ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

Invitation to the Presentation about the Workplacement

Ing. Jasmin Hämmerle, BS.c.
Universität Klagenfurt

"Numerical Analysis of Semiconductor Reliability Models"

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Abstract

The manufacturing process of semiconductor products, such as microcontrollers or sensors, involves many steps, reaching from development and the fabrication itself with numerous physical and chemical processing steps to different testing procedures. One special type of tests are reliability and qualification tests, where the devices are put under various stress factors; on the one hand to guarantee a certain quality and on the other hand to make inferences about the reliability. Developing reliability test concepts of power electronics and statistical lifetime modeling are two of the core competences of KAI GmbH, the company where I did my internship. My main tasks were to stabilize the estimation of the five parameters of the Castillo-Canteli model, which is used to predict semiconductor lifetime. This included doing research about possible estimation methods, in which the three parameter Weibull distribution plays a central role, and their implementation in R. In my talk I will give an overview of lifetime modeling, the common problems

that arise in model fitting, and possible ways how to approach them.

Gregor Kastner and the Department of Statistics look forward to seeing you at the talk!