Sensor Netw Data Commun 2016, 5:2(Suppl)
http://dx.doi.org/10.4172/2090-4886.C1.006

A novel approach for the link design of amplify and forward wireless cooperative communication to mitigate fading effects

Cibile K Kanjirathumkal
Government College of Engineering, Kannur, India

Cooperative relay communication systems is perhaps the most significant physical layer architectural upgrade that can assist the wireless network to achieve lower energy consumption with increased data rate. Among the different relaying strategies available, amplify and forward (AF) scheme is preferred due to the reduced delay and processing burden on relays. However, compound fading channel effects and cascaded noise effects due to multiple relaying channels are serious issues to be addressed for efficient deployment of AF systems. Since instantaneous signal strength measurement at relay for deciding required power boosting is infeasible in AF relaying, exact statistical characterization of the constituent channels is critical for an energy efficient system design as the receive signal quality depends on the channel fluctuations. Cost effective solutions to the deployment challenges/link design of a complete AaF system by exploiting the analytical results of compound channel statistics using some properties of Mellin transform is explored in this topic. The transform approach for the derivation of statistical measures like moments, average SNR and SNR variability are expected to be highly useful in various system design aspects like terrain dependent hop count determination, relay amplification factor design, proximity distance computation and so forth. Moreover, the proposed link-design method using appropriate noise margin and fade margin is suitable to adequately compensate the cascaded channel and noise effects resulting in reduced fading effects.

petercibil@gmail.com

Stochastic tools used to improve and/or to evaluate MAC layer in wireless networks

Ben-Othman
Paris 13 University, France

Wireless and mobile networks have many advantages as easy deployment, user mobility and provide network access to users regardless of their locations. The most critical problems that arise in these networks are on the resource allocations as the bandwidth is limited, the propagation (multi-path, fading, distortion) and security since communications are transmitted over radio waves. In this lecture, I will present several works done to model/improve quality of service in wireless networks. Three different methods will be presented in this keynote. In the first part, a new model based on Markov chains is presented to model the different service lasses defined in IEEE 802.16. In the second part, I will present a new AC that we have defined for IEEE 802.16 and we have evaluated using Stochastic Automata Networks. Finally, I will present a stochastic comparison for admission control in wireless networks. I will give my vision of new challenges of mathematical approaches to model future wireless networks.

jbo@univ-paris13.fr

Notes: