Aldel Education Trust's

St. John College of Engineering and Management, Palghar

(A Christian Religious Minority Institution)

Approved by AICTE and DTE, Affiliated to University of Mumbai/MSBTE

St. John Technical Campus, Vevoor, Manor Road, Palghar (E), Dist. Palghar, Maharashtra-401404

NAAC Accredited with Grade 'A'

DEPARTMENTS OF COMPUTER ENGINEERING AND INFORMATION TECHNOLOGY

Report on One-week Online ISTE approved Short-term Training Programme (STTP) on "Deep Learning for Computer Vision"

ISTE/Proceedings/Online STTP-SF-MAH-024/2021-22

June 30 to July 04, 2021

1. Day 1

Learning Outcome: To understand the basics of artificial intelligence and deep learning.

Session 1

Session 1 of the first day of the STTP began at 10.00 a.m. with Mr. Vivian Lobo and Ms. Shraddha More (Faculty Co-ordinators) introducing the event and welcoming the participants. Prayer of St. Francis along with Sarasvati Vandana were played to mark the start of the STTP. The host of the event Mrs. Brinzel Rodrigues invited Dr. G.V. Mulgund, Principal, St. John College of Engineering and Management to address the gathering. Next, Mr. Aldridge D'Souza, Member of Aldel Education Trust (AET) spoke a few words on the recent trends in deep learning and its applications in computer vision. Dr. Rahul Khokale shared the objectives behind this STTP. Mrs. Rashmi Bhat welcomed the speaker of the day Mr. Manoj Das, Data Scientist at Amazon, Bangalore.

Following topics were covered during Session 1

- *Supervised and Unsupervised learning.*
- *Basics of AI.*
- *How to build intelligent models.*
- *Introduction to Deep learning.*

Session 2

Session started at 2:30 p.m.

The topics covered were:

- *Importance of Data Set: Cleaning and Clustering.*
- *Object Classification and Image Segmentation*
- *Over-fitting and under-fitting in Machine Learning.*
- *Yolo Algorithm.*
- *Validating data from multiple experts.*

Interactive Question Answer session with participants continued from 4:20 p.m. to 5.00 p.m.
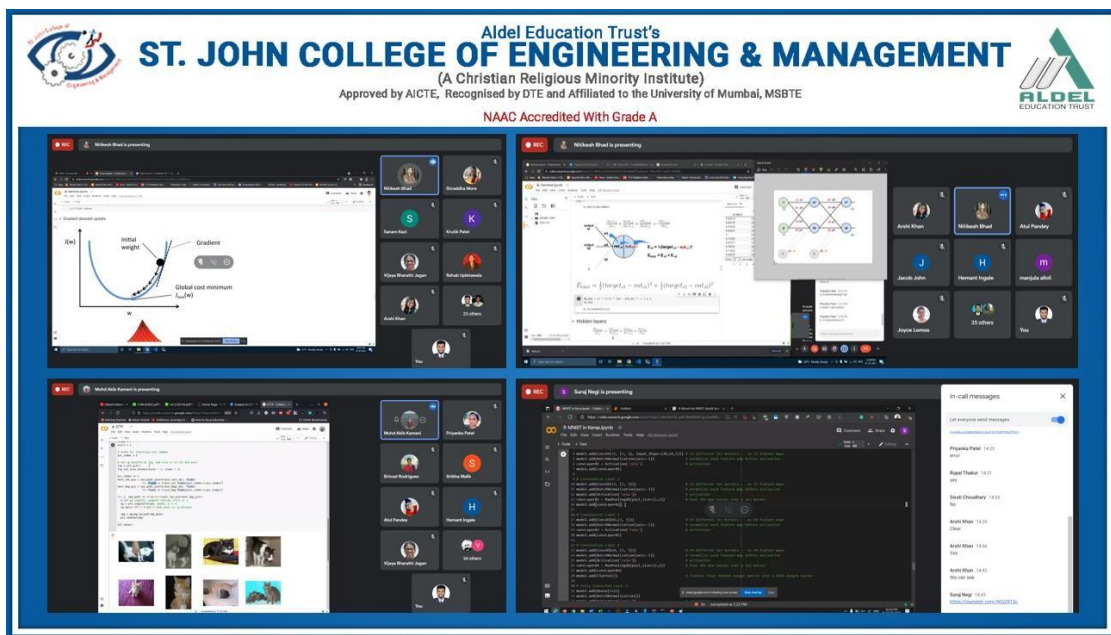
2. Day 2

Learning Outcomes:

- *To develop a model for classification*
- *To understand the concepts of neural networks*

Session 1

Mr. Ronald Laban welcomed the participants and the speaker for the day Mr. Nitikesh Bhad, Data Scientist, TomTom Pvt. Ltd., Pune. The session started sharp at 10.00 a.m. Mr. Nitikesh Bhad demonstrated live examples of building a perceptron. He gave an example of classifying whether a student is accepted in the university based on 3-dimensional data containing parameters exam, test, and grades. Thereafter, the resource person showed how to implement AND, OR and NOT gate using perceptron.

