



New method aimed to enhance the overall throughput of communication systems by utilizing outdated channel gain information for distributed interference compression and removal. The technology targets a dynamic environment with several distributed transmitters and receivers sharing a common medium.



Tech offer | Distributed interference cancellation based on outdated channel gain information

Interference is the main limitation faced by today wireless technologies, mainly due to the network densification, user density and the exponential increase in wireless data traffic verified in the last years. The dynamic nature of wireless communications further exacerbates the interference problem as the transmission and reception entities are unable to adapt as fast as the radio environment dynamics; namely, when they adapt the channel/network state may be already different and then the adaptation is detrimental, instead of beneficial.

This technology proposes a method to efficiently compress and remove the interference generated by multiple receivers using only outdated channel information. Using this technology, the system throughput scales with the square root of the number of terminals (e.g., 500% throughput improvement in a scenario with 100 terminals).

APPLICATIONS

The technology is applicable in scenarios with several pairs of transmitters and receivers communicating simultaneously and using the same resources:

VEHICULAR AND MACHINE-TO-MACHINE COMMUNICATIONS

SCENARIOS WITH HIGH DENSITY OF USERS

DISTRIBUTED DATA STORAGE

PHYSICAL LAYER SECURITY FOR WIRELESS COMMUNICATIONS

BENEFITS

ENHANCED THROUGHPUT and proportional to the square root of the number of transmitter/receiver pairs.

DISTRIBUTED INTERFERENCE CANCELLATION using only outdated channel gain information.

MULTIPLE TRANSMITTER/RECEIVER PAIRS communicating using the same time and frequency resources.



TECHNOLOGY ID

PI-0102

INVENTORS

Researchers from:

- Instituto de Telecomunicações (IT)
- Universidade de Aveiro

DEVELOPMENT STAGE

TRL 3-4

Laboratorial tests have been performed, with very promising numerical results.

KEYWORDS

DELAYED CHANNEL INFORMATION
DISTRIBUTED COMPRESSION
REPETITION CODING
INTERFERENCE CHANNEL
TRANSMISSION OVER A SHARED MEDIUM
MULTI TRANSMITTER/RECEIVER PAIRS
INTERFERENCE ALIGNMENT

INTELLECTUAL PROPERTY

- USA patent granted (US10476620)
- European patent granted (EP17751468)

COMMERCIAL OFFERING

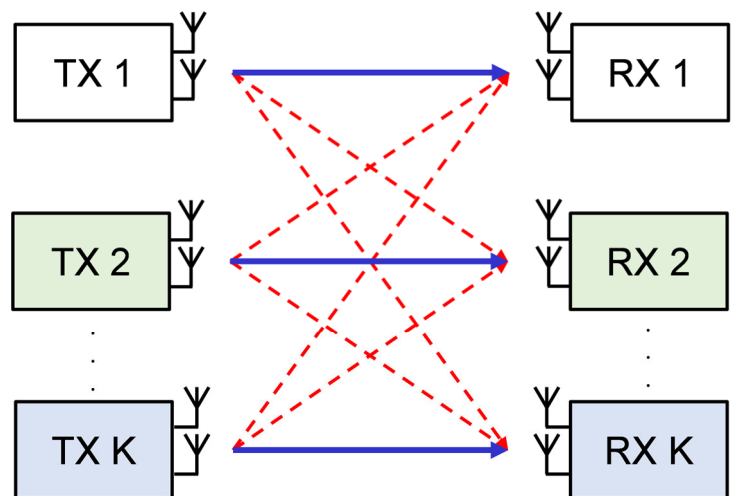
- Licensing agreement
- Testing new applications
- Joint further developments

TARGET MARKET

IT seeks partners within information and communication technologies area (ICTs) to further develop or license the technology, as well as possible end-users for testing new applications.

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TX = transmitter
RX = receiver

--- Interference link
— Communication link