Channel Estimation with Systematic Polar Codes

ABSTRACT

- In this paper, to improve the performance of polar codes in the finite domain, pilot symbols are selected from the coded symbols themselves.
- In order to keep the existing efficient structure of polar code encoding, pilot selection is critical since not all selections can reuse the existing structure.
- In this paper, two pilot selections denoted as Uneven Pilot Selection and Even Pilot Selection are proposed, which do not change the efficient polar encoding structure.

EXISTING SYSTEM

- Study of polar codes in fading channels is of great importance when applying polar codes in wireless communications.
- Channel estimation is a fundamental step for communication to be possible in fading channels.
- For both systematic and non-systematic polar codes, construction of them is based on an information set and the known frozen bits.
- Efficient implementation of systematic and non-systematic polar codes exists.

PROPOSED SYSTEM

- In this paper, two pilot selection schemes, uneven pilot selection and even pilot selection are studied for polar codes in fading channels.
- By selecting coded symbols as pilots, instead of inserting pilots, the decoding performance of polar codes is greatly improved.
- Considering the unsatisfactory performance of polar codes in the finite domain, the proposed pilot selection scheme EPS can be employed in practical systems for channel estimation or tracking.

HARDWARE REQUIREMENTS

- Processor - Intel core i3
- RAM - 2B
- Hard Disk - 20 GB

SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

REFERENCE

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