSONAL INFORMATION	Email: <a href="mailto:jigarkdoshi@gmail.com">jigarkdoshi@gmail.com</a> Website: <a href="http://www.jigarkdoshi.com">http://www.jigarkdoshi.com</a> Google Scholar: <a href="#">Link</a> Linkedin: <a href="https://linkedin.com/in/jigarkdoshi">https://linkedin.com/in/jigarkdoshi</a> Twitter: <a href="https://twitter.com/jigarkdoshi">https://twitter.com/jigarkdoshi</a> Citizenship: United States & India (OCI)
RESEARCH INTERESTS	Deep Learning, Computer Vision, Generalization beyond iid AI for Social Impact - Sustainability, Agriculture, Healthcare
EDUCATION	<b>Georgia Institute of Technology</b> 2010 - 2012 M.S. in Electrical and Computer Engineering Cleared PhD Qualifiers Area: Deep Learning, Computer Vision, Social Robotics  <b>New Jersey Institute of Technology</b> 2007 - 2009 B.S. in Electrical Engineering <ul style="list-style-type: none"><li>• Best senior year project building a Home automation system</li><li>• Summer NSF REU Program working on Network Tomography</li></ul>
PROFESSIONAL EXPERIENCE	<b>Wadhvani AI (Non-profit in India)</b> 2020 - 2022 Sr Machine Learning Scientist and Research Manager <ul style="list-style-type: none"><li>• <b>Area:</b> Social Impact focused AI solutions in Agriculture and Healthcare</li><li>• End to end owner of several deployed ML systems including problem formulation, data collection, metrics, modelling, experimental design and evaluation, impact evaluation, ML ops, timelines and team management.</li><li>• Predict COVID-19 risk from cell-phone recorded cough and speech samples. <a href="#">project page</a></li><li>• Classify and count critical cotton pests to recommend a sustainable pesticide usage. <a href="#">project page</a></li><li>• Estimating and tracking weight of a new-born baby simply from a video <a href="#">project page</a></li><li>• Detecting Tuberculosis risk from cell-phone recorded human acoustics</li></ul> <b>CrowdAI</b> 2017 - 2020 Head of Machine Learning <ul style="list-style-type: none"><li>• Leading all computer vision and deep learning projects to design the core analytics product</li><li>• Built and deployed state-of-the-art object detection, semantic and instance segmentation models deployed at scale on Satellite images and Aerial Videos</li><li>• Designed the interview process, recruited and managed a world-class ML team</li><li>• Winner of CVPR-18 DeepGlobe Road Segmentation challenge from satellite images</li></ul> <b>IBM Research</b> 2015 - 2016 Researcher

- Achieved state-of-the-art results (increased by 10%) on challenging Video Re-Identification task
- Top 3 finish at NIST-TRECVID-Surveillance Event Detection Challenge using 3D Conv Nets for fine-grain activity recognition
- Benchmark speed and performance issues in a deployed video surveillance solution

## Georgia Tech Research Institute (GTRI)

2013 - 2015

Graduate Research Assistant

- Real-time scene classification using Alexnet (deep learning) features on Google Glass
- Designed and implemented an end-to-end system on NAO Robot that integrates multiple modalities like human speech, visual features and activity recognition

## PUBLICATIONS

[Google Scholar Link](#)

White, J., Madaan, P., Shenoy, N., Agnihotri, A., Sharma, M., Doshi, J. (2022). **A Case for Rejection in Low Resource ML Deployment**. Challenges in Deploying and Monitoring Machine Learning Systems Workshop, NeurIPS

Sharma\*, M., Shenoy\*, N., Doshi\*, J., Bagad, P., Dalmia, A., Bhamare, P., Mahale, A., Rane, S., Agrawal, N., & Panicker, R. (2021). **Impact of data-splits on generalization: Identifying COVID-19 from cough and context**. AI for Public Health Workshop, International Conference on Learning Representations ICLR & Machine Learning for Preventing and Combating Pandemics Workshop, ICLR

Bagad\*, P., Dalmia\*, A., Doshi\*, J., Nagrani, A., Bhamare, P., Mahale, A., Rane, S., Agarwal, N., & Panicker, R. (2020). **Cough Against COVID: Evidence of COVID-19 Signature in Cough Sounds**. arXiv. <http://arxiv.org/abs/2009.08790> (Citation count: 95 as of 10/27/2022)

Boin, J.-B., Roth, N., Doshi, J., Lluca, P., & Borensztein, N. (2020). **Multi-class segmentation under severe class imbalance: A case study in roof damage assessment**. Humanitarian Assistance and Disaster Response Workshop, NeurIPS

