

# Bayesian model selection in syntheticbiology: factor levels and observationfunctions

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To perform the Gaussian Process Regression on the Posterior Distributions for the two observables, the code from [1] was used as it can be observed in the scripts contained in OptimisationScriptsSingle and OptimisationScriptsVariants. These can be accessed in the link: <http://swainlab.bio.ed.ac.uk/software/fitderiv/>

To perform Bayesian Optimisation to maximise the value of the utility function defined the package BayesianOptimisation from Fernando M. F. Nogueira (2014) has been used. This can be found in the GitHub repository: <https://github.com/fmf/ BayesianOptimization>

## References:

[1] PS Swain, K Stevenson, A Leary, LF Montano-Gutierrez, IBN Clark, J Vogel, and T Pilizota. *Inferring time derivatives including growth rates using Gaussian processes*. Nature Communications, **7** (2016) 13766