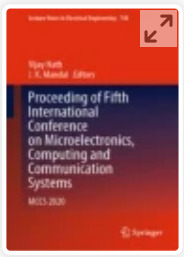

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Proceeding of Fifth International Conference on Microelectronics, Computing and Communication Systems

MCCS 2020

Editors: Vijay Nath, J. K. Mandal

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Sections

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This book presents high-quality papers from the Fifth International Conference on Microelectronics, Computing & Communication Systems (MCCS 2020). It discusses the latest technological trends and advances in MEMS and nanoelectronics, wireless communication, optical communication, instrumentation, signal processing, image processing, bioengineering, green energy, hybrid vehicles, environmental science, weather forecasting, cloud computing, renewable energy, RFID, CMOS sensors, actuators, transducers, telemetry systems, embedded systems and sensor network applications. It includes papers based on original theoretical, practical and experimental simulations, development, applications, measurements and testing. The applications and solutions discussed here provide excellent reference material for future product development.

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Keywords

Microelectronics Devices

Nanoelectronics Devices

Machine Learning **RF VLSI Design**

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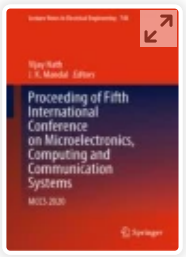

Proceeding of Fifth International Conference on Microelectronics, Computing and Communication Systems pp 249–259

Avenues to Improve Channel Estimation Using Optimized CP in STBC Coded MIMO-OFDM Systems—A Global Optimization Approach

Shovon Nandi, Narendra Nath Pathak & Arnab Nandi

Conference paper | First Online: 10 September 2021

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Abstract

A new semi-blind channel estimation with optimized Cyclic Prefix (CP) assisted Space Time Block Coded Multi-Input Multi-Output Orthogonal Frequency Division Multiplexing (STBC-MIMO OFDM) system is proposed. The main hurdle of high complexity and low convergence in earlier systems are avoided by our proposed scheme in flat fading environment. In our work, the hyper parameters are optimized with proposed Lévy Krill-herd (LKH) algorithm and it is clear that the channel estimation performance is varied with this parameter values and by this global optimization

technique the incorrect selection of hyper parameters (local optima) are eliminated. The selection process of this algorithm can be simplified with the number of bounds used. The improvement performance is shown by using BER vs SNR plot of Forward-backward (FB) Kalman helical approach and different pilot carrier insertions. Also a comparative plot is shown among FB Kalman, Krill-herd (KH) and finally LKH approach by using Matlab software.

Keywords

MIMO-OFDM **Kalman helical process**

Lévy Krill-herd algorithm **Cyclic prefix**

Alamouti-STBC **BER**

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