

https://nthere.dev

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Research Interests: Deep Learning for Scene and Object Understanding

EDUCATION

Indian Institute of Science Bangalore, India Masters in Signal Processing; CGPA: 5.8/8.0

2010 - 2012

Sri Jayachamarajendra College of Engineering

Bachelor of Engineering in Electronics and Communication

Mysore, India 2005 - 2009

SKILLS SUMMARY

- Languages: Python, C, C++, Matlab
- Deep Learning Frameworks: Caffe, MXNet, PvTorch, Tensorflow
- Tools: Vim, Git, Tmux, Microsoft Visual Studio, QT, Eclipse, Android JNI/NDK

Experience

Whodattm Bangalore, India April 2017 - Present

Deep Learning Research Engineer

- Face Recognition for KYC automation: Deep learning based system to verify the user's selfie with the photo in the KYC document and also to identify duplicates (if any) in the database to avoid fraud
 - Finetuned ResNet-100 single network & ResNet-100 sibling network with weight sharing. Both using additive angular marginal inter loss combined with intra-marginal loss
 - Implementation of other loss functions Fixed & Dynamic AdaCos, Dynamic Weight Imprinting (DWI)
 - Achieved: TAR 94.32% @ FAR 1e-5, TAR 89.95% @ FAR 1e-6 with 4-fold cross validation
 - Languages & Tools used Python, MXNet, Tensorboard, Visdom
- o Egocentric Camera Height Estimation in Indoors: Deep learning based system trained on synthetic dataset to estimate the height at which camera is held to calculate the real-world scale
 - Languages & Tools used Python, Caffe, Visdom
- o Ground/Wall plane and centroid estimation: Deep learning based monocular depth, normal and segmentation to estimate the planes, their orientation and the centroid for placing the virtual objects in the real-world scenes
 - Theano to Tensorflow code conversion to achieve speed for both training and inference
 - Flask app to integrate with SLAM and also multiprocessing queuing system to handle multiple models.

Samsung R&D Institute

Bangalore, India July 2012 - March 2017

Technical Lead

- o Deep Convolutional Network for Food Recognition:
 - Squeezenet model (accuracy=69%) ported on to mobile. ResNet, Inception models for better accuracy
 - Data collection, labelling and models to support Indian Food Categories
 - Languages & Tools used Python, Caffe, Tensorflow
- Fully Convolutional Network for Segmentation of Sky and Non-sky regions:
 - Fully convolutional VGG-16 model using SIFT flow dataset
 - Sky segmentation map used as prior for horizon detection in an image
 - Languages & Tools used Python, Caffe
- Detection of Duplicate images in Gallery: Nearest Neighbor Image Retrieval using GIST descriptor (Code)
 - Languages & Tools used C++, OpenCV, Matlab
- o One Touch Auto Image Enhancement (Commercialized in flagships after Galaxy S6):
 - Algorithm for detection of low-light/backlight, poorly lit face images
 - Architecture design of auto image enhancement engine
 - Languages & Tools used C, Matlab
- Photo Editor/Best Photo (Commercialized in all android Phones):
 - Red eye correction, Blur Detection and Ranking Algorithm
 - Bilinear resizer module for less memory architecture in Photo Editor
 - Languages & Tools used C, C++ Matlab
- o Touch Focus (Commercialized in flagships after Galaxy S5): Complete JNI framework design & development for communicating between application and engine

Personal Projects

- GOTURN single object tracking (Code): Python + Caffe based implementation to facilitate easy training and experimentation
- Combining Sketch and Tone for Pencil Drawing Production (Code): Color pencil sketch effect for images which mimicks human style of pencil drawing. Languages & Tools used C++, OpenCV, QT
- Pedestrain detection using Histogram of Oriented Gradients (Code): SVM model to detect pedestrains in the image. Languages & Tools used C++, Python, OpenCV
- Image Processing Toolbox (App): QT based GUI application to test basic blur and edge detection algorithms. Languages & Tools used C++, QT, OpenCV

Honors and Awards

- Awarded Employee of the month Jan 2016
- Awarded Galaxy S5 for the effort in success of Touch Focus USP

References

• Upon Request

Updated: June 29, 2019