



# Distributed Protocols for Wireless Networks: From eHealth Systems to Large-Scale Hybrid Intelligent Architectures

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## Abstract

The rapid evolution of wireless networks is transforming diverse domains, from eHealth systems to drone swarms and autonomous vehicles, by enabling seamless, low-latency communication. In healthcare, wireless sensors and 5G networks are revolutionizing patient monitoring through continuous data collection, remote diagnostics, and personalized treatments, ensuring high-reliability transmission. Meanwhile, UAV (Unmanned Aerial Vehicles) swarms are increasingly deployed in civilian applications such as disaster response, environmental monitoring, and delivery services, requiring scalable communication protocols to enable efficient data exchange and coordination with ground stations. As these technologies converge, Artificial Intelligence (AI) is emerging as a key enabler of next-generation wireless networks, enhancing system performance through predictive analytics at the network node level. By anticipating network conditions, AI empowers autonomous vehicles and drones to enhance interoperability, optimize routing, dynamically adapt communication strategies, and improve resource management across applications. This talk will explore the challenges, current advancements, and future research directions in distributed data transmission protocols, focusing on their role in integrating eHealth systems, UAV swarms, autonomous vehicles, and AI-driven networks to develop more adaptive and intelligent communication infrastructures.

## Short Biography

Saadi Boudjit is a Professor at the University of Rouen Normandy and a member of the Intelligent Transportation Systems (ITS) team within the LITIS Lab. Previously, he was an Associate Professor at the University Sorbonne Paris Nord and a Research Fellow at Telecom ParisTech. He obtained his Ph.D. in Computer Science from INRIA Paris, where he also worked as an expert engineer for three years. His research focuses on wireless ad hoc architectures, and he has been involved in several national and international research projects, including QNRF NPRP8-140-2-065, THD, SoundDelta, R2M, IPANEMA, PRIMA, among others. Saadi Boudjit is the initiator and Co-Chair of the ACM MobileHealth Workshop and has contributed to the organization of various international conferences and workshops such as IEEE WiMob and IEEE ISNCC. He has also served, or continues to serve, as a Technical Program Committee (TPC) member for numerous IFIP, ACM, and IEEE conferences and workshops, including HealthCom, MobileHealth, ICC, Globecom, CAMAD, WCNC, WONS, VTC, and DCOSS. His research interests span wireless networks, parallel and distributed computing, protocols and architectures design for mobile ad hoc networks, wireless sensor networks, vehicular networks, and eHealth systems.