



Jansons Institute of Technology

Karumathampatti, Coimbatore – 641 659
Approved by AICTE and Affiliated to Anna University
An ISO 9001:2015 certified institution

Industry Readiness Course - Syllabus
Department of Computer Science and Engineering
Machine Learning Applications in NLP and Computer Vision
2021 - 2022 ODD SEMESTER

Course Objectives:

- To introduce the Trends and State-of Arts implementation for Computer Vision applications.
- To examine the Machine Learning Basics, Working with data preprocessing and data visualization using python.
- To get acquainted with the algorithmic description of the main language levels that includes Basics of Tensor Flow/Keras/PyTorch.

Course Outcomes:

- Understand the principles and Process the Human Languages Such as English and other Indian Languages using computers.
- Demonstrate understanding many applications such as Biometrics, Medical Imaging Processing, Natural Language Processing..
- Select a suitable language modeling technique based on the structure of the language.
- Brings a quick start interest to work with future technologies.

Syllabus:

Module I: Introduction to Image Processing and Computer Vision (CV)

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Digital Image and Computer Vision-Color Models, Image Processing Goals, and Tasks-Natural Image Classification-Image Enhancement-Edge Detection-Segmentation-Image denoising, Machine Learning Basics, Working with data preprocessing and data visualization using python.

Module II: Language Modeling

10

Basics of Tensor Flow/Keras/PyTorch- Computer Vision Applications: Image Classification, Object Recognition and detection using Tensor Flow/ PyTorch-Introduction to POS Tagging. Hidden Markov Models for POS Tagging - Viterbi Decoding for HMM

Module III: Maximum Entropy Models

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Biometrics detection, biomedical imaging, Action Recognition and Multi-view activity recognition using Deep Learning in MATLAB /Python-Computer vision and AI algorithms implementation on Hardware platform like Jetson Nano, TX2.


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