

Wireless Communications Systems Architecture

Transceiver Design and DSP Towards 6G

This book discusses wireless communication systems from a transceiver and digital signal processing perspective. It is intended to be an advanced and thorough overview for key wireless communication technologies. A wide variety of wireless communication technologies, communication paradigms and architectures are addressed, along with state-of-the-art wireless communication standards. The author takes a practical, systems-level approach, breaking up the technical components of a wireless communication system, such as compression, encryption, channel coding, and modulation. This book combines hardware principles with practical communication system design. It provides a comprehensive perspective on emerging 5G mobile networks, explaining its architecture and key enabling technologies, such as M-MIMO, Beamforming, mmWaves, machine learning, and network slicing. Finally, the author explores the evolution of wireless mobile networks over the next ten years towards 5G and beyond (6G), including use-cases, system requirements, challenges and opportunities.

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