**UG SEMINAR ABSTRACT**

Academic Year: 2024-25

**DEPARTMENT: COMPUTER ENGINEERING**

**Seminar On**: Federated Machine Learning

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1. Name of The Topic: Federated Machine Learning: Applications and Implementation with the Flower Framework

1. Topic wise contents: 1. Introduction

2. Horizontal Federated Learning

3. Applications

4. Use Case and Implementation

5. Conclusion

1. References Used:

1. Mammen, Priyanka Mary. "Federated learning: Opportunities and challenges." arXiv preprint arXiv:2101.05428 (2021).

2. Truex, Stacey, et al. "A hybrid approach to privacy-preserving federated learning." Proceedings of the 12th ACM workshop on artificial intelligence and security. 2019.

3. Zhang, Chen, et al. "A survey on federated learning." Knowledge-Based Systems 216 (2021): 106775.

4. Li, Li, et al. "A review of applications in federated learning." Computers & Industrial Engineering 149 (2020): 106854.

Date: 04/08/2024 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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UG Seminar Coordinator

**Abstract:** Federated learning (FL) is a machine learning technique where multiple decentralized devices (or servers) collaboratively train a shared model while keeping the training data local on each device. Instead of sending raw data to a central server, each device trains the model locally and only shares the model updates such as model parameters with the central server. This study aims to give an overview about FL and its applications. Additionally, it simulates a real-world use case of Horizontal FL by demonstrating a practical implementation using the Flower framework.

**Keywords:** Federated Learning, Decentralized Machine Learning, Flower Framework, Data Privacy, Model Aggregation

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REMARKS BY UG SEMINAR GUIDE:

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UG Seminar Guide

( Prof. )