

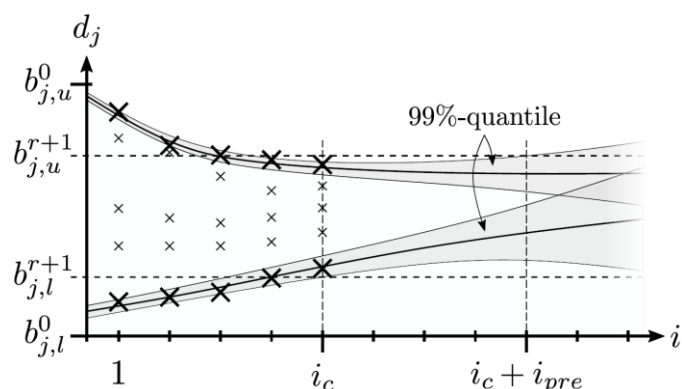
Master's thesis

Adaptive Surrogate Modelling Approach in numerical Optimization

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Background: In modern civil engineering, increasingly complex and costly structures are being realized. In order to reduce costs and increase the service life, the structures are optimized using suitable methods during the planning process. This requires a high number of non-linear finite element simulations, which are very computationally intensive. To reduce the computational effort, various surrogate models such as neural networks, support vector machines, etc. can be used.

Task: In this work, the developed "Adaptive Surrogate Modelling Approach" (literature will be provided), which is currently implemented for neural networks, has to be further developed and implemented for different surrogate models and verified using benchmark functions. Finally, a realistic problem in structural mechanics has to be optimized and the results have to be analyzed and interpreted.



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