



## **DEMYSTIFYING MACHINE LEARNING FOR EMC AND SI/PI APPLICATIONS**

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During last years Machine Learning (ML) approaches have been successfully applied to several realistic scenarios belonging to different research fields, including EMC and Signal Integrity (SI) & Power Integrity (PI) applications. The aim of this tutorial is twofold. On one hand, it will cover some of the basic principles of ML regression techniques. Key concepts such as: the learning paradigm, overfitting/underfitting, regularization, the “kernel trick” will be presented in an intuitive way with the help of illustrative examples. On the other hand, the second part of the tutorial will investigate the effectiveness and the strength of ML techniques for the optimization and the uncertainty quantification in real and advanced EMC and SI/PI applications. Several case studies will be presented to compare the performances of ML technique with respect to well-established state-of-the-art approaches.