



# PRERANA EDUCATIONAL & SOCIAL TRUST (R) PES INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Approved by AICTE, Affiliated to VTU, ISO 9001:2015 Certified & Recognized by Govt. of Karnataka  
NBA Accredited Programs: CSE, ECE, ISE, CV and ME

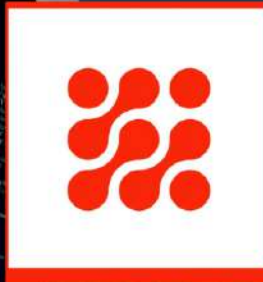


## 50 hours Industry oriented add-on course on **ARTIFICIAL INTELLIGENCE & MACHINE LEARNING FOR CODERS**

16 to 26 August, 2023



Experts from ResoluteAI.in  
**Mr. Amit Arun Chimmalgi**  
AI Program Manager



# ResoluteAI Software

SaaS | Solutions | Services | Support





# Why industry oriented add on courses

Add-on courses are a way to gain more knowledge on subjects that might help us to gain extra credits at industry level. The additional courses will enhance the student's portfolios and help them gain the appropriate skills needed to start working soon or freelancing after graduating, An Add-on course is a course that one can learn along with the regular degree programs, which will mould the students with employable skills.

The day started with the inauguration of the first Industry oriented Add-On course offered by our department. This Add-On course was about learning Machine Learning Algorithm in 10 days of span. The course was offered by the company named Resolute AI.in and we had a resource person named Amit Chimmalgi.

## About Resolute AI.in

Resolute AI Software is a company which provides a cloud-based AI solution to secure assets and people. Company is involved itself in very diverse areas like Manufacturing and textiles, Travel and transport logistics, chemical pharmaceuticals and so on. Goal of the organization is enabling any organization to benefit from the power of cutting-edge visual intelligence technologies.







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# PES INSTITUTE OF TECHNOLOGY AND MANAGEMENT, SHIVAMOGGA

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**NBA Accredited Programs: CSE, ECE, ISE, CV and ME**

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Experts from ResoluteAI.in  
 Mr. Amit Arun Chimmalgi  
 AI Program Manager  
[www.resoluteaisoftware.in](http://www.resoluteaisoftware.in)

**Registration Fees: Rs 3000/-**

**Dept of Artificial Intelligence & Machine Learning** *In association with*



**ResoluteAI Software**

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## Course Details

### Prerequisite

Install Anaconda with Python 3 and dependencies namely pandas, PIL, openCV, statsmodel, tensorflow and sklearn.

### Approach

- Regular assessments & evaluation for monitoring the progress of the training.
- Industry grade training projects
- Assignment based individual score cards to evaluate further

**Certificate of Participation on successful completion of assignment**

#### Day 1

- Company introduction
- Introduction to AI and it's use case
- Image processing fundamentals using OpenCV
- Task based on OpenCV

#### Day 2

- Handling excel data and pandas introduction
- Dataset cleaning using pandas library
- Linear regression
- A task(Regression)

#### Day 3

- Logistic regression
- A task(Regression)
- Time series fundamentals (Temperature dataset)
- Time series modelling

#### Day 4

- Time series inferencing
- A task on Time series.
- Regression vs. CNN, Decomposition principle
- ARIMA introduction and demo

#### Day 5

- CNN fundamentals with a classification example.
- A task on CNN
- Data augmentation and accuracy concerns of CNN
- A task on CNN

#### Day 6

- YOLO Github repo and Colab walkthrough
- Annotation
- YOLO based object detection
- YOLO model inferencing

#### Day 7

- Different tools for document text extraction
- Introduction to tools for document text extraction
- An example task for text extraction using Regex
- A document extraction task

#### Day 8

- NLP basics
- NLP contd. (spacy)
- Sentiment analysis- Demo
- A task on the same

#### Day 9

- Flask introduction
- Flask framework (Input image process grayseale and display on webpage)
- Image similarity
- Template matching

#### Day 10

- Project
- Project
- Project Demonstration
- Evaluation

#### For Making Payment

- Use the Phone Pn/ Account Details/ Pay in Cash
- If paid online, pls save the screenshot of payment and upload in the Google Form along with the UTR number



#### SCAN QR Code For Registration



<https://forms.gle/EnuQzRiGexomoQGs>

#### Account Details

- Account name : PESITM
- Account no. : 64019391123
- Ifsc code: SBIN0040852

Contact for any Clarification

**8147305084**



# DAY - 1

## OPEN CV

Open Source Computer Vision Library, is an open-source computer vision and machine learning software library. It provides a wide range of tools and functions for working with images and videos, making it a valuable resource for computer vision and image processing tasks.

