



## Thesis (B.Sc. / M.Sc.)

### Genetic Design Automation in Yeast using Protein-Based Logic Circuits

Yeast has a crucial role in biotechnology on top of being a model organism. Besides its historical use in beer and cheese production, nowadays, it is used in complex compound synthesis for diverse applications. To do so, synthetic metabolic pathways are implemented. Building and characterizing synthetic circuits is still limited by the time consuming design-build-test-learn cycle, in which the design and learn part is done by humans. Computer-aided design of logic circuits could overcome this limitation.

In this project, you will make use of a genetic design automation (GDA) library for yeast. Even though there are tools already published which are capable of the design automation, we recently published a paper which adds context-awareness to the design. Your task would be that you verify the improvement on the design automation for such circuits. To do so, you will construct and characterize protein-based circuits.

#### Prerequisites:

- Knowledge of molecular biology
- Good spoken and written English
- Experience working in wet lab environment is advantageous

For further information, please contact Maik Molderings.

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