

Pratik Dubal

CONTACT INFORMATION

[pratik08.github.io](https://github.com/pratik08)

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RESEARCH INTERESTS

Computer Vision, Deep Learning, Machine Learning, Optimization.

EDUCATION

Columbia University in the City of New York

- Master of Science in Computer Science (*January 2019 - Present*)

K. J. Somaiya College of Engineering, University of Mumbai

- Bachelor of Engineering in Information Technology (*July 2013 - May 2017*)

PUBLICATIONS

- V. Kaushal, R. Iyer, **P. Dubal** et al. *Demystifying Multi-Faceted Video Summarization: Tradeoff Between Diversity, Representation, Coverage and Importance*. 2019 IEEE Winter Conference on Applications of Computer Vision (WACV)
- R. Iyer, **P. Dubal**, K. Dargan et al., *Vis-DSS: An Open-Source toolkit for Visual Data Selection and Summarization*. arXiv preprint arXiv:1809.08846
- **P. Dubal**, R. Mahadev, S. Kothawade et al, *Deployment of Customized Deep Learning based Video Analytics On Surveillance Cameras* arXiv preprint arXiv:1805.10604
- **P. Dubal**, S. Bhatt, C. Joglekar and S. Patil, *Skin Cancer Detection and Classification*. 2017 6th IEEE International Conference on Electrical Engineering and Informatics (ICEEI), Langkawi, DOI:10.1109/ICEEI.2017.8312419
- **P. Dubal**, *Rezence-Wireless Charging Standard based on Magnetic Resonance*. International Journal of Advanced Research in Computer and Communication Engineering, 10.17148/IJARCC.2015.41245, Vol. 4, Issue 12, December 2015.

WORK EXPERIENCE

Course Assistant, Columbia University (*January 2019 - May 2019*)

- Assistant to Prof. Joshua Gordon for the *Applied Deep Learning* course.
- Delivered a guest lecture on *Overview of Object Detection*.

Machine Learning Analytics Lead, Aitoelabs (*June 2017 - December 2018*)

- Led the transition of the analytics engine from traditional computer vision algorithms to Deep Neural Networks.
- Increased Face Detection accuracy by 34%, while decreasing inference time by 59%.
- Improved Submodular Optimization based Video Summarization, Multi-Object Tracking and Face Recognition algorithms.

Intern Analyst, Barclays Technology Centre India (*June 2016 - July 2016*)

- Worked on a project which aggregated the bank's legal handlings from various sources and mediums into a single unified application.
- Deployed SQL Server Integration Packages and generated Business Object reports.

Research Intern, K. J. Somaiya College of Engineering (*Jan 2016 - April 2016*)

- Part of a team which aimed to create an efficient distributed computing system by transforming parallel runtimes into Operating System kernels.

ACHIEVEMENTS AND AWARDS

- **Best Student Award, 2017** from the Department of Information Technology, K. J. Somaiya College of Engineering.
- Secured the **Second Prize** at Prakalpa '17 - State Level Conference and Working Model Exhibition for the project *Skin Cancer Detection and Classification*.
- **Departmental Subject Topper** in *Automata Theory* and *Computer Networks*, 2015.
- Awarded Merit Certificates for being among the **top 0.1%** of candidates nationwide in Computer Science in AISSCE, 2013 and obtaining A1 grades in all subjects in AISSE, 2011.

PROJECTS AND
OPEN-SOURCE
CONTRIBUTIONS

Visual Reasoning in Videos (*June 2019 - Present*)

- Working on identifying object level relationships in videos for action prediction and captioning tasks.
- Project advised by Bo Wu at DVMM lab in Columbia.

Speech-to-Speech Response Prediction (*June 2019 - Present*)

- Working on developing a direct speech based response prediction system which generates responses for input dialogue utterances.
- Project advised by Prof. Hod Lipson.

Assessing Speaker and Teaching Effectiveness (*January 2019 - May 2019*)

- Member of the High-Level Computer Vision Lab, advised by Prof. John R. Kender.
- Working on assessing teaching effectiveness of a speaker using speaker audio and audience eye fixations. Coupling deep audio embeddings with audience eye fixations to identify learning patterns in subjects.

Vis-DSS: Visual Data Selection and Summarization (*Aug 2018 - Nov 2018*)

- Released an open-source toolkit for Image and Video Summarization, Data Subset Selection and Diversified Active Learning using Submodular functions.

Jensen: Convex Optimization and ML toolkit (*July 2018 - October 2018*)

- Code optimization and organization. Incorporated advancements made in the Deep Analytics Toolkit at AitoeLabs.

Skin Cancer Detection and Classification (*June 2016 - May 2017*)

- Developed an application that detects and classifies skin lesions as malignant and benign, and further into three of their respective sub-categories, with the use of various image processing and machine learning techniques.

ALUMNUS
ENGAGEMENTS

- Mentored a team of sophomores working on Deep Learning projects such as Anomaly Detection, Color Recognition and Custom Object Detection. (*July 2018*)
- Subject Board Committee Member for syllabus revision of the Bachelor of Technology program at K. J. Somaiya College of Engineering. (*March 2018*)
- Delivered a lecture to the sophomores at K. J. Somaiya College of Engineering on the practical applications of theoretical concepts taught in college. (*Nov. 2017*)
- Speaker at the 'Alumni Interaction Session' during the Freshman Orientation at K. J. Somaiya College of Engineering. (*2017, 2018*)

CERTIFICATIONS

- deeplearning.ai Specialisation - Coursera. (*November 2018*)
- MITx: Intro to Computer Science and Programming using Python. (*August 2015*)
- Canon - Intermediate Photography. (*June 2014*)

EXTRA
CURRICULAR
ACTIVITIES

Computer Society of India, K. J. Somaiya College of Engineering Chapter

- Technical Head (*2015-2016*), Second Year Representative (*2014-2015*) and First Year Representative (*2013-2014*).
- Instructor of workshops held on *Advanced Cryptography, Introduction to Cryptography, Introduction to Linux and Introduction to Adobe Photoshop*.
- Organizing Committee member and Event Head of Abhiyantriki, the tech fest of the college.

Student Internship Coordinator (*March 2016 - May 2017*)

- Coordinated with the internship cell of the college to help students of the Department of Information Technology secure internships.

Volunteer at Teach for India (*August 2016 - April 2017*)

- Helped with the teaching and assessment of students of the third grade at Mumbai Public School, Sion Koliwada.

Campus Ambassador for HackerRank (*September 2015 - May 2017*)

- Organized and designed coding competitions on the HackerRank platform.