

CHAPTER 57
TECHNOLOGY
INSTRUMENTATION & CONTROL
ENGINEERING

Doctoral Theses

560. GARG (Girisha)
Analysis of Biomedical Signals Using Signal Processing and Soft Computing Techniques.
Supervisors : Dr. Vijander Singh and Prof. A. P. Mittal
Th 19096

Abstract

The study observed from the based on results obtained that the algorithm performs equally well on the multichannel and long duration biomedical signals also. The capabilities of UWFO algorithm in terms of generalization, accuracy and efficiency are verified. Therefore the algorithm holds great potential to be used as a unified signal processing tool for all types of biomedical signals and thereby developing a unified biomedical signal processing device.

Contents

1. Introduction. 2. Basics of biomedical signals. 3. Feature transformation using wavelet transforms. 4. Mother wavelet selection algorithm. 5. Feature extraction using relative wavelet energy. 6. Feature selection using support vector machines recursive feature elimination approach. 7. Classification using support vector machines. 8. Conclusions and bibliography.

561. TUSHIR (Meena)
Soft Computing Based System Modeling, Identification and Control.
Supervisor : Prof. Smriti Srivastava
Th 18974

Abstract

Describes soft computing approaches for the modeling and control of complex dynamic systems as soft computing offers an olive branch to the evils of these systems. The application of soft computing in this work has resulted in the components of modeling and control like structure determination and model/controller learning.

Contents

1. Issues in soft computing. 2. Clustering analysis. 3. Structure identification of fuzzy model. 4. Comparative analysis of conventional fuzzy controller with clustering based fuzzy controller. 5. Design of controllers for the speed control of DC motor. 6. Controller design for load frequency control of power system. 7. Conclusions and suggestions for future work. References and appendices.