Session 2

Session started at 2.30 p.m. Mr. Nitikesh Bhad explained the need of deep learning.

The topics covered in the session were:

- How learning takes place at the hidden layers.
- Object Detection
- Semantic Segmentation.
- Gradient Descent Method.
- Validation Accuracy, Entropy and Loss.
- Model Building for Classification.

The session ended with interaction between the participants and the speaker for about half an hour.

3. Day 3

Learning Outcomes:
- *To differentiate between CNNs and feed forward neural networks.*
- *To understand the concepts of neural networks.*

Session 1

Mrs. Jessica Dias welcomed the participants and the speaker for the Day Mr. Suraj Negi, Freelance Technical Trainer. The session started at 10.00 a.m. Mr. Suraj Negi started with the introduction to convolution neural networks (CNNs). He also explained why CNN should be used over feedforward neural network for image classification. He explained how it is difficult to maintain connections. In feedforward network, the weights and biases are difficult to maintain as the network grows. It also becomes very inefficient and difficult to train the network.
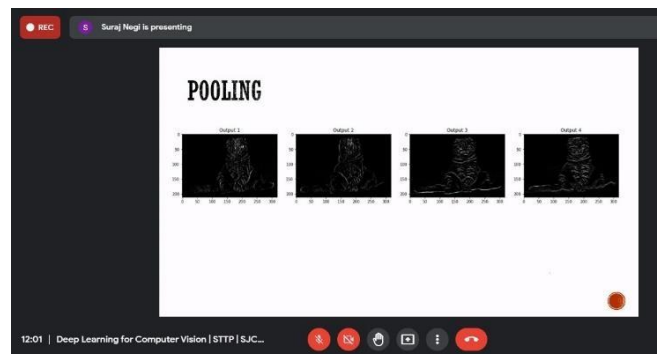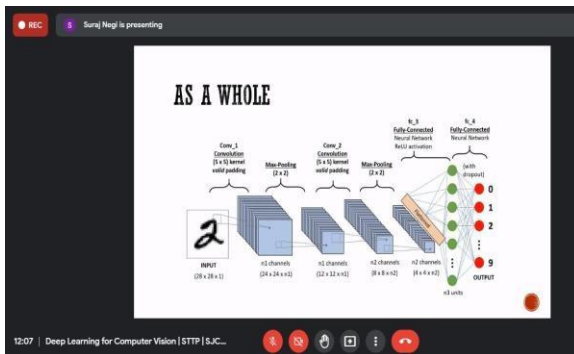
Session 2

Session started at 2.00 p.m. It was a hands-on session using Keras.

4. Day 4

Learning Outcomes:
- *To differentiate between image recognition and object detection*
- *To develop a classification model.*

Session 1

Mrs. Brinzel Rodrigues welcomed the participants and the speaker for the Day Mr. Mohd. Akib Kamani, Sr. Software Developer, miBiome Therapeutics, LLP, Mumbai. He started the session with giving an introduction to image processing.

Topics covered were:
- Difference between image recognition and object detection.
- How to do preprocessing using a sliding window.
- Haar cascade using 2*3 kernel.
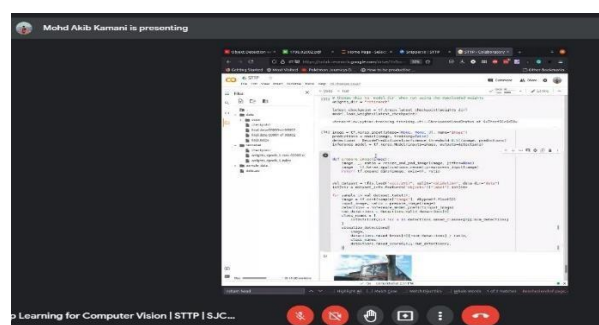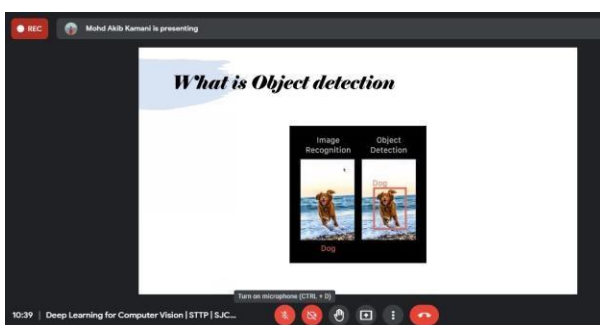
Session 2

