

Maximizing Minimum Throughput Guarantees: A Practical Point of View

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Room: BAR II 63 a

(building of the Faculty of Electrical and Computer Engineering, Georg-Schumann-Straße 11)

Abstract: Providing minimum throughput guarantees is one of the goals for radio resource allocation schemes. It is difficult to provide these guarantees without defining violation probability due to limited power budget and rapidly changing conditions of the wireless channel. For every practical scheduling scheme, there is a feasibility region defined by the minimum guaranteed throughput and the corresponding probability that the users fail to get the guaranteed throughput (violation probability). We focus on minimizing the violation probability specifically in the small probability region. We compare our results with major schedulers available in literature and show that our scheme outperforms them in the small violation probability region. Then, we consider a few extensions of the work in the cognitive radio networks and characterize the tradeoff between throughput loss in primary network and throughput gain in secondary network.

Bio: Dr. Majid Butt received his PhD in Wireless Communications and MSc Digital Communications degrees from Norwegian University of Science & Technology and University of Kiel, Germany in 2011 and 2005, respectively. He completed B.Sc electrical engineering from UET Lahore, Pakistan in 2002. He was awarded Alain Bensoussan postdoctoral fellowship from European Research Consortium for Informatics and Mathematics (ERCIM) in 2011. He has been with Fraunhofer Heinrich Hertz Institute Germany as an ERCIM postdoc fellow. Currently, he is working as a research associate with interdisciplinary center for research in Security, Reliability and Trust at University of Luxembourg. His areas of interest are radio resource allocation schemes, cross layer design and energy efficient communication techniques.

