

Sequential forward-inverse design for genetic network modeling / Cenny Taslim, Theodore T. Allen, Mario Lauria, Shih-Hsien Tseng

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Abstrak

ABSTRAK

This paper proposes methods for forward and inverse system modeling using Bayesian and least squares regression. These methods are based on both space-filling design criteria for multiple response problems and linear optimality criteria focusing on D optimality. Modeling with and without the constant term is considered motivated by the case study application of genetic network modeling. We propose extended one-factor-at-a-time experimentation followed by augmentation of next stage design which offers biologists simplicity. Results are illustrated both numerical examples, a test problem from the literature, and a case study motivated by an real world biological research related to genetic network modeling.