OpenCV is widely used in various industries and applications, including computer vision research, robotics, medical image analysis, autonomous vehicles, augmented reality, and more. It provides a powerful and flexible set of tools for working with visual data and has become a standard library in the field of computer vision.



# DAY - 2

## LINEAR REGRESSION

Linear regression is a statistical method used for modeling the relationship between a dependent variable and one or more independent variables by fitting a linear equation to the observed data. It is one of the simplest and most widely used techniques in the field of statistics and machine learning for predictive modeling and data analysis.

The basic idea behind linear regression is to find the best-fitting straight line (or hyperplane in the case of multiple independent variables) that describes the relationship between the variables



# DAY - 3

## LOGISTIC REGRESSION

Logistic regression is a statistical method used for modeling the probability of a binary outcome (1/0, Yes/No, True/False) or a categorical outcome with two or more classes. It is a type of regression analysis commonly used in the field of machine learning for classification tasks.

Logistic regression is primarily used for predicting binary outcomes, where the dependent variable (target) can take one of two possible values.



# DAY - 4

## TIME SERIES ANALYSIS

Time series analysis is a statistical technique used to analyse and interpret data points collected or recorded at specific time intervals. It focuses on the temporal aspect of data, aiming to uncover patterns, trends, and dependencies over time.

Time series data consists of observations or measurements taken at discrete, evenly spaced time intervals, making it different from cross-sectional data, which collects data at a single point in time.

Time series analysis is a valuable tool for making predictions, understanding underlying patterns, and making informed decisions based on historical data. It is widely used in various domains to analyze and model time-dependent phenomena.





## DAY - 5

### CONVOLUTION NEURAL NETWORK

Convolutional Neural Networks (CNNs) are a class of deep learning models specifically designed for processing and analysing grid-like data, such as images and video frames.

Real World Applications:

- i. Image classification
- ii. Image segmentation
- iii. Facial recognition



## DAY - 6

### YOLO BASED OBJECT DETECTION

YOLO, which stands for "You Only Look Once," is a popular object detection algorithm in computer vision and deep learning. It was developed by Joseph Redmon, Santosh Divvala, Ross Girshick, and Ali Farhadi. YOLO is known for its speed and accuracy in real-time object detection tasks and has seen widespread use in applications like autonomous vehicles, security systems, and more.

Real World Applications:

- i. Autonomous Vehicle
- ii. Object Tracking
- iii. Retail Analytics



# DAY - 7

## TEXT EXTRACTION

Text extraction, also known as text recognition or optical character recognition (OCR), is the process of converting text contained within images, scanned documents, or other non-editable formats into machine-readable text. This technology is valuable for various applications, including digitizing printed materials, extracting data from images, and making text searchable.



# DAY - 8

## NLP

Natural Language Processing (NLP) is a subfield of artificial intelligence (AI) that focuses on the interaction between computers and human language. It involves the development of algorithms and models to enable machines to understand, interpret, and generate human language text or speech. NLP has a wide range of applications and has made significant advancements in recent years.

Real World Applications:

- i. Customer Feedback Analysis.
- ii. Spam Detection.
- iii. Topic Modelling.
- iv. Voice Assistant.



## DAY - 9

### FLASK

Flask is a popular and lightweight web framework for Python that is commonly used for building web applications. It is known for its simplicity and flexibility, making it a great choice for developers who want to create web applications quickly and efficiently.

Real World Applications:

- i. Web Applications.
- ii. Data Dashboard.
- iii. Customer API's



## DAY - 10

### PROJECTS

Various Projects were carried out by participants during the Add-on Course.

List of projects are as follows

- i. Attendance monitoring system.
- ii. Scaling up small Power generation plant using PPE waste with the help of control parameter optimization procedure and AI model.
- iii. Creation of logos using different hand made designs and mapping with names using AI model.
- iv. Diabetes detection from eye retina image analysis.
- v. A chatbot project for health preliminary diagnostics, symptoms and immediate measures.

