به نام خدا

مقاله علمی
SCIENTIFIC PAPER

دکتر مصطفی زندیه

- هدف سمینار

آشنایی دانشجویان تحصیلات تکمیلی با نگارش یک مقاله

علمی و چگونگی ارسال و پذیرش آن

- در پایان این کارگاه از شما انتظار می‌رود

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- **قسمت ۱ (کلیات و تعاریف)**
  - **اهمیت و ضرورت نگارش یک مقاله علمی**
  - **تعریف یک مقاله علمی**
  - **ساختار نگارش**
  - **بخش‌های مختلف یک مقاله**

- قسمت ۲ (نکات کاربردی)
  - انتخاب یک مجله
  - چگونگی ارسال مقاله
  - فرایند داوری یک مقاله

اهمیت و ضرورت ارائه مقاله علمی (دلایل اصلی و فرعی)

- **دلایل فرعی**
  - **از منظر دانشجویان**
    - ارزشیابی دانشجویان تحصیلات تکمیلی از طریق ارزشیابی تحقیقات
    - از الزامات ادامه تحصیل در ایران و در خارج از ایران
  - **از منظر اساتید**
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تعریف یک مقاله علمی

- گزارشی **نگارش شده** و **چاپ شده** برای توصیف نتایج یک تحقیق که برای اولین بار انجام شده است.

- **انواع مقاله‌های علمی**
  - مقاله تحقیقی با اصالت Original research paper
  - مقاله مطالعه موردی Case study paper
  - مقاله مروری Review paper

Original research paper

- اجرای تحقیقی که قبلا انجام نشده است
- بیان یک ایده تازه علمی به نحوی که قبلا انجام نشده
- استنتاج از ایده‌های دیگران از زاویه ای نو
- استفاده از تکنیک‌های موجود برای منظوری تازه

Case study paper

- هدف: ارائه کاربرد یک تکنیک علمی در یک مورد خاص

A case study in a … نمونه

Review paper

- هدف: دسته‌بندی تحقیقات انجام شده در ادبیات

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A survey of scheduling problems with setup times or costs

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Received 16 October 2005; accepted 12 June 2006

Abstract

The first comprehensive survey paper on scheduling problems with separate setup times or costs was conducted by [Allahverdi, A., Gupta, J.N.D., Aldowaisan, T., 1999. A review of scheduling research involving setup considerations. OMEGA The International Journal of Management Sciences 27, 219–239], who reviewed the literature since the mid-1960s. Since the appearance of that survey paper, there has been an increasing interest in scheduling problems with setup times (costs) with an average of more than 40 papers per year being added to the literature. The objective of this paper is to provide an extensive review of the scheduling literature on models with setup times (costs) from then to date covering more than 300 papers. Given that so many papers have appeared in a short time, there are cases where different researchers

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A comprehensive review and evaluation of permutation flowshop heuristics

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Received 1 November 2002; accepted 1 January 2004
Available online 25 May 2004

Abstract

In this work we present a review and comparative evaluation of heuristics and metaheuristics for the well-known permutation flowshop problem with the makespan criterion. A number of reviews and evaluations have already been proposed. However, the evaluations do not include the latest heuristics available and there is still no comparison of metaheuristics. Furthermore, since no common benchmarks and computing platforms are used, the results cannot be generalised. We propose a comparison of 25 methods, ranging from the classical Johnson's algorithm or dispatching rules to the most recent metaheuristics, including tabu search, simulated annealing, genetic algorithms, iterated local search and hybrid techniques. For the evaluation we use the standard test of Taillard [Eur. J. Operation. Res. 64 (1993) 278] composed of 120 instances of different sizes. In the evaluations we use the experimental design approach to obtain

ساختار نگارش

ساختار نگارش

- **یک سئوال اساسی:**
  