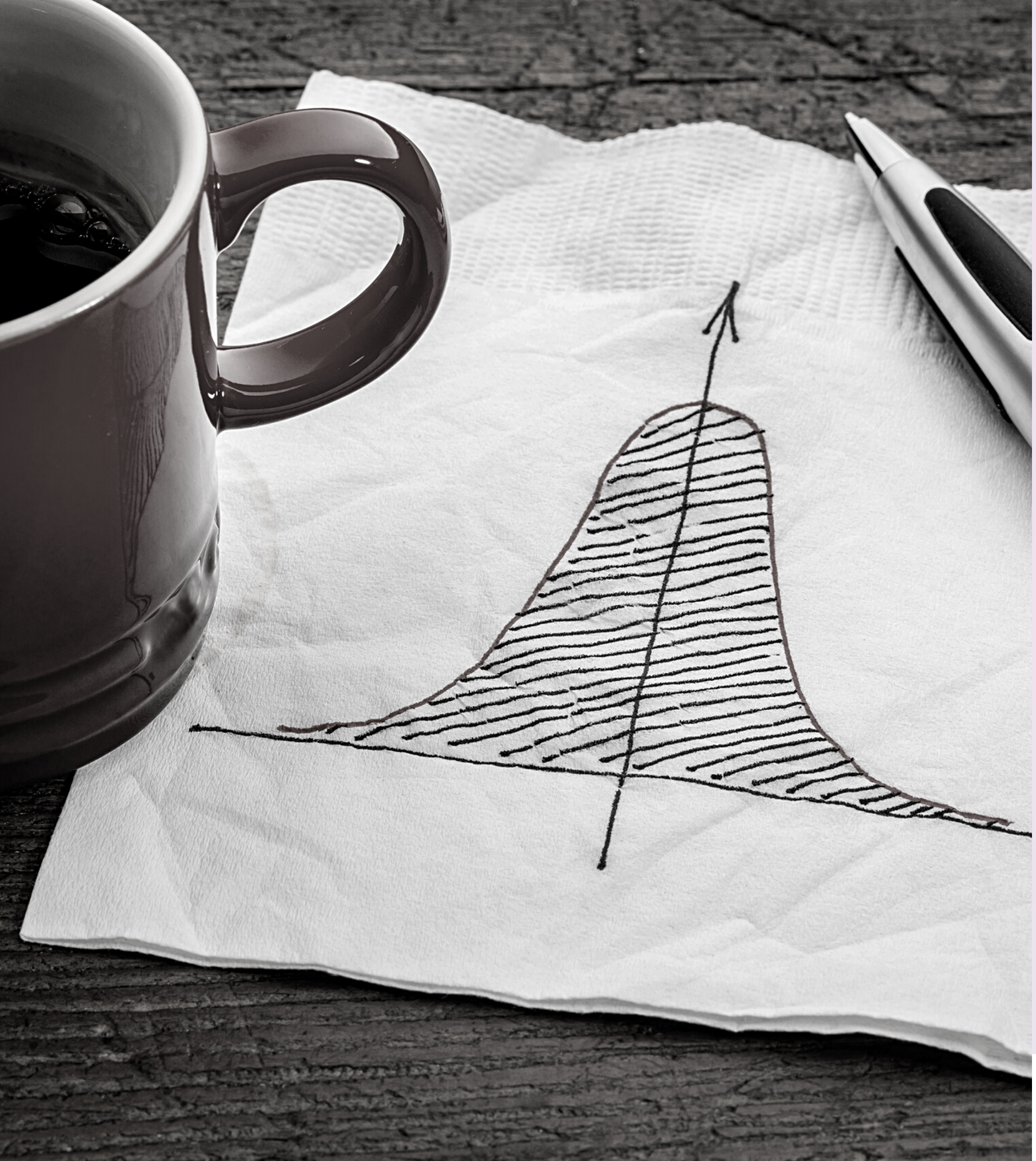


Computer Vision Study Roadmap

Machine Learning India
BMC Exclusive Content

01 —

Summary

02

The Roadmap:

- Basics: Statistics and Python
- Introduction to Machine Learning
- Solving a simple Image Classification Problem
- Introduction to Neural Networks
- Introduction to Keras, PyTorch and Tensorflow
- Understanding Convolutional Neural Networks
- Introduction to Transfer Learning
- Object Detection
- Image Segmentation
- Attention Models
- Image Captioning
- Generative Adversarial Networks
- Video Analytics
- Profile Building

The basics:

03 —

All that's required:

THE BASICS

For statistics, python programming as well as introductory machine learning, refer to our previous roadmap: Click here.

IMAGE CLASSIFICATION

Get acquainted with basic image processing techniques and classification using traditional machine learning algorithms. For example: Logistic regression to classify rooms as messy or clean: Kaggle Link.

NEURAL NETWORKS

- Theory: NPTEL video series.
- Hands-On: Coursera.

Libraries and frameworks:

04 —

All that's required:

KERAS

- Introduction to Deep Learning with Keras on Datacamp.
- Image recognition case-study with Keras: Click here.

PYTORCH

- Deep Learning with PyTorch - A 60-minute blitz: PyTorch.
- Learning PyTorch with Examples: Here.

TENSORFLOW

Build a computer vision model with TensorFlow: Google CodeLabs.

CNNs and pretrained models:

05 —

All that's required:

CONVOLUTIONAL NETWORKS

- Convolutional neural networks by Stanford School of Engineering: Here.
- Convolutional Neural Network (CNN): Tensorflow

TRANSFER LEARNING

- Transfer learning and the art of using Pre-trained Models: Analytics Vidhya.
- Transfer learning and fine-tuning: Tensorflow.

