Dr Khaled Rabie

Manchester Metropolitan University, UK

On the Energy Efficiency Performance of Power Line Communication Systems

Abstract: No doubt, in smart homes (SHs), numerous devices are expected to cooperate and exchange information over a set of heterogeneous networks including, but not limited to, the power line communication (PLC) network. The main advantage of PLC over its competitors is, of course, its availability and the significantly reduced costs of deployment. The increasing number of devices communicating over the PLC network however raises the issue of high energy consumption. This work is, therefore, dedicated to explore the energy efficiency of multi-hop relaying PLC systems. In this respect, different interesting signal processing techniques, utilizing the PLC channel peculiarities, are introduced to minimize the energy consumption of such systems. Results show that the proposed systems can provide up to 30% of energy efficiency improvement.

Biography: Dr Khaled Rabie received the B.Sc. degree (with Hons.) in Electrical and Electronic Engineering from University of Tripoli, Libya, and the M.Sc. degree (with distinction) in Communication Engineering from the University of Manchester, UK, in 2008 and 2010, respectively. He performed expectantly well during his M.Sc., coming top of his class, and received the Agilent's Technologies best M.Sc. student award and the Manchester Doctoral College (MDC) Ph.D. scholarship offered by the University of Manchester. He received his Ph.D. degree, while working as part-time staff, from the University of Manchester in 2015. He is currently a Research Associate at Manchester Metropolitan University, UK. His research interests include signal processing techniques for power-line communications, wireless communications and smart grid applications. He has published more than 30 papers in leading journals and conferences.

Dr Rabie was the recipient of the best student paper award at the IEEE International Symposium on Power Line Communications and its applications (ISPLC) in 2015, Texas, US. He was also nominated by the School of Electrical and Electronic Engineering at the University of Manchester for the Faculty's Distinguished Achievement Award – PGR Student of the Year 2016 – for the outstanding academic excellence during his PhD. He served on the Technical Programme Committee of several international conferences including IEEE Global Communications (GLOBECOM), IEEE International Conference on Communications (ICC), IEEE Vehicular Technology Conference (VTC), IEEE Computer and Information Technology (CIT). He is a member of the Institute of Electrical & Electronic Engineers (IEEE) and the Institution of Engineering and Technology (IET).