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Title of Talk: Dynamic Applications of Weighted Federated Machine Learning in Smart City Environments

Abstract of Talk:

Federated learning, often referred to as collaborative learning, is an innovative machine learning approach that enables AI model training without exposing or sharing individual data. This technique trains an algorithm across numerous decentralized edge devices or servers, each holding localized data samples, all while avoiding the need to transfer these data samples between devices. To address the challenges associated with federated learning, Weighted Federated Machine Learning (WFML) employs a centralized aggregate server to distribute a global learning model. In this session, we will explore multiple applications of WFML, such as its use in predicting hydrogen storage and enhancing healthcare systems within the context of smart cities.

Hydrogen Storage Prediction: In the context of smart cities, weighted federated machine learning proves instrumental in optimizing hydrogen storage, ensuring a stable and sustainable energy supply. Through real-time data aggregation and analysis, weighted federated machine learning enhances the accuracy of hydrogen storage predictions, enabling efficient utilization of clean energy resources in urban areas. By leveraging federated learning techniques with weighted models, smart city planners can anticipate hydrogen storage requirements, contributing to the advancement of clean energy infrastructure.

Healthcare 5.0: The healthcare sector within smart cities benefits immensely from dynamic weighted federated machine learning, offering personalized and responsive medical services. Incorporating real-time patient data from diverse sources, weighted federated machine learning empowers healthcare professionals to make timely decisions and deliver precision medicine. The application of weighted federated machine learning in healthcare fosters proactive disease monitoring, enabling smart cities to enhance public health initiatives and resource allocation.