Bachelor Arbeit

Multi-variable objective optimization software development using Pareto Front Analysis for power converters optimization

Description

In the Power Electronics field of research, the focus of the design is often only on the power losses, however, the total volume, the weight, the temperature and the total cost of components are also interesting parameters to select a valid design.

When considering multiple design variables (especially negatively correlated ones) the optimum design is mathematically impossible. Therefore, multivariable optimization analysis is required to select from the multiple optimal solutions. These solutions are called "Pareto efficient" as part of the Pareto front.

Work

- Preparation: literature research, define design parameters, models and output variables
- Execution: code implementation, debugging and design GUI
- Analysis of results.

Requirement

- General interest in the topic
- Motivation
- MATLAB basic knowledge

General conditions

- Location: Office and laboratory at the institute
- Start: immediately possible
- Employment on a marginal basis
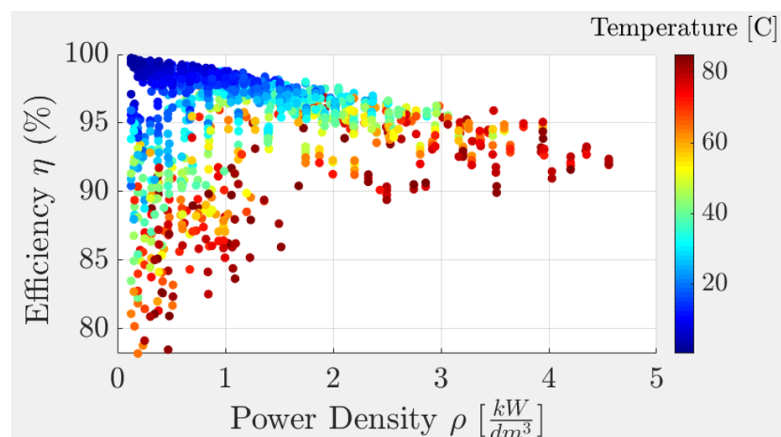
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