IEEE Student Branch, LDRP-ITR

Event Report

Deep Dive into Dimensionality Reduction

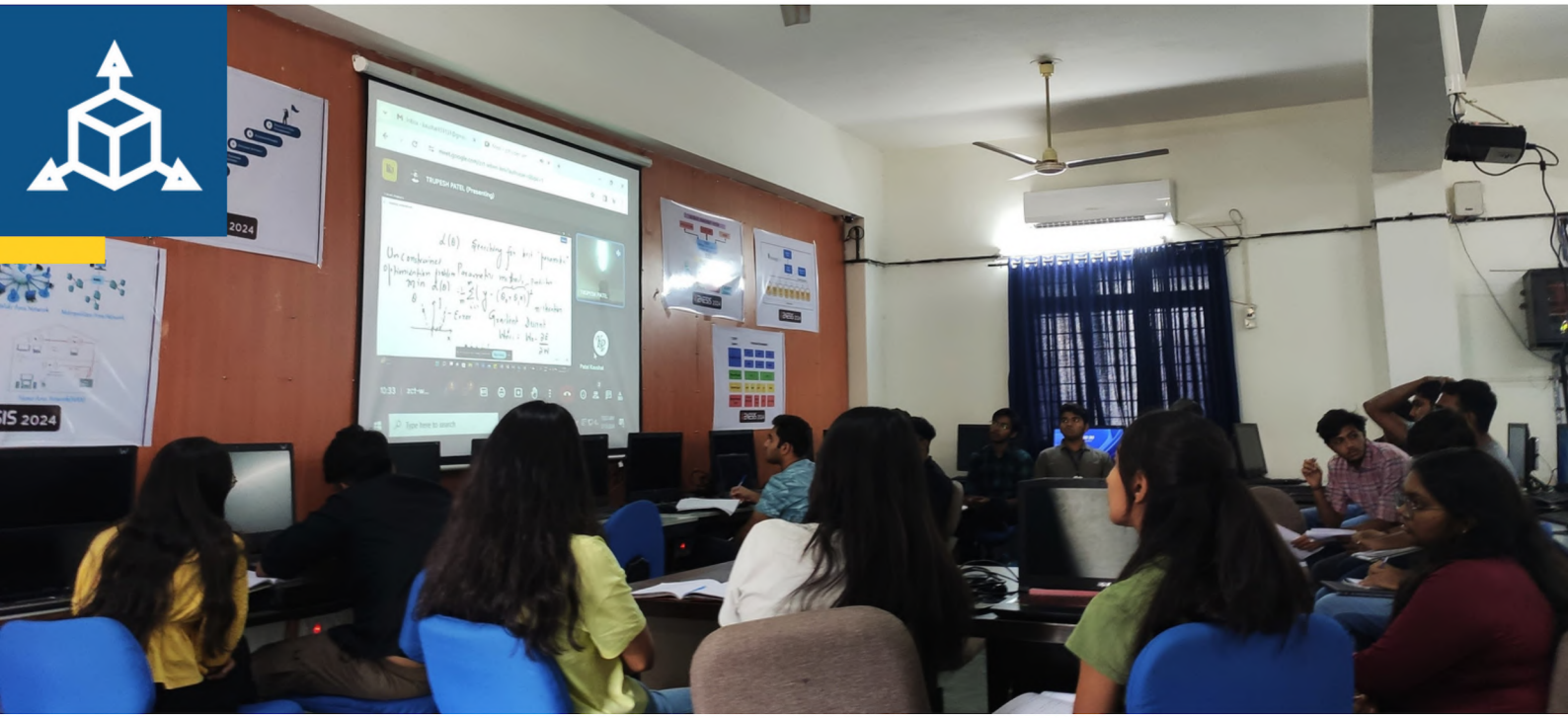
A Machine Learning

Approach

HANDS ON WORKSHOP | DATE: 15th March 2024

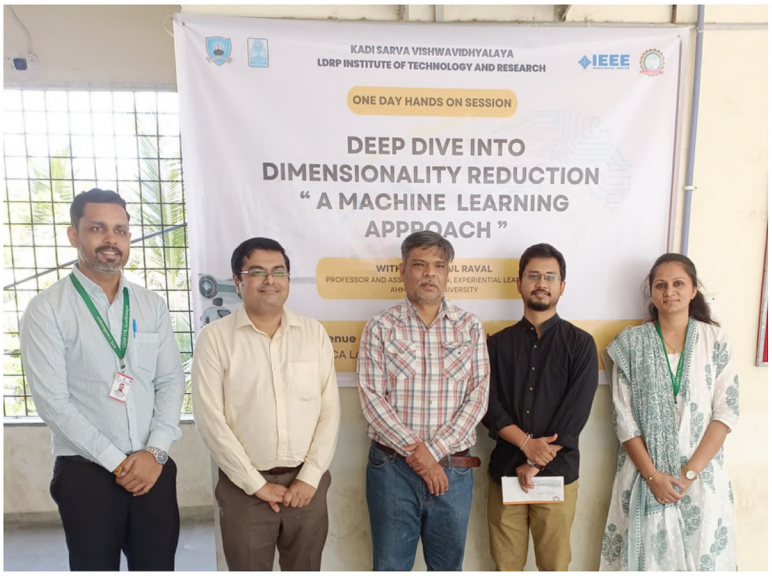
INTRODUCTION

This one-day hands-on workshop on Machine Learning, led by Dr. Mehul Raval, a distinguished professor and Associate Dean of Experiential Learning at Ahmedabad University, embarked on a transformative journey into the dynamic realm of data science. Driven by an unwavering commitment to empower students of the 6th Semester with practical skills and profound insights, this meticulously crafted session aimed to transcend traditional learning boundaries and embrace the transformative power of experiential education. By immersing students in interactive learning experiences, the workshop sought to cultivate a deeper understanding of machine learning methodologies, equipping them with the tools and knowledge essential for success in today's data-driven world.



VISION

To empower students by providing a thorough understanding of essential machine learning concepts and techniques. Exploring problem areas in Regression and Classification & insights into practical strategies for tackling real-world challenges.



EXPERT SPEAKERS

Led by esteemed experts, the workshop guaranteed a rich and enlightening experience for all students. With their profound expertise and industry insights, the speakers iluminated key concepts and inspired attendees with their knowledge on ML Concepts.

DR. MEHUL RAVAL

Dr. Mehul Raval served as a guiding force in the workshop, leveraging his extensive expertise and academic experience to provide invaluable insights and mentorship to participants. As a respected figure in the field of Electronics and Telecommunication Engineering, with a focus on Computer Vision, Image Processing, and Machine Learning, Dr. Raval's contributions enriched the learning experience, offering practical guidance and fostering a deeper understanding of key concepts among attendees.

Jay Chaudhari played a crucial role in the workshop, drawing on his expertise to offer invaluable guidance and mentorship to participants. With a background in Electrical Engineering and Automatic Control & Robotics, Jay's contributions enriched the learning experience, providing practical insights and fostering a deeper understanding of key concepts among attendees.

JAY CHAUDHARI

SESSION BRIEF

INTRODUCTION TO MACHINE LEARNING

The workshop commenced with an introduction to Machine Learning, focusing on its importance and operational mechanisms. Students explored Supervised Learning, including Regression and Classification techniques. In this introductory session, they gained foundational knowledge in algorithmic data learning and prediction, setting the stage for further exploration.

