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Simplified method based on an intelligent model to obtain the extinction angle of the current for a single-phase half wave controlled rectifier with resistive and inductive load

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ABSTRACT

With the aim of calculating the extinction angle of the current of a single-phase half wave controlled rectifier with resistive and inductive load, present work shows a method to obtain a regression model based on intelligent methods. This type of circuit is a typical non-linear case of study that requires a hard work to solve it by hand. To create the intelligent model, a dataset has been obtained with a computational method for the working range of the circuit. Then, with the dataset, to achieve the final solution, several methods of regression were tested from traditional to intelligent types. The model was verified empirically with electronic circuit software simulation, analytical methods and with a practical implementation. The advantage of the proposed method is its low computational cost. Then, the final solution is very appropriate for applications where high computational requirements are not possible, like low-performance microcontrollers or web applications.

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