KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY
Deemed to be University U/S 3 of the UGC Act, 1956
Established : 1997
SCHOOL OF ELECTRONICS ENGINEERING

SUMMER TRAINING 2025

SCHOOL OF ELECTRONICS ENGINEERING, KIIT

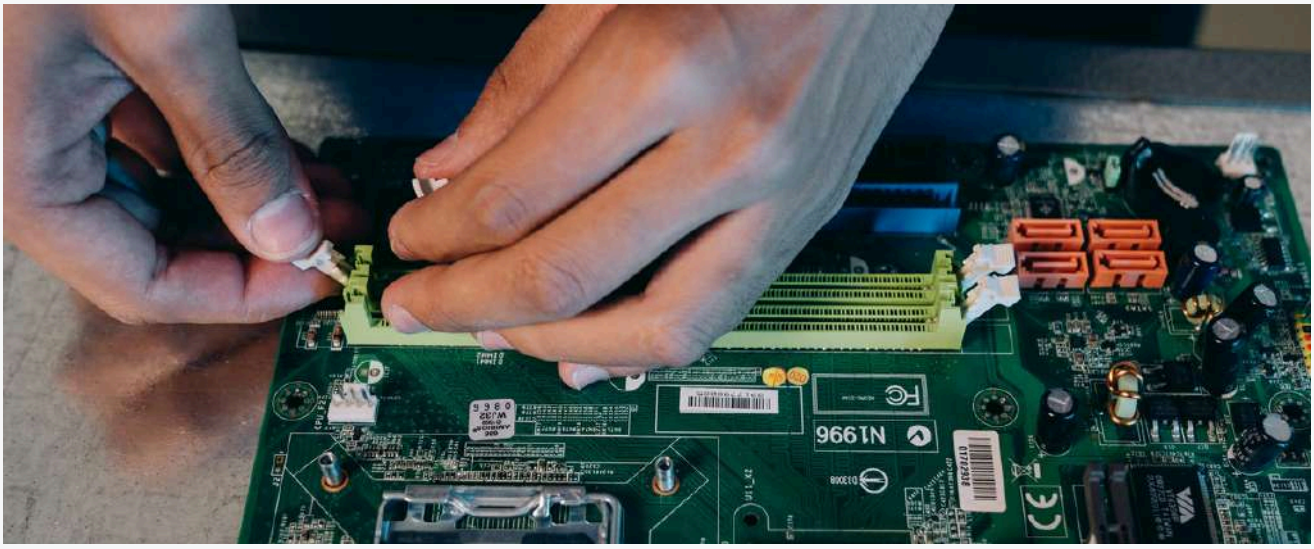
PROGRAM DETAILS

Model Building & Deployment Bootcamp

COURSE OBJECTIVE

The primary objective of this training program is to equip participants with a comprehensive understanding of exploratory data analysis, popular ML algorithms, CNN model workflow, and model deployment process through a combination of theoretical instruction and hands-on exercises.

