Abstract

To effectively combat multipath fading across multiple protocol layers in 3G wireless networks during transmission of multimedia components like image and video, we develop energy efficient transmission protocol called cooperative diversity which involves cooperation among terminals and which is created by antenna sharing and coordinated transmission by several distributed radios. A Cooperative diversity network with a sender, a destination and a third station acting as a relay is analyzed. The channels are modeled containing thermal noise, Rayleigh fading and path loss. After summarizing a model for the wireless channel we enhance the basic arrangement to a system with several relay and receiver stations and we present
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various practical algorithms based on the relaying process that are 1) Amplify and Forward (AAF), 2) Decode and Forward (DAF). To combine the incoming signals the channel quality should be estimated. Information about the average quality shows nice benefits and a rough approximation about the channel quality increases the performance even more. The combining techniques used here are 1) Signal to Noise Ratio Combining (SNRC) and 2) Enhanced Signal to Noise Ratio Combining (ESNRC). An image is taken as multimedia information to be transmitted and is received under variety of conditions and the performance is evaluated.

References

- Simon Haykin, MC Master University, "Communication Systems," 2005 by Jhon Wiley & sons

Index Terms

Computer Science
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Keywords
Multimedia  Diversity  Co-operative Diversity  Relay  Combining