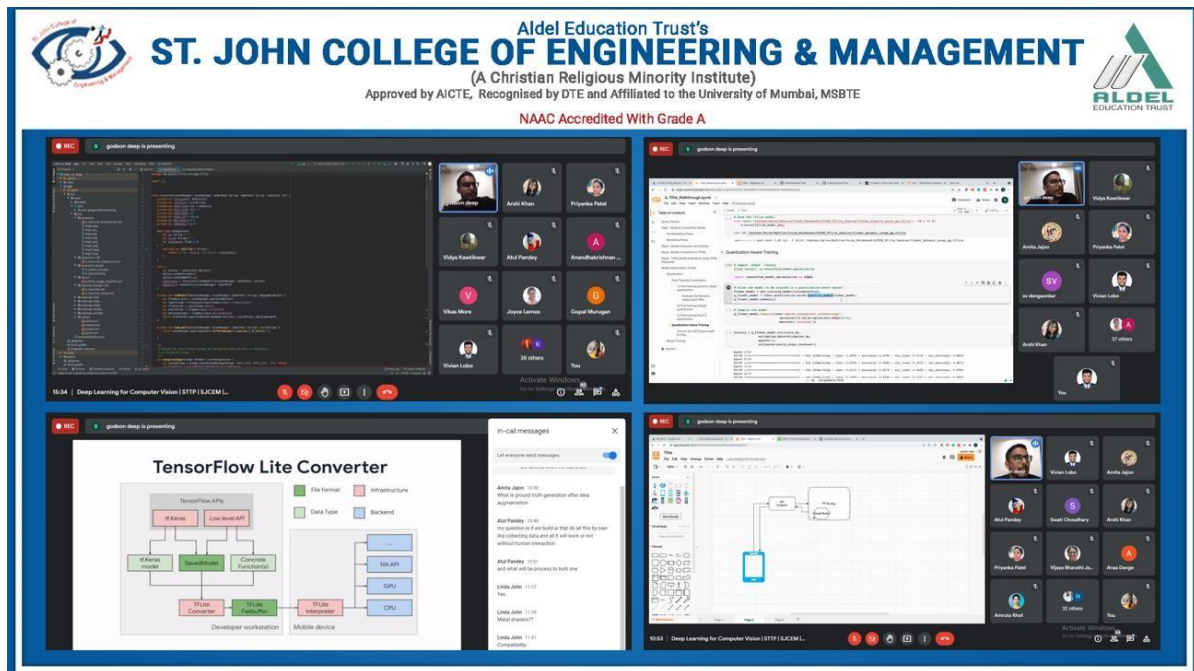Session started at 2.00 pm. Session covered classification examples of classifying cats and dogs using Keras.

5. Day 5

Learning Outcomes:
- *To understand model optimization toolkit.*
- *To deploy the model.*

Session 1

Mr. Vivian Lobo welcomed the participants and the speaker Mr. Godson D'silva at 10.00 a.m. The session started with the introduction of object detection, augmentation and the concept of generalization for model building. Also, the session included annotations of dataset, model optimization toolkit, and quantization.

Session 2

Session 2 started at 2.30 p.m. Session covered model building and deployment using TensorFlow. A short quiz was conducted at 3.45 p.m., which covered topics of all five days. There were total 20 questions comprising 2 marks each. Valedictory function started at 4.30 p.m. Ms. Shraddha More proposed the vote of thanks. Two participants provided their feedback about their learning experiences during the STTP.

PARTICIPANTS
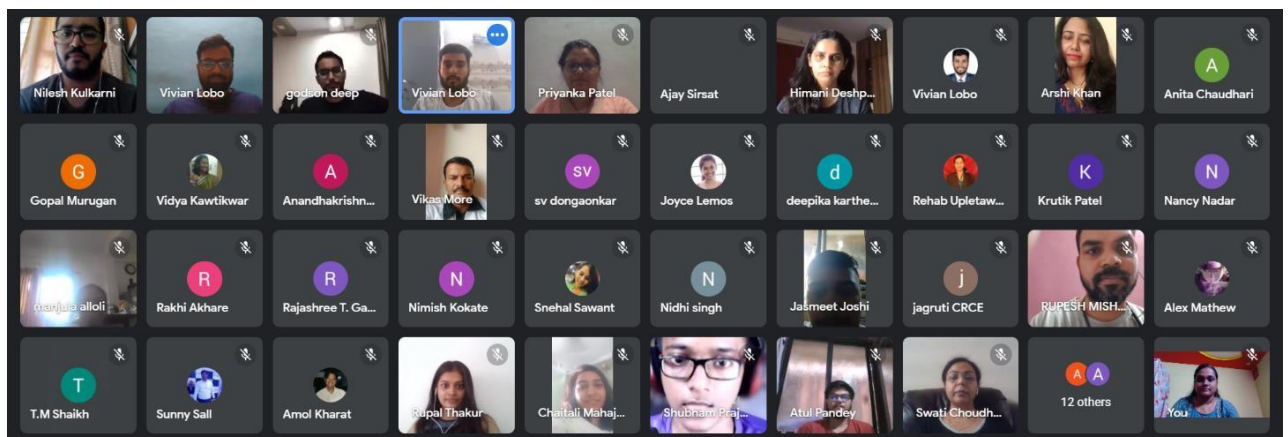
Mr. Vivian Lobo **(Faculty Co-ordinator)**

Ms. Shraddha More **(Faculty Co-ordinator)**