1. Infrastructure-Wide and Intent-Based Networking Dataset for 5G-and-beyond AI-Driven Autonomous Networks

This article focuses on the development of advanced networking technologies for 5G and beyond, emphasizing AI-driven autonomous networks. The paper highlights the critical role of large-scale, infrastructure-wide datasets that capture the operational status and intent of networks. Such datasets are essential for training AI models to automate network management tasks like fault detection, optimization, and self-healing. By providing a comprehensive dataset, the authors aim to facilitate the creation of intelligent networks capable of adapting dynamically to changing conditions without human intervention. This research contributes to the evolution of future networks that are more reliable, efficient, and scalable through AI.

2. Need of UAVs and Physical Layer Security in Next-Generation Non-Terrestrial Wireless Networks

This article discusses the increasing importance of Unmanned Aerial Vehicles (UAVs) and physical layer security techniques in the context of next-generation non-terrestrial wireless networks (NTN). These NTNs include satellite systems, UAVs, and high-altitude platforms that extend wireless connectivity beyond traditional terrestrial infrastructure. The paper argues that UAVs can play a crucial role in enhancing network coverage and capacity, especially in remote or disaster-affected areas. Moreover, ensuring security at the physical layer is critical to protect communication from eavesdropping and interference in such dynamic and heterogeneous environments. The study emphasizes combining UAV deployment strategies with advanced physical layer security measures to enable secure and reliable wireless communication in future non-terrestrial networks.

3. Evaluation Metrics and Methods for Generative Models in the Wireless PHY Layer

This article focuses on the evaluation of generative machine learning models applied to the physical layer (PHY) of wireless communication systems. Generative models can simulate realistic wireless signals, enhance channel estimation, and assist in signal reconstruction tasks. However, assessing the performance of these models requires appropriate metrics and evaluation methods. The authors review and propose metrics that quantify the quality, fidelity, and reliability of generative models in the wireless context. These include statistical similarity measures, error rates, and robustness under varying channel conditions. By providing rigorous evaluation frameworks, this research supports the design of better generative models that improve wireless PHY layer performance in terms of accuracy and adaptability.

4. Deep Learning in Physical Layer: Review on Data Driven End-to-End Communication Systems and Their Enabling Semantic Applications

This article provides a comprehensive review of deep learning applications in the physical layer of wireless communication systems, particularly focusing on data-driven end-to-end communication architectures. Traditional communication system design typically involves modular blocks optimized separately, whereas data-driven models optimize the entire communication pipeline jointly through deep neural networks. The paper discusses how such end-to-end learning approaches improve system efficiency and adaptability. Additionally, the article explores semantic communications enabled by deep learning, where the goal shifts from transmitting raw data to transmitting meaningful information, reducing bandwidth usage and improving communication relevance. This review highlights the transformative potential of deep learning in building smarter and more efficient wireless communication systems.

5. Streamlining Wearable Data Integration for EHDS: A Case Study on Advancing Healthcare Interoperability Using Garmin Devices and FHIR

This article addresses the challenges of integrating data from wearable health devices into Electronic Health Data Systems (EHDS). Focusing on Garmin devices, the study demonstrates how to standardize and streamline data exchange using the Fast Healthcare Interoperability Resources (FHIR) standard. The integration enables seamless access and utilization of wearable data by healthcare providers, improving patient monitoring and personalized care. The paper presents a case study illustrating the technical and practical aspects of connecting consumer-grade wearable devices with clinical data repositories. This research contributes to advancing healthcare interoperability, facilitating better health outcomes through continuous and comprehensive health data integration.