

[DOI: 10.20472/IAC.2018.039.005](https://doi.org/10.20472/IAC.2018.039.005)

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## **PARAMETER OPTIMIZATION FOR EXTREMUM SEEKING CONTROL OF ANTILOCK BRAKING SYSTEM**

### **Abstract:**

This paper presents a parameter tuned Extremum Seeking Control (ESC) which is utilized for control of antilock braking system (ABS). Extremum seeking control (ESC) is a purely based on output feedback without the need for a plant model. However, the design challenge of ESC lies in deciding the values of the amplitude of the perturbation signal, the frequency of the perturbation signal, the cut-off frequency of the high-pass filter, the cut-off frequency of the low-pass filter and the integrator gain. In the present paper, the filter parameters are optimized based on the well-known meta-heuristic optimization algorithms such as Jaya Algorithm (JA), Genetic Algorithm (GA), Sine-Cosine Optimization Algorithm (SCA) and Particle Swarm Optimization Algorithm (PSO). The designed ESC controllers are applied to control of antilock braking system for possible performance comparisons.

### **Keywords:**

Extremum Seeking Control, Optimization, Antilock Braking System, Metaheuristics

**JEL Classification:** C61