

## Application of the Discrete Rationalized Haar Transform to Distributed Parameter System

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**Abstract :** In this paper the rationalized Haar transform is applied for distributed parameter system identification and estimation. A distributed parameter system is a dynamical and mathematical model described by a partial differential equation. And system identification concerns the problem of determining mathematical models from observed data. The Haar function has some disadvantages of calculation because it contains irrational numbers, for these reasons the rationalized Haar function that has only rational numbers. The algorithm adopted in this paper is based on the transform and operational matrix of the rationalized Haar function. This approach provides more convenient and efficient computational results.

**Keywords :** distributed parameter system, rationalized Haar transform, operational matrix, system identification

**Conference Title :** ICECECE 2015 : International Conference on Electrical, Computer, Electronics and Communication Engineering

**Conference Location :** Amsterdam, Netherlands

**Conference Dates :** May 14-15, 2015