COURSE OUTCOME



01

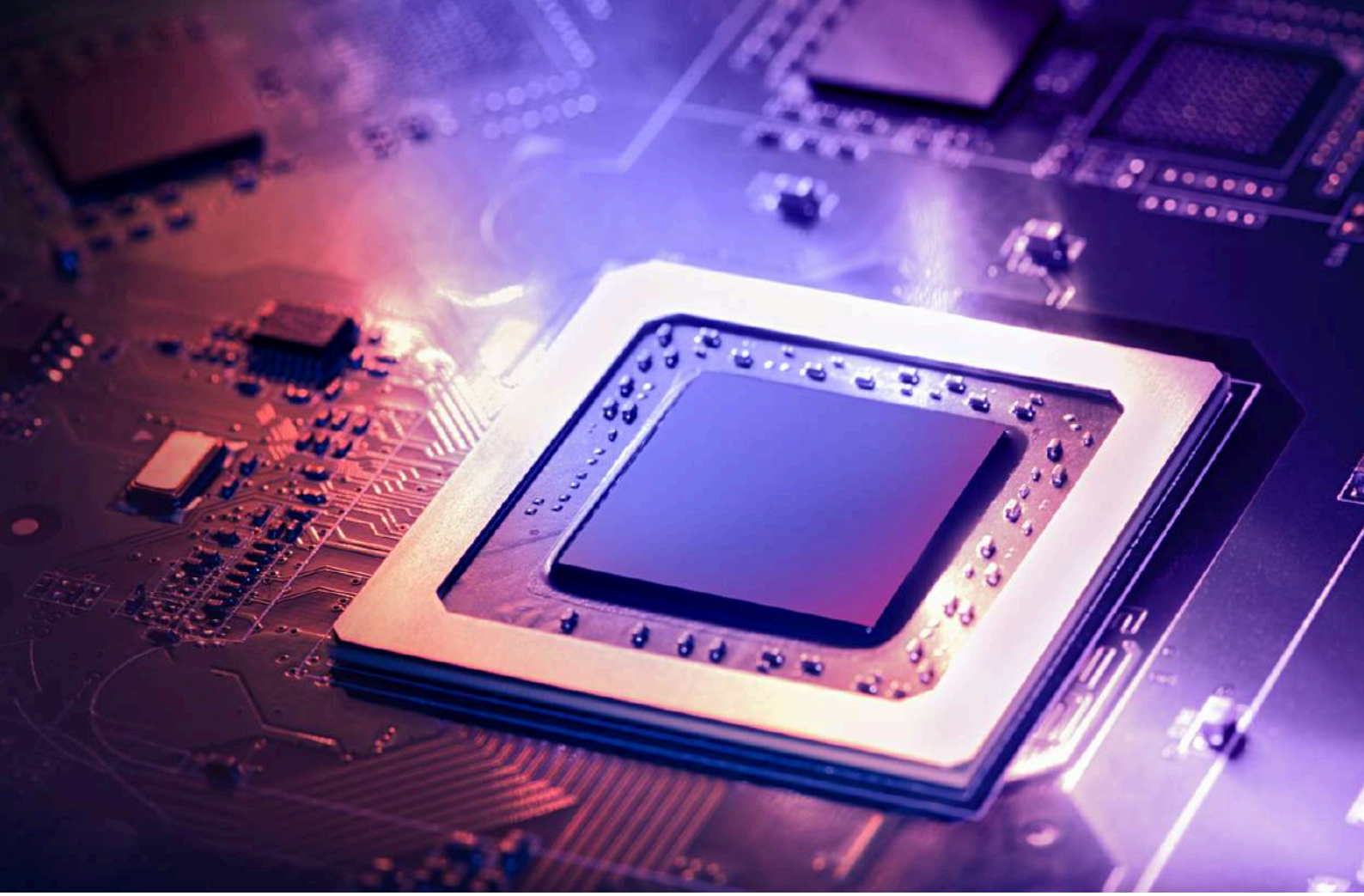
Explain EDA requirements and how to use PANDAS, SEABORN, & MATPLOTLIB for exploratory data analysis.

02

Built and comprehended popular ML models (SVM, DT, & MLP) and variants of CNN for sample classification (using tabular and image inputs)

03

Deploy ML models with a basic understanding of REST API, MLFlow, and AWS containerization using Flask, Jinja2, HTML templates, etc..



Section	Details
Course Duration (Hrs)	40 + Project (20)
Course Fee	KIIT Affiliation: Rs. 4000/- Other Affiliation: Rs. 5000/- (No Fooding & Lodging)
Teaching Learning Mode	Hybrid Mode
Course Instructors	Dr. Suprava Patnaik
Course Evaluation	Continuous Evaluation using Python coding
Course Certificate	After successful completion of the assignments

MODULE DESCRIPTOR FOR THE COURSE

Module - I

Week 1: Python Essentials for ML (3 hours)

- Introduction to NumPy, Matplotlib, Pandas, and Seaborn
- Understanding Object-Oriented Programming (OOP) concepts in PyTorch

Week 2: Introduction to ML Models (5 hours)

- Regression, k-Means Clustering, K-NN Classification, SVM, DT, and MLP, along with the underlying mathematics

Week 3: Data Proc. & Model Building using sklearn (5 hours)

Module - II

Week 4: Neural Networks & Hyperparameter Optimization (5 hours)

- IMulti-layer Perceptrons (MLP),
- SGD, and Backpropagation
- Hyperparameter tuning and model selection

Week 5: Deep Learning & Object Recognition (5 hours)

- Basics of Computer vision (see-interpret-inform)
- Convolutional Neural Networks (CNN) and PyTorch implementation
- Transfer learning, ensemble learning, and YOLO for object detection

Week 6: Practical Implementation (5 hours)

- Assignment: Participants to present their own CNN models
- Presentation & Discussion: Showcase model performance and improvements

MODULE DESCRIPTOR FOR THE COURSE

Module - III

Week 7: Model Serialization & API Development (4 hours)

