

Master Thesis Proposal: Optimizing process parameters by Random forests

In many process industries operators are involved in tuning process parameters for optimizing the end result in terms of cost, time or quality. In some cases, such as the newspaper printing industry nearly all tuning of parameters are performed manually by operators. Parameter tuning in newspaper print is focused at optimizing production cost and quality. Operators would benefit from a decision support system that can suggest parameters that decrease cost or increase quality (or both criteria). A step towards such system could be to model manufacturing quality by training a random forests model. The next step is then to use stochastic search methods to find the model inputs (manufacturing parameters) which results in prediction of high quality manufacturing.

Project tasks:

- Search, categorize and investigate related work.
- Design and generate artificial datasets.
- Implement and test optimization methods.
- Assess the models ability to interpolate among input parameters.

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