Faculty of Electrical Engineering & Computer Science
Master Degree Course Electronics Engineering, MSc EE

HSB
Hochschule Bremen
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Master 2019

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Analysis and Evaluation of Optimization Algorithms and Cost Functions for Constrated Antenna Optimization.

ABSTRACT - Masterthesis

This master thesis deals with the analysis and evaluation of optimization algorithms and cost functions under boundary conditions. With these methods mathematically complex optimization problems can be heuristically presented. The aim is to use these methods in antenna optimization in the future. Two optimization algorithms, Gravitational Search Algorithm and Artificial Bee Colony Algorithm are analyzed and applied to optimization problems. The development and implementation of four different cost functions were differentiated on the basis of the optimization methods. Swarm-based methods are used, since multimodal cases are assumed in the later antenna optimization. Furthermore, the methods were examined with respect to the incorporation of additional boundary conditions into the optimization tasks.