PROBLEM AREAS IN REGRESSION AND CLASSIFICATION

In this session, students explored the intricacies of problem areas within Regression and Classification, discerning the nuances between Regression and Classification problems. They were acquainted with diverse problem-solving methodologies inherent to these domains. By delving into Regression and Classification challenges, students fortified their comprehension of predictive modeling techniques, laying a robust groundwork for further exploration.

PRINCIPAL COMPONENT ANALYSIS (PCA)

Throughout the event duration, students engaged in practical exercises including Exploratory Data Analysis and Linear Regression modeling for Diabetes Database, Logistic Regression analysis on Iris Datasets, and Face Recognition employing KNN methodology.

Additionally, significant emphasis was placed on hands-on application of Principal Component Analysis (PCA) for dimensionality reduction tasks, accentuating its pivotal role in enhancing data understanding and feature extraction.

ENGAGING Q&A INTERACTION

The session was instrumental in students' clarification of confusions and doubts. Through active participation and open dialogue, they sought clarity on complex concepts, fostering a deeper understanding.

OUTCOMES

The workshop provided diverse benefits, equipping participants with qualitative knowledge and practical insights into Machine Learning. Beyond theory, attendees forged industrial connections and formed a strong peer network. They also gained insights into real-world ML applications, enhanced problem-solving skills, and deepened their understanding of ML algorithms' mathematical foundations.

MATHEMATICAL APPROACH IN ML

Studnets gained a deep understanding of Machine Learning, exploring its mathematical foundations. This comprehension empowered them to approach ML problems with analytical precision and clarity, enhancing their problem-solving abilities.

COMMUNITY BUILDING

Engaging in the workshop facilitated the establishment of a vibrant community, offering opportunities for mutual support, networking, and collaborative learning experiences.

REAL-WORLD APPLICATIONS OF ML

Students gained insights into the practical applications of machine learning in real-world scenarios, enhancing their understanding of its relevance and potential impact across various industries.

APPLIED PROBLEM-SOLVING

The workshop not only sharpened the practical problem-solving skills but also bolstered their confidence and mastery in Machine Learning, enabling them to approach real-world challenges with greater assurance and proficiency.

EVENT HIGHLIGHTS