

Demystifying Machine Learning for Packaging Problems  
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This tutorial will cover the fundamentals of machine learning as it relates to Artificial Neural Networks (ANN) and Bayesian Learning with a focus on problems arising in packaging. Rather than delve into mathematical formulations we will explain important concepts and the reasoning behind them, thereby demystifying the application of machine learning to these problems. We will also share some recent developments in this area in the context of packaging along with links to open source downloadable software for some of the methods discussed. Though all the problems discussed are design related they can be applied in other areas as well.

The participants are not expected to have any background in machine learning to attend this tutorial. At the end of the tutorial we expect the participants to have a better appreciation and understanding of machine learning and how it is being used within the Packaging Research Center (PRC) to address complex problems.

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Duration: 1.5 hours (including Q&A)

Biography:



Madhavan Swaminathan is the John Pippin Chair in Microsystems Packaging & Electromagnetics in the School of Electrical and Computer Engineering (ECE), Professor ECE with a joint appointment in the School of Materials Science and Engineering (MSE), and Director of the 3D Systems Packaging Research Center (PRC), Georgia Tech (GT) (<http://www.prc.gatech.edu>). He also serves as the Site Director for the NSF Center for Advanced Electronics through Machine Learning (CAEML) and Theme Leader for Heterogeneous Integration, SRC JUMP ASCENT Center. He formerly held the position of Founding Director, Center for Co-Design of Chip, Package, System (C3PS), Joseph M. Pettit Professor in Electronics in ECE and Deputy Director of the Packaging Research Center (NSF ERC), GT. Prior to joining GT, he was with IBM working on packaging for supercomputers. He is the author of 500+ refereed technical publications, holds 31 patents, primary author and co-editor of 3 books, founder and co-founder of two start-up companies, and founder of the IEEE Conference Electrical Design of Advanced Packaging and Systems (EDAPS), a premier conference sponsored by the EPS society. He is an IEEE Fellow and has served as the Distinguished Lecturer for the IEEE EMC society. He received his MS and PhD degrees in Electrical Engineering from Syracuse University in 1989 and 1991, respectively.