Doshi, J., Garcia, D., Massey, C., Lluca, P., Borensztein, N., Baird, M., Cook, M., & Raj, D. (2019). **FireNet: Real-time Segmentation of Fire Perimeter from Aerial Video**. Artificial Intelligence for Humanitarian Assistance and Disaster Response Workshop, NeurIPS

Gupta, R., Goodman, B., Patel, N., Hosfelt, R., Sajeev, S., Heim, E., Doshi, J., Lucas, K., Choset, H., & Gaston, M. (2019). **Creating xBD: A Dataset for Assessing Building Damage from Satellite Imagery**. The IEEE Conference on Computer Vision and Pattern Recognition (CVPR).

Gupta, R., Hosfelt, R., Sajeev, S., Patel, N., Goodman, B., Doshi, J., Heim, E., Choset, H., & Gaston, M. (2019). **xbd: A dataset for assessing building damage from satellite imagery**. arXiv Preprint arXiv:1911.09296.

Schurmeier, L., Doshi, J., & Garcia, P. (2019). **Using Machine Learning to Identify and Classify Planetary Landing Site Dangers and Roving Vehicle Obstacles in Remotely Sensed Satellite Imagery and Drone Videos**. AGU Fall Meeting Abstracts, 2019, P43E

Doshi, J. (2018). **Residual inception skip network for binary segmentation**. IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW).

Doshi, J., Basu, S., & Pang, G. (2018). **From Satellite Imagery to Disaster Insights**. AI for Social Good Workshop, NeurIPS.

Doshi, J., Cheng, Y., Brown, L., Fan, Q., Feris, R., & Pankanti, S. (2016). **Spatio-Temporal Deep Features for Surveillance Event Detection**. 10th Machine Learning Symposium.

Doshi, J., Kira, Z., & Wagner, A. (2015). **From deep learning to episodic memories: Creating categories of visual experiences**. Proceedings of the Third Annual Conference on Advances in Cognitive Systems ACS, 15.

#### INVITED TALKS

Application of Graph Neural Network to Social Impact, IIIT- Hyderabad - 2022  
Panelist, ICLR Workshop on Practical ML for Developing Countries - 2022  
Panelist, AI for Sustainability, Indo German AI Collaboration - 2021 [Schedule](#)  
Speaker, Climate Change AI Webinar Series - 2021 [Youtube](#)  
Panelist, AI for People - 2021 [Youtube](#)  
Speaker, Cough Against Covid at AI for Mankind Meetup - 2020 [Youtube](#)  
Panelist, Partnership in AI - 2020  
Project Mentor, Stanford (CS472) Data science and AI for COVID-19 Course - 2020  
Speaker, Disaster Management at AI for Mankind Meetup 2018  
Speaker at Neural Network Meetup (SF) - 2018  
Satellite Images for Social Good at AI for Mankind Meetup (SF) - 2018 [Link](#)  
Speaker at CV Heads of Panel Meetup (SF) - 2018

#### REVIEWER AND MENTORSHIP

PC Member, CODS-COMAD 2022  
Project Mentor, CS472 Data science and AI for COVID-19 (Stanford) taught by James Zou 2020  
Reviewer, KDD Humanitarian Mapping Workshop 2021  
Reviewer, Climate Change AI workshop at ICML 2021  
Reviewer, Climate Change AI workshop at ICLR 2020  
Reviewer, Climate Change AI workshop at NeurIPS 2020  
Reviewer, Computer Vision for Global Challenges workshop at CVPR 2019  
Reviewer, AI + Humanitarian Assistance and Disaster Response Workshop at CVPR 2019

#### AWARDS AND GRANTS

H&M Foundation annual Global Change Award - 2022 [Link](#)  
Raised \$120K from GIZ to open source and run a ML challenge - 2021 [Link](#)  
NASSCOM Awards AI Game Change for Public Service - 2021 [Link](#)  
Fast Company's World Changing Idea (Cotton - Pest Management) - 2021 [Link](#)  
Google.org grants \$2 Million to Wadhvani AI's Pest Management Project - 2019 [Link](#)  
Winner of CVPR's - Deep Globe Road Segmentation Challenge - 2018 [Link](#)  
Top 3 Finish in NIST - Surveillance Event Detection - 2015  
Best Senior year project on Home Automation at NJIT - 2009 [Youtube](#)

