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Dean/SOC
Dr. A. Francis Saviour Devaraj
HoD/CSE

Coordinator

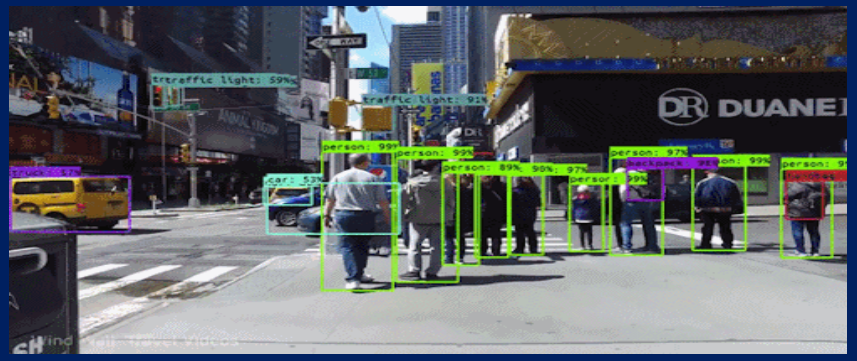
Mr. R. Raja Subramanian
Assistant Professor
Department of Computer Science and Engineering
Kalasalingam Academy of Research and Education
Contact: 9003994408

KALASALINGAM
ACADEMY OF RESEARCH & EDUCATION
(DEEMED TO BE UNIVERSITY)
Under sec. 3 of UGC Act 1956. Accredited by NAAC with "A" Grade

Value Added Course
on
Neural Network Architectures in Computer Vision

20.07.2020 to 24.07.2020

(40 hours)



Organized by

Department of Computer Science and Engineering

School of Computing

Anand Nagar, Krishanankoil-626126
Tamilnadu, India
Website: www.kalasalingam.ac.in

About the Department

Department of Computer Science and Engineering was established in 1984. In 1995, it became the first department in South India, offering ME(CSE). Based on infrastructure and faculty strength, especially for Networking in "TIFAC CORE in Network Engineering", the department was recognized as Research center by Anna University in 2003 to offer MS (by Research) and Ph.D in Computer Science and Engineering.

Highly qualified and experienced faculty members with specialization in Computer Networks, Network Security, WSN, Distributed Computing, Data Analytics, Internet of Things, Data Mining, Image Processing, Software Engineering, Evolutionary Algorithms and Soft Computing and are working in the department. Courses offered by the department are B.Tech(CSE) - Accredited by NBA Under Tier-1 OBE, M.Tech (CSE, Network Engineering) and Ph.D.

Department Vision

To become a Centre of Excellence in Teaching and Research in the field of Computer Science and Engineering

Department Mission

To prepare the students for a prospective career in IT industry and for higher learning by imparting sound technical knowledge. To carry out research in cutting edge technologies in computer engineering to meet the requirement of the industry and society.

Course Objective

- To understand the basics of Neural Networks in Computer Vision.
- To familiarize the student with the Image Processing tools.
- To understand and implement Deep Learning Architectures for the problems in Computer Vision.
- To appreciate the use of Deep Learning based Computer Vision Applications.

Course Outcomes

On completion of the course, the students will be able to:

1. To get familiar with the use of standard tools in Computer Vision Applications.
2. To design and implement Deep Learning Algorithm for Computer Vision Problems.
3. Critically Analyze Different Deep Learning Models in Image Related Projects.
4. To design and implement CNN and ANN.
5. To get familiar with the industrial trends in Computer Vision.

Contents of the Value Added Course

MODULE I INTRODUCTION TO IMAGE PROCESSING 8 hours

Introduction – Image processing – Computer Vision. Image Formation – Geometric Primitives and transformations – Digital Camera.

MODULE II OPERATORS AND TRANSFORMATION 8 hours

Operators – Point Operators – Linear Filtering – Neighborhood Operators. Transformation – Fourier Transformation – Wavelets. Filters – Gaussian – Median – Dilation and Erosion. Edge Detection – Sobel and Hough.

MODULE III SEGMENTATION 8 hours

Segmentation - Active Contours – Mean Shift and Mode Finding– Watershed Algorithm – Normalized Graph Cuts. Machine Learning and Computer Vision – Supervised and Unsupervised Learning.

MODULE IV DEEP NEURAL NETWORKS AND COMPUTER VISION 8 hours

Recognition in Computer Vision – Introduction to Deep Neural Network – Artificial Neural Network – Convolutional Neural Network – Image Classification – Object Detections – SIFT – SURF.

MODULE V INDUSTRIAL APPLICATIONS OF COMPUTER VISION 8 hours

Industry DNN Architectures – GoogleNet – ResNet – Neural Network Modelling. Industrial Trend in Computer Vision – Current Research Problems.

Resource Persons

Er. Nithiyanandam Ramesh,
Founder and President,
Nephos Systems, Chennai
Mr. P. Nagaraj,
Assistant Professor,
Department of Computer Science and Engineering,
Kalasalingam Academy of Research and Education
Mr. R. Raja Subramanian,
Assistant Professor,
Department of Computer Science and Engineering,
Kalasalingam Academy of Research and Education

Course Fees and Targeted Participants

B. Tech. CSE Students
Registration fees: Rs. 300