

Dynamic parameter estimation of microalgal fermentation system using active Bayesian learning

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One of the biggest problems in working bioreactor is that we cannot be sure about the accuracy of the model and its parameters. Therefore, the usual methods of parameter estimation or optimization, which usually suppose the exactness of parameters, is not suitable for bioreactor. In this study, we used a different parameter estimation method to avoid this problem. We supposed the parameters to be a probability density function rather than a real number. And then we updated this probability tendency function using the data gained from the actual running of the bioreactor in iterative manner. In this way we can learn much more about the model parameters than what we can expect from conventional methods, i.e. its uncertainties and sensitivities, to name some.