



Optimisation of ML-based models for the prediction of dynamic biogas production

The prediction of dynamic biogas production for the achievement of energy security can be crucial in the near future. Machine learning and neural networks are suitable methods for optimal prediction, but they require an optimized data preparation process, as well as optimised hyperparameters.

Several optimisation techniques are available, but their effectiveness on biogas data is still to be tested. Metaheuristics represent the most suitable optimization techniques, nevertheless they are slow and do not always ensure convergence to a global minimum.

The aim of this Master thesis is to implement, apply and evaluate optimization methods to existing models and datasets, in order to find the most accurate and efficient. A further development of the existing methods might be discussed.

Requirements:

- Experience with python
- Familiarity with machine learning and neural networks
- A curiosity for nature-inspired optimization techniques

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