

Manuscript ID : 00000-45402

International Journal of Industrial Engineering Research and Development

Volume 5, Issue 3, May - June 2014, Pages 24-30, Page Count - 7



Source ID : 00000009

EXPERIMENTAL DESIGN OF CONSTRAINT SATISFACTION ADAPTIVE NEURAL NETWORK FOR GENERALIZED JOB-SHOP SCHEDULING

Sridhar K ⁽¹⁾ Prakash T. Lazarus ⁽²⁾

⁽¹⁾ Professor, Department of Mechanical Engineering, Chhatrapati Shivaji Institute of Technology, Durg, India.

⁽²⁾ Assistant Professor, Department of Mechanical Engineering, Avanthi Institute of Engineering & Technology, Vizianagaram, Andhra Pradesh, India.

Abstract

Artificial Neural Networks can achieve high degree of computation rates by employing a massive number of simple processing elements with a high degree of connectivity between elements. In this paper an attempt is made to present a Constraint Satisfaction Adaptive Neural Network (CSANN) to solve the generalized job-shop scheduling problem and it shows how to map a difficult constraint satisfaction job-shop scheduling problem onto a simple neural net, where the number of neural processors equals the number of operations, and the number of interconnections grows linearly with the total number of operations. The proposed neural network can be easily constructed and can adjust its weights of connections based on the sequence and resource constraints of the job-shop scheduling problem during its processing. Simulation studies have shown that the proposed neural network produces better solutions to job-shop scheduling problem.

Author Keywords

Job Shop Scheduling, Learning Capability, Neural Network, Priority Rules, Simulation

ISSN Print: 0976-6979

Source Type: Journals

Publication Language: English

Abbreviated Journal Title: IJIERD

Publisher Name: IAEME Publication

Major Subject: Physical Sciences

Subject area: Computer Networks and Communications

ISSN Online: 0976-6987

Document Type: Journal Article

DOI:

Access Type: Open Access

Resource Licence: CC BY-NC

Subject Area classification: Computer Science

Source: SCOPEDATABASE

Reference

References (13)

1. Baker K.R
Introduction to sequencing and scheduling

(1994)

2. Demuth, H and Beale, M
Neural Network tool box

(1995)

3. Dubois D, Fargier H and Prade H
Fuzzy constraints in job-shop scheduling

(1995) *Journal of Intelligent Manufacturing, Volume 6, Page No 215-234,*

4. Foo Y.P.S and Takefuji Y
Integer liner programming Neural Networks for Job-shop scheduling

(1988) *IEEE 1988 International Conference on Neural Networks,*
DOI: <https://doi.org/10.1109/ICNN.1988.23946>

5. Hopfield J.J. and D.W.Tank
``Neural`` computation of decisions in optimization Problems

(1995) *Biological Cybernetics, Volume 52, Page No 141-152,*
Article Link: <https://link.springer.com/article/10.1007/BF00339943>

6. M.S.Fox and M.Zweben
Knowledge-based scheduling

(1998)

7. P.V.Henternyck
Constraint satisfaction and logic programming

(1999)

8. R.W.Conway, W.L.Maxwell, and L.W.Miller
Theory of scheduling

(1997)

9. Michael Masin, Tal Raviv
Linear programming-based algorithms for the minimum make span high multiplicity job shop problem

(2014) *Journal of Scheduling, Volume 17, Issue 4,*
DOI: <http://dx.doi.org/10.1007/s10951-014-0376-y>

10. Shengxiang Yang
An Improved Adaptive Neural Network for Job-Shop Scheduling

(2010) *Journal of Scheduling, Volume 13, Issue 1,*

11. Shen L, Monch L, Boshier U
Simultaneous and Iterative Approach for Parallel Machine Scheduling with Sequence Dependent Family Setups

(2013) *Journal of Scheduling, Volume 17, Issue 5,*
DOI: <http://dx.doi.org/10.1007/s10951-013-0315-3>

12. Hymavathi Madivada and C.S.P. Rao
AN INVASIVE WEED OPTIMIZATION (IWO) APPROACH FOR MULTI-OBJECTIVE JOB SHOP SCHEDULING PROBLEMS (JSSPs)

Scope Database Link: <https://sdbindex.com/documents/00000009/00000-45402.pdf>

Article Link: http://iaeme.com/MasterAdmin/Journal_uploads/IJIERD/VOLUME_5_ISSUE_3/30420140503003.pdf

(2012) International Journal of Mechanical Engineering and Technology, Volume 3, Issue 3, Page No 627 - 637,

13. Hymavathi Madivada and C.S.P. Rao

A REVIEW ON NON TRADITIONAL ALGORITHMS FOR JOB SHOP SCHEDULING

(2012) International Journal of Production Technology and Management, Volume 3, Issue 1, Page No 61 - 77,

About Scope Database

What is Scope Database

Content Coverage Guide

Scope Database Blog

Content Coverage API

Scope Database App

© Copyright 2021 Scope Database, All rights reserved.

Customer Service

Help

Scope Database Key Persons

Contact us