NSDC MEC

Govt. Model Engineering College, Kochi

EVENT REPORT

ChargeAI

AI Workshop Series

Table of Contents

CONTENTS

INTRODUCTION - CHARGE AI

August 4th & 13th

This report offers a detailed overview of "ChargeAI," a two-day hands-on workshop organized by NSDC MEC, the AI & Data Science Club of Model Engineering College, Thrikkakara. Conducted on August 4th and 13th, 2025 with over 70 participants, ChargeAI was designed to empower students with practical skills in artificial intelligence, aligning with the club's mission to foster innovation and technical excellence in the AI domain.

Bringing together a diverse cohort of enthusiastic learners, the workshop served as a gateway into the rapidly evolving world of AI. Participants engaged in immersive sessions that combined theoretical foundations with real-world applications, exploring key areas such as machine learning, neural networks, and generative AI tools. With a strong emphasis on interactivity and experimentation, ChargeAI provided a collaborative space where students could build, test, and refine AI-driven solutions under the guidance of experienced mentors.

This report aims to encapsulate the spirit of ChargeAI by highlighting the structure, content, and impact of the workshop. Through an in-depth look at the sessions conducted, the projects developed, and the skills acquired, we seek to shed light on the growing relevance of AI education and the role of student-led initiatives in shaping tomorrow's tech landscape.

DAY 01 - INTRO TO AI CONCEPTS

The first session of Intro to AI/ML began with an insightful introduction by Niranjay Ajayan and Muhammed Shamil, who guided participants into the foundations of artificial intelligence and machine learning. The discussion started with what machine learning is and how it enables systems to learn from data, improve over time, and make autonomous decisions.

A key focus was on data, the backbone of AI, explained through its three categories—structured, unstructured, and semi-structured—with practical examples highlighting their uses and challenges. This was followed by an overview of the types of machine learning: supervised (learning with labels), unsupervised (pattern discovery), and reinforcement learning (trial and reward-based learning).

To prepare learners for practical applications, the session introduced essential Python libraries: NumPy for numerical operations, Matplotlib for data visualization, and Pandas for dataset handling. The day concluded with an introduction to classification algorithms, including Logistic Regression, SVM, and KNN, which set the stage for deeper exploration in upcoming sessions.

With enthusiastic participation, Day 1 laid a strong foundation and sparked curiosity for the more advanced topics ahead.

DAY 02 - INTRO TO DEEP LEARNING

The second session of Intro to AI/ML, led by Amrithesh Kakkoth, focused on unsupervised learning, where algorithms analyze unlabeled data to uncover hidden patterns and structures. Real world applications such as customer segmentation, anomaly detection, and clustering of text or images were highlighted to show its practical impact.

A key part of the session was K-Means Clustering, where participants learned how data points are grouped by similarity, how centroids shift during iterations, and how the number of clusters influences results. The session also introduced a hands-on project using the airline passenger satisfaction dataset. Learners practiced data preprocessing, handling missing values, scaling, encoding, and cleaning entries, followed by exploratory data analysis through visual tools like histograms, scatter plots, and heatmaps to reveal trends and correlations.

Concluding with the machine learning workflow and metrics such as accuracy, precision, recall, and F1-score, the session also addressed challenges like overfitting, underfitting, and data imbalance. With this, Day 2 combined conceptual depth with practical exposure, preparing participants for more advanced explorations ahead.

CONCLUSION

The Intro to AI/ML series gave participants a strong foundation in both the theory and practice of machine learning. Over two sessions, they explored key concepts ranging from the basics of supervised and unsupervised learning to practical techniques like data preprocessing, clustering, and evaluation. To put this knowledge into practice, participants were asked to build and submit their own projects, with clear guidelines to ensure quality and originality. This final step not only reinforced the sessions' learnings but also encouraged participants to apply AI concepts confidently in real-world scenarios.

Thank You

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