CHAITANYA RAJESH BANALA

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Education

Indian Institute of Technology Bombay,
Bachelor of Technology in Computer Science & Engineering *July. 2014 – May. 2018*
GPA: 8.00 / 10.00

Work Experience

Samsung Research Institute, *Noida*
Software Engineer in Camera Systems *Jun. 2018 – May. 2020*

- Implemented Code Optimizations in the HAL layer of Camera module to eliminate various memory,latency issues.
- Designed on-device ml-models related to computer vision and modified the camera pipeline for faster throughput.

Constrained Neural Architecture Search for mobiles

- Proposed an approach for automatic model design according to given latency,memory constraints based on ENAS.
- Implemented macro search strategy that designs different CNN architectures based on mobiles specifications.

GAN based Image Compression

- Proposed an approach in the area of Lossy Image Compression based on Generative Adversarial Networks.
- Designed multi-variate loss function to overcome various artifacts introduced in reconstruction.
- Achieved compression rates of 43% , 68% , 84% and able to reconstruct images with SSIM $\sim$ 0.95.

JPMorgan Chase, *Bengaluru*
Software Development Intern *May. 2017 – July. 2017*

- Improved the performance of a Windows app designed for Clients that retrieves Trade Information and displays details with interactive graphs and real-time trade metrics.Modified the server API's to optimize data flow.
- Developed a Web Application as an extension to the app using Athena Framework and Python-based backend server.

Academic Projects

Markerless AR enabled Mobile App,
Mobile Computing *Jan. 2018 – Apr. 2018*

- Developed Android App employing Markerless AR technology in which users can place multimedia content and view it augmented on real world objects /textures.
- Content is stored and retrieved through Web API's using a Django-based server hosted on AWS. Texture detection, Augmenting etc.. are done locally on mobile using AR SDK.

Solar Flare Detection using CCNN,
Machine Learning *Jan. 2017 – Apr. 2017*

- Implemented Cascade-Correlation Neural Network , a self-organizing architecture that autonomously adapts to the application and makes the training much more efficient.
- Generated a classifier model for Solar Flare Detection using astronomical data . Achieved accuracy greater than 90% to outperform classical ML models like SVM , RF and simple ANN.

Face Detection with OpenCV,
Digital Image Processing *Aug. 2016 – Nov. 2016*

- Designed an algorithm for face detection by dividing the image into connected regions of skin and classifying them into faces based on pre-trained filters and geometric metrics like Box Ratio , Eccentricity.
- Achieved real-time detection with accuracy $\sim$ 85% (in bright light conditions) with web cam.

Scholastic Achievements

- Secured **All India Rank 227** in **IIT JEE Advanced 2014** out of **150 thousand** candidates (*2014*)
- Among top **0.02%** in **JEE Main (B.Tech)** out of **1.4 million** candidates (*2014*)
- Obtained **99.99 percentile** in **EAMCET** among **0.4 million** candidates (*2014*)
- Awarded with prestigious **Prathibha** Scholarship by MHRD,Govt. of India (*2014*)

Course Work

• Machine Learning,Computer Vision,Bayesian Methods for Machine Learning* ,Practical Reinforcement Learning *
• Probabilistic Graphical Models* ,Computer Graphics,Data Base Management System ,Operating Systems

Technical Skills

Languages: C++, C, Python and Java
Frameworks: OpenCV, PyTorch, Tensorflow 1.x (Intermediate)