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Dharma P. Agrawal
Editors

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MISP 2019

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Preface

This volume of proceedings provides an opportunity for readers to engage with a selection of refereed papers that were presented at the Second International Conference on Machine Intelligence and Signal Processing (MISP-2019). MISP aims to bring together researchers in related fields to explore and discuss various aspects of data mining, artificial intelligence, optimization, machine learning methods/algorithms, signal processing theory and methods, and their applications. This edition was hosted by Indian Institute of Information Technology, Allahabad, Prayagraj, Uttar Pradesh, during September 7–10, 2019. All submissions were evaluated based on their significance, novelty, and technical quality. A double-blind review process was conducted to ensure that the author names and affiliations were unknown to technical program committee. This proceeding contains 36 research papers selected for presentation at the conference. Our sincere thanks go to all the authors for their interest in the conference and to the members of the review committee for their insightful and careful reviews.

We are grateful to General Chairs for their support and express our most sincere thanks to all keynote speakers for sharing their expertise and knowledge with us. Our sincere thanks to Prof. P. Nagabhushan, Director, IITA, for his valuable suggestions and encouragement. We would like to thank the organizing committee and many other volunteers who worked behind the scenes to ensure the success of this conference. We are very thankful to the EasyChair conference system for providing support for submission and review process. Finally, we would like to acknowledge Springer for active cooperation and timely production of the proceedings.

Allahabad, India
Allahabad, India
Cincinnati, USA

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Prof. Shekhar Verma
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Modified Flower Pollination Algorithm for Optimal Power Flow in Transmission Congestion



Rupali Parmar, Sulochana Wadhvani and Manjaree Pandit

Abstract Artificial intelligence (AI) is an attractive and popular paradigm for providing any machine/system, the ability to carry out tasks in a ‘smart’ way. Population-based metaheuristics utilize the intelligence available in nature to search for optimal solutions of complex problems. Randomization prevents the search from being trapped at local optima. This paper presents a model based on recently developed modified flower pollination algorithm (MFPA) to solve the problem of transmission congestion management (CM) in competitive electricity market by real power rescheduling of generating units. The performance of the proposed algorithm is tested for single line outage, increased demand and variation in line power limits using modified IEEE 30 bus and IEEE 57 bus test systems. The results are compared with basic FPA, particle swarm optimization (PSO), random search method (RSM) and simulated annealing (SA).

Keywords Modified flower pollination algorithm (MFPA) · Congestion management (CM) · Levy flight · Optimal power flow · Restructuring · Price bids · Line power limits

1 Introduction

Perpetuation of power system in operational synchronism becomes relatively complex in open-access electricity market. As all players focus on enhancing the profit, their transactions frequently make the system operate beyond its limits [1].

A transmission network is said to be congested, when there is a difference between scheduled real power flow and actual real power flow capability with all constraints in

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