

Integrated Parameter and Tolerance Design with Computer Experiments

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Abstract

Robust parameter and tolerance design are effective methods to improve process quality. The existing procedure is two-step method that performs parameter design followed by tolerance design to reduce sensitivity to variations of input characteristics. However, this procedure is suboptimal. Computer simulation plays an important role in designing complex systems because it is cheaper than physical experiments. However, these simulations are very time consuming. In this paper, an integrated parameter and tolerance design (IPTD) method for computer experiments is proposed in which the means and tolerances of input characteristics are simultaneously optimized to minimize total cost. A Gaussian Process metamodel is used to emulate the response function to reduce the number of simulations required. The posterior distribution of the expected quality cost is constructed and employed for IPTD.

About the Speaker

Mei Han received her B.Eng(2014) in Automation from Huazhong University of Science and Technology. She is currently a PhD student supervised by Dr. TAN Matthias Hwai-yong in Department of Systems Engineering and Engineering Management, City University of Hong Kong. Her research focuses on statistical quality control and improvement.

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All are Welcome!

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