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A STUDY OF ARTIFICIAL NEURAL NETWORK (ANN)-BASED CHANNEL ALLOCATION IN MOBILE MULTIMEDIA NETWORKS

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ABSTRACT

Artificial Neural Network (ANN)-based channel allocation in mobile multimedia networks is an advanced technique designed to optimize the use of network resources for delivering high-quality multimedia services. In these networks, efficient channel allocation is crucial due to the high demand for bandwidth and the need for low latency to support real-time applications such as video streaming and online gaming. ANNs, with their ability to learn from historical data and recognize complex patterns, offer a powerful solution to this challenge. By employing ANN algorithms, network administrators can predict traffic patterns, user behavior, and channel utilization more accurately. This predictive capability allows for dynamic and intelligent allocation of channels based on current and anticipated network conditions, ensuring optimal performance. ANNs can adapt to changing network environments by continuously learning and adjusting their models, which helps in managing the unpredictable nature of multimedia traffic and user mobility. This approach not only enhances the quality of service by reducing interference and congestion but also improves overall network efficiency. By integrating ANN-based channel allocation, mobile multimedia networks can better meet the demands of diverse applications and users, leading to a more seamless and enjoyable multimedia experience.