OBJECT DETECTION

Computer Vision - Object Detection with OpenCV and Python: Coursera.
YOLO3 Tutorial: Here.

CV + NLP

06 —

All that's required:

IMAGE SEGMENTATION

- Introduction to Image Segmentation Techniques (Part 1): Analytics Vidhya.
- Implementing Mask R-CNN for Image Segmentation (Part 2): Analytics Vidhya.

ATTENTION MODELS

- Sequence to sequence models: Stanford.
- A Comprehensive Guide to Attention Mechanism in Deep Learning for Everyone: Analytics Vidhya.

IMAGE CAPTIONING

Image captioning with visual attention: Tensorflow.

GANs:

07 —

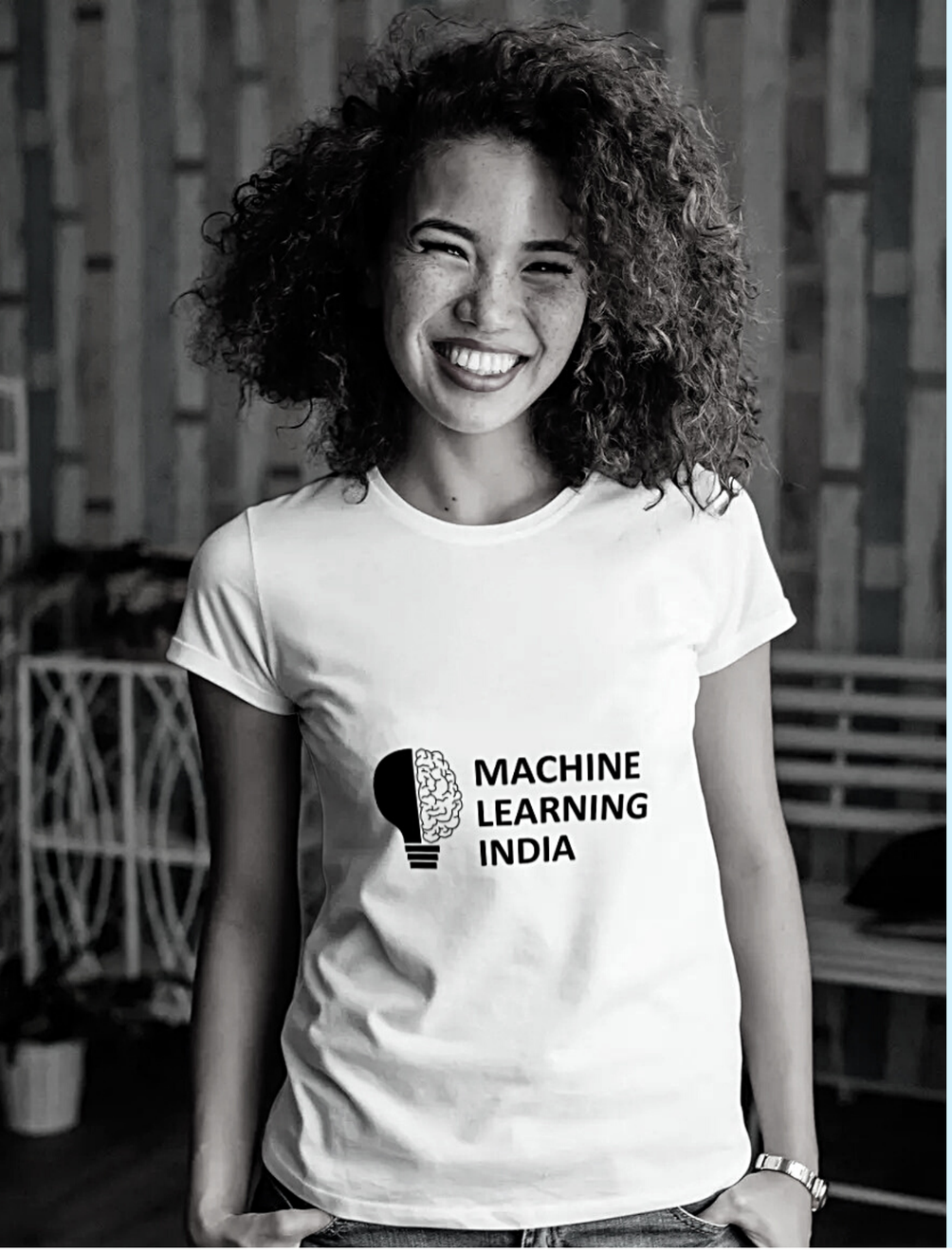
All that's required:

GENERATIVE ADVERSARIAL NETS

- GANs, a short course: Google Developers.
- Deep Convolutional Generative Adversarial Network: Tensorflow.
- DCGAN Tutorial: PyTorch Org.

VIDEO ANALYTICS

- Introduction to Video Analytics: Coursera.
- Step-by-Step Deep Learning Tutorial to Build your own Video Classification Model: Analytics Vidhya.



Profile Building

08 —

PROJECTS > CERTIFICATES

The more projects and hands-on experience you have to showcase, the more be your chances of landing the job!

NETWORK WITH INDUSTRY PROFESSIONALS

Always look up to their work and be updated about where the industry is heading.

JOURNEY > DESTINATION.

Focus on the process of becoming a successful AI-professional; don't obsess over the end-goal.

Thank you!

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Questions or clarifications? Drop a comment or get in touch: support@machinelearningindia.in