Abstract

The major aim of this study is to model the effect of outside temperature, watering, and airing on the inside temperature of a hybrid evaporative cooling system (HECS). There is great interest in evaporative cooling systems as a new storage system for fruit and vegetables for the purpose of energy saving. The heat transfer process of the HECS has not yet been well analyzed, so system identification based model was used to identify such an unknown process. Four system identification methods were used to train a three input-one output based system. After comparing the performance of the four system identification methods, continuous-time identified transfer function model was selected based on final prediction error (FPE), mean squared error (MSE), and regression of the input-output responses.

References

Performance of Mathematical System Identification in Modeling of Hybrid Evaporative Cooling System

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Index Terms

Computer Science

Applied Sciences
Keywords

System identification, training algorithm, evaporation, passive cooling.