Abstract

The study explains a new emerging methodology Variational Bayesian Inference (VB) to structure optimization of Fuzzy System (Takagi-Sugeno fuzzy system). Recently, the study of (Kumar et al. 2010 a) introduced a mixed Takagi-Sugeno fuzzy filter whose antecedents are deterministic while the consequents are random variables. The parameters of fuzzy filters are inferred under VB framework. The objective of this study is to show how computational intelligence based model contribute to the methodology of constructing models of software processes and products. The study provides detailed software implementation of Variation Bayesian approach to mixed deterministic/stochastic fuzzy models and also helps in software developments of some computational optimization algorithms based on Variational Bayesian approach. The developed MATLAB software can be used in the field of image processing, signal processing, pattern recognition, machine learning.

Index Terms

Computer Science

Artificial Intelligence
**Keywords**

Fuzzy Modeling  Takagi-Sugeno Fuzzy Model  Variational Bayesian Inference  Stochastic Model  Matlab Software