

Murphy Loves Constructive Interference

Abstract

The power of the Constructive Interference (CI) phenomenon was exploited for the first time by Ferrari et al. through their glossy paper in 2011. Instead of avoiding interference by neighbouring nodes, the Glossy protocol deliberately orchestrates simultaneous transmissions to achieve fast and efficient network-wide flooding. That insight of "embracing interference" prompted many researchers to go back to the drawing board. However, from the previous studies, there appears to be an inconsistent and often contradicting picture about the working of CI. In this keynote, I will sketch the main developments around Constructive Interference over the last 5 years. Further, I will present not only the understanding of CI with theory and rigorous experimentation but also question its actual existence. This talk covers advanced sensor networks issues.

Bio



Dr R Venkatesha Prasad is currently an associate professor at Embedded Software group of Delft University of Technology. His research interests include Tactile Internet, Internet of Things (IoT), Cyber Physical Systems (CPS), Energy Harvesting, and 60 GHz millimeter wave networks. He has supervised about 18 PhD students (15 graduated, 3 ongoing) and more than 40 MSc students (36 graduated). He has participated in several European and Dutch national projects in the area of IoTs, 60 GHz communications, Smart-energy systems, Personal networks and Cognitive Radios. He (co) is authored more than 200 publications in the peer-reviewed international transactions/journals and conferences. He is responsible for the signing of MoU between IISc-TU Delft and He is anchoring ISRO-TU Delft cooperation. In 2015, he received 4TU University Teaching Qualification diploma with distinction. He has also served on the editorial board of many international journals and magazines including IEEE Transaction on Green Communication Networks, IEEE JSAC, IEEE Communication Magazine, IEEE Surveys and Tutorials and Elsevier-Communication Networks. He is a regular reviewer for many prestigious journals and conferences and serves as the TPC member for various conferences. He is contributing to the academic community by leading many IEEE activities, such as memberships of standards boards, leading technical committees, etc. He was nominated as the vice-chair of IEEE Tactile Internet standardization group. Due to excellent research contributions, he was selected as the IEEE ComSoc Distinguished Lecturer on Internet of Things for the period 2016-2018. From 2005-12 he was a senior researcher and adjunct faculty at TU Delft working on the EU FP7 Magnet (and Beyond) Project and the Dutch project PNP-2008 on Personal Networks (PNs), Future Home Networks. He has completed my PhD from IISc, Bangalore, India in 2003. During my PhD research, a scalable VoIP conferencing platform was designed. Many new ideas including a conjecture were formulated and tested by developing an application suite based on my research findings. The work involved an understanding of network protocols, application design and human-computer interface. My thesis work lead to a startup venture, Esqube Communication Solutions. He leads a team of engineers developing many real-time applications including bridging anonymous VoIP calls called Click-to-Talk for Ebay.com. While at Esqube, eight patent applications and three PCT applications were filed along with my colleagues. Esqube was selected as top 100 IT innovators in India in 2006 by NASSCOM and top 100 in promising companies in Asia by Red Herring in 2008. He is a senior member of IEEE and ACM.