# Navneet

Research Scientist


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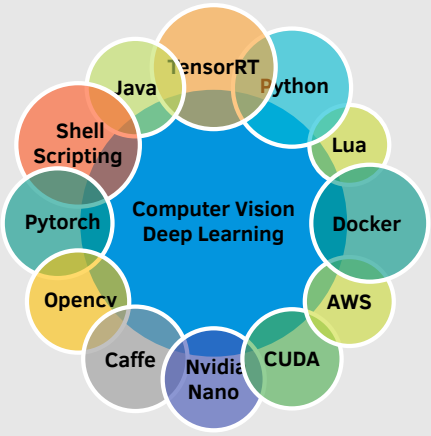
## Skills




## Interests

- Computer Vision
- Natural Language Processing
- Machine Learning
- Deep Learning
- Probabilistic Graphical Models
- Digital Image Processing
- Embedded Hardware
- Evaluation Matrix;Accuracy
- Model Optimisation,Pruning
- Agile Methodology
- Cloud Computing
- Data Mining

## Career Objective

Passionate about discovering insights into complex systems from data. Intend to build career, which offers constant challenges, advancement opportunities and value addition in growing concern. Willing to work as key player in challenging creative environment.

## Experience

2016 - **Research Scientist** Inkers Pvt. Ltd.

- **DMG Extraction**:This project is to extract DMG(Demographic) features from face embedding. It predicts AGE (AgeGenderEmotion) , pose, attributes (like covered,dark etc). Single Neural Network model is being trained on given datasets. It considered the yaw,pitch,roll of a given image so that frontal most images should be filtered out for higher accuracy (negligible false positive). Later this model is being quantised to run on embedded devices like Nvidia Nano/TX2 with real time.
- **Face Recognition**: This use case was both batch-mode and real time face recognition system, It uses facial features and tries to learn the face as time passes by and is able to recognise it when it appears (with beard or partial; got gradually learn features). It does first time face-registration (with single as well as many photos). Sometime it does not required to do registration and it does real time recognition of people (if face is viable visible). Tracking is maintained by DNN tracker using optical flow.
- **Abnormal Behaviour Detection** – It determines the human activity classification by looking into temporal data. LUPI has been used to extract features. Training strategies involved with LUPI-HCRF using t-distribution and incorporated withing to boost the accuracy. It detects sudden fall of kids or person, bullying detection, crossing fence, fight sequence detection, accident detection and anomalies detection. The loss function is optimised using a limited-memory BFGS method to minimise the negative log likelihood for the data.
- **ATM Alarm** – Raise an alarm if an anomaly is being detected inside the ATM through a camera. This model also detects Masks , partial covered faces, Helmet and person behavioural pattern.
- **HVC** – Predicting High-Value-Customer by looking at the attire and facial expressions of a person. There are a lot many other attributes associated with it to predict HVC.

2012 – 2016 **Module Lead Software Engineer** Impetus Infotech Pvt. Ltd.

- **CRMD**:Consumer Relevant Merchant Database (CRMD) use case is intended to associate the Non-US merchants with specific industries so that card members are appropriately rewarded. For data matching it uses N-Grammizer to group the industries name and prepare the scores. It include processes like Data pull, Auth MCC, Text mining, K-NN and some arbitration process to filter data.
- **SERT**:Speed Engagement and Relevance Tool (SERT) provides Amex open card customer with merchant recommendations. List of merchant recommendations would be provided where the open card customer could buy from to improve their profit margins.

2006 – 2012 **Senior Software Engineer** Eterno Infotech Pvt. Ltd. (Ver Se' Innovation), India

- **Dailyhunt**:Mobile News publishing platform supporting 80 leading Indian newspapers. It fetches the news from different sources (rich, xml,html, json,file etc) for more than 80 indian languages.
- **Music Companion**: Online Music streaming service with karoake display. Icecast Audio(MP3) server streaming over HTTP
- **RetailClassifieds** – Retail classifieds is web-based application where client can post an Ads. All posting ads are with respect to the source.

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# Proficiency

## Machine Learning

Machine Learning
Regression
Support Vector Machine
Decision Trees
XGBoost
Naive Bayes

## Deep Learning

Data Preparation
Data Analysis
Quantization
Layers Pruning
Loss optimisation
L1/L2/Softmax/FocalLoss
Grad-CAM
ROC/F1-score/Confusion Mat.
Clustering/t-sne
SqueezeNet/MobileNet/EfficientNet
ResNet-XX/SK-Net/SE-Net
Groups/Depth-wise/Dilated conv.
Medical Prognosis/MRI/X-Rays

## DL Deployment

Conda Env.
Jupyter
Docker
AWS
GitHub/GitLab/CodeCommit
JIRA/Confluence/Atlassian

## Big Data

Hadoop
MapReduce
HIVE
HBase
Solr
PIG
NLP

# Education

2001 - 2005 **B. E. Computer Science and Engineering** VTU India - **First Class**
*Core Subjects: Operating Systems, Computer Networks, Parallel Programming, Algorithms & Data Structures*

# Languages

English, Hindi

# Certifications

Udacity **Self Driving Car**

- **Vehicle Detection and Tracking**:Created a vehicle detection and tracking pipeline with OpenCV, histogram of oriented gradients (HOG), and support vector machines (SVM). Optimized and evaluated the model on video data from an automotive camera taken during highway driving.
- **Use Deep Learning to Clone Driving Behaviour**: Built and trained a convolutional neural network for end-to-end driving in a simulator, using TensorFlow and Keras. Used optimization techniques such as regularization and dropout to generalize the network for driving on multiple tracks.
- **Traffic Sign Classification** – Built and trained a deep neural network to classify traffic signs, using TensorFlow. Experimented with different network architectures. Performed image pre-processing and validation to guard against overfitting.
- **Finding Lane Lines on Road** – Detected highway lane lines on a video stream. Used OpencV image analysis techniques to identify lines, including Hough Transforms and Canny edge detection.

Coursera **MOOC**

- **AI for Medical Diagnosis**:Coursera Verified Certificates.
- **AI for Medical Prognosis**:Coursera Verified Certificates.
- **Statistical Inference**:Coursera Verified Certificates.
- **Structuring Machine Learning Projects**:Coursera Verified Certificates.
- **Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization**:Coursera Verified Certificates.
- **Neural Networks and Deep Learning**:Coursera Verified Certificates.
- **Convolutional Neural Networks**:Coursera Verified Certificates.
- **Getting and Cleaning Data**:Coursera Verified Certificates.
  License: Q6HQM45VAZ
- **The Data Scientist's Toolbox**: Coursera Verified Certificates.
  License: 4233Z3M44Z
- **R Programming** – Coursera Verified Certificates.
  License: S5NSMDRQKD
- **Exploratory Data Analysis** – Coursera Verified Certificates.
  License: 22UUN8BTQU
- **Regression Models** – Coursera Verified Certificates.
  License: WHKJ8L2A6B
- **Reproducible Research** – Coursera Verified Certificates.
  License: TUYS8CH3YA
- **Practical Machine Learning** – Coursera Verified Certificates.
  License: L9ZRMG2J6X

MISC **MOOC/Others**

- **Java**:Sun Certified Java Programmer (SCJP 1.4)
- **J2EE**: Sun Certified Web Component Developer (SCWCD 1.4)
- **Statistical Learning** – Stanford University
- **Introduction to Probability – The Science of Uncertainty** – MIT ocw.mit.edu