Pratik Dubal

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Education

- **Columbia University in the City of New York** — New York, NY
  Masters in Computer Science - Machine Learning — *Jan 2019 - Present*
- **K. J. Somaiya College of Engineering** — Mumbai, India
  Bachelor of Engineering in Information Technology — *July 2013 - May 2017*

Experience

- **Columbia University in the City of New York** — New York, NY
  Course Assistant — *Jan 2019 - May 2019*
  - **Applied Deep Learning**: Assisted Prof. Joshua Gordon with the teaching and assessment of the graduate level applied deep learning course. Delivered a guest lecture on 'Overview of Object Detection'.
- **AitoeLabs** — Mumbai, India
  Machine Learning Analytics Lead — *June 2017 - Dec 2018*
  - **Video Analytics Engine**: Led the transition of the video analytics engine from traditional computer vision algorithms to Deep Neural Networks.
  - **Face Detection and Recognition**: Increased Face Detection accuracy by 34%, while decreasing inference time by 59%. Improved Face Recognition accuracy by 29%.
  - **Integrating Research**: Improved Submodular Optimization based Video Summarization, Multi-Object Tracking and Detection algorithms.
- **Barclays Technology Centre India** — Pune, India
  Intern Analyst — *Jun 2016 - July 2016*
  - **Functions Technology Group**: Worked on a project which aggregated the bank's legal handlings from various mediums into a single unified application.

Publications

- **Demystifying Multi-Faceted Video Summarization: Trade-off Between Diversity, Representation, Coverage and Importance**: 2019 IEEE Winter Conference on Applications of Computer Vision (WACV).
- **Vis-DSS: An Open-Source toolkit for Visual Data Selection and Summarization**: arXiv:1809.08846
- **Deployment of Custom Deep Learning based Video Analytics on Surveillance Cameras**: arXiv:1805.10604
- **Skin Cancer Detection and Classification**: 2017 IEEE International Conference on Electrical Engineering and Informatics (ICEEI).
- **Rezence - Wireless Charging Standard based on Magnetic Resonance**: 2015 International Journal of Advanced Research in Computer and Communication Engineering (IJARCCE).

Research Projects

- **Visual Reasoning in Videos**: Working on identifying object level relationships in videos for action prediction and captioning tasks. Project advised by Bo Wu at DVMM lab in Columbia. *(June 2019 - Present)*
- **Speech-to-Speech Response Prediction**: Working on developing a direct speech based response prediction system which generates responses for input dialogue utterances. Project advised by Prof. Hod Lipson. *(June 2019 - Present)*
- **Assessing Speaker and Teaching Effectiveness**: Worked on assessing teaching effectiveness of a speaker using speaker audio and audience eye fixations. Coupled deep audio embeddings with audience eye fixations to identify learning patterns in subjects. Advised by Prof. John R. Kender. *(Jan 2019 - May 2019)*
- **Vis-DSS: Visual Data Selection and Summarization**: Released an open-source toolkit for Visual Summarization, Data Subset Selection and Diversified Active Learning using Submodular functions. *(Aug 2018 - Nov 2018)*
- **Skin Cancer Detection and Classification**: 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. *(June 2016 - May 2017)*