# Pratik Dubal


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**Research Interests**

Computer Vision, Deep Learning, Machine Learning, Optimization.

**Education**

**K. J. Somaiya College of Engineering, University of Mumbai**
Bachelor of Engineering in Information Technology *(July 2013 - May 2017)*

- CGPI: 8.27 out of 10 (Absolute Grading).

**Publications**

- V. Kaushal, R. Iyer, **P. Dubal** et al. *Demystifying Multi-Faceted Video Summarization: Tradeoff Between Diversity, Representation, Coverage and Importance.* (Under Review at IEEE Winter Conf. on Applications of Computer Vision, 2019)
- 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 (Under Review at IEEE Winter Conf. on Applications of Computer Vision, 2019)
- **P. Dubal**, R. Mahadev, S. Kothawade et al,*Deployment of Customized Deep Learning based Video Analytics On Surveillance Cameras* arXiv preprint arXiv:1805.10604 (Under Review at IEEE Winter Conf. on Applications of Computer Vision, 2019)
- **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/IJARCCE.2015.41245, Vol. 4, Issue 12, December 2015.

**Work Experience**

**Machine Learning Analytics Lead, AitoeLabs** *(June 2017 - Present)*

- 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 Face Recognition accuracy by 29%.
- Trained custom Convolutional Neural Network models for object detection and fine-grained attribute recognition.
- Analysed and 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

**Vis-DSS: Visual Data Selection and Summarization** *(Aug 2018 - Present)*
- Released an open-source toolkit for Image and Video Summarization, Data Subset Selection and Diversified Active Learning using Submodular functions.

**NCooper** *(July 2018 - Present)*
- Developing a dependency free library in C++ for modelling and training Neural Networks.

**Jensen: Convex Optimization and ML toolkit** *(July 2018 - Present)*
- Code optimization and organisation. 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.

**Movie Success Prediction System** *(January 2016 - May 2016)*
- Developed an application that used various data mining algorithms to predict a movie's box office collection and potential to win awards.

## 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

- Mathematics for Machine Learning Specialisation - Coursera. *(Pursuing)*
- deeplearning.ai Specialisation - Coursera. *(September 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.*
- Organising 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)*
- Organised and designed coding competitions on the HackerRank platform.