STUDENTS AND MENTEES	Wadhvani AI	Makkunda Sharma (Research Fellow 2020 - 2022) Next: MS in CS at <b>Oxford</b> Apoorv Agnihotri (Research Fellow 2020 - 2022) Next: ML Engineer at <b>Deepen AI</b> Nikhil Shenoy (Research Fellow 2020 - 2022) Next: MS in CS at <b>The University of British Columbia</b> Pulkit Madan (Research Fellow 2020 - 2022) Next: MS in CS at <b>Johns Hopkins University</b> Anmol Ojha (Research Fellow 2020 - Present) Next: TBD Chandan Agarwal (Research Fellow 2021 - Present) Next: TBD Julian Lee (Summer Intern 2021) Next: BS in CS at <b>Harvard</b> Aman Dalmia (Research Fellow 2018 - 2020) Next: Founder of <b>Plio</b> (Non-profit Educational Startup) Aditya Sarma (Research Fellow 2018 - 2020) Next: MS in CS at <b>Georgia Tech</b> Piyush Bagad (Research Fellow 2019 - 2020) Next: MS in CS at <b>University of Amsterdam</b> Mayank Lunayach (Research Fellow 2019 - 2020) Next: MS in CS at <b>Georgia Tech</b> Arsha Nagrani (Visiting Scholar 2020) Next: Research Scientist at <b>Google AI</b>
	CrowdAI	Ranti Dev Sharma (Summer Intern 2017) Now: Sr ML Engineer at <b>Apple</b> Pablo Lluca Martinez (Software Engineer 2016 - 2021) Now: ML Lead at <b>Embark Trucks</b> Ethan Wells (ML Engineer 2017 - 2018) Now: Founder at <b>Wize</b> Nathaniel Roth (ML Engineer 2019 - 2020) Now: Engineering Manager at <b>You.com</b> Aleks Kamko (Software Engineer 2017 - 2019) Now: Director of Engineering at <b>Mighty</b> Michael Prattipati (Intern 2018) Now: Quantitative Research at <b>Citadel</b>
PRESS COVERAGE	<a href="#">Telengana Today</a> - Telangana: AI helps yield bumper cotton, 22 Jan 2022 <a href="#">Forbes</a> - Enlisting Pentagon Aid in Fighting Wildfires for the long haul, 19 Jan 2022 <a href="#">Fast Company</a> - Google.org is helping deploy AI to prevent pests devastating Indian crops, 27 May 2021 <a href="#">Economic Times</a> - AI-based solution helps Indian cotton farmers fight pink bollworm attack, 19 May 2021 <a href="#">Fast Company</a> - World Changing Ideas Awards 2021: Developing-World Technology Finalists and Honorable Mentions, 4 May 2021 <a href="#">Fast Company</a> - This AI-powered tech calculates a baby weight just from a video, 4 May 2021 <a href="#">The Scientist</a> - AI-Assisted Cough Tracking Could Help Detect the Next Pandemic, 6 Dec 2020 <a href="#">IEEE Spectrum</a> - AI Recognizes COVID-19 in the Sound of a Cough, 4 Nov 2020 <a href="#">Wired</a> - The National Guard Fire-Mapping Drones Get an AI Upgrade, 29 Sep 2020 <a href="#">Indian Express</a> - The cheaper and faster Covid-19 tests undergoing trials in India, 8 Oct 2020 <a href="#">Economic Times</a> - Wadhvani Institute of AI testing tool to detect Covid-19 through	

cough patterns, 17 Sep 2020

[Deccan Herald](#) - Wadhvani Institute to design AI tool to screen cough to detect Covid-19, 16 Sep 2020

[India Today](#) - Can the sound of your cough be used to self-screen for #Covid19 Artificial Intelligence researchers at Mumbai, 7 June 2020

[Reddit AMA](#) - Cough against Covid, an open access effort to build an AI tool that uses cough sounds, symptoms & contextual information for early screening of COVID-19, 18 April 2020

[Hindustan Times](#) - Bihar nod to NIPI to develop AI-powered tool to track Covid-19 suspects, 17 April 2020

[Hindustan Times](#) - Your voice may be able to tell if you have Covid, 16 April 2020

[Intel AI Blog](#) - 2020 CES: The American Red Cross and Intel Use AI for Disaster Preparedness, 6 Jan 2020

[Venture Beat](#) - DoD Joint AI Center to open-source natural disaster satellite imagery data set, 23 June 2019

[nvidia blog](#) - AI Helps Detect Disaster Damage From Satellite Imagery, 12 Dec 2018

[Facebook AI](#) - From Satellite Imagery to Disaster Insights, 8 Dec 2018