- Introduction to Pickling, Flask, HTML template and Django for model deployment
- Creating REST APIs for ML models

Week 8: Cloud-Based Deployment (4 hours)

- Building and deploying ML models on AWS
- Introduction to serverless architecture for ML applications

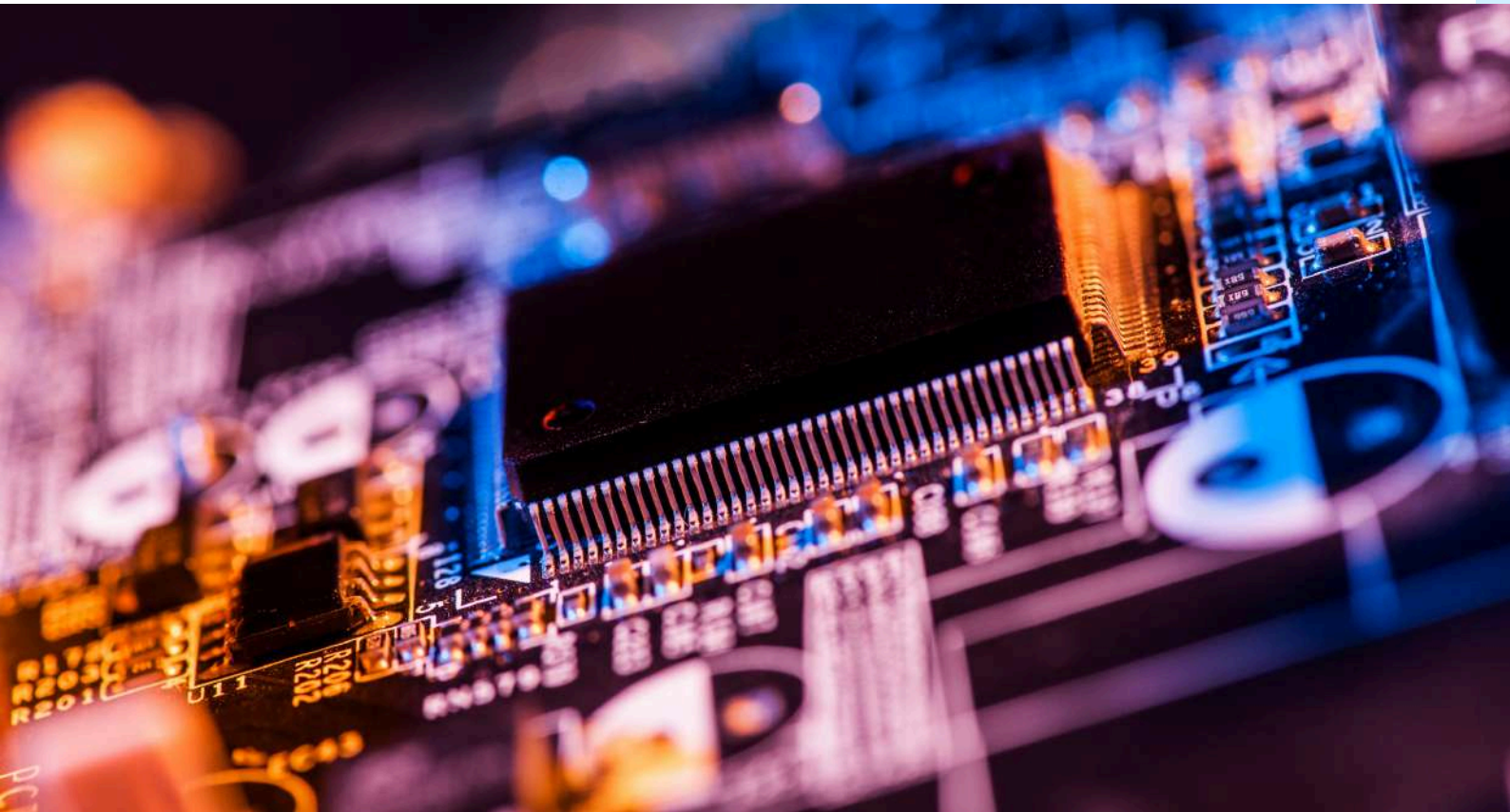
Week 9: ML Pipelines & CI/CD (4 hours)

- Introduction to MLflow and automated ML model tracking
- Fundamentals of CI/CD for production-ready ML applications

Module - IV

Part 3: Final Project & Certification

- Week 10: Working on Final Project (10 Hrs)
- Participants will showcase their deployed ML models. (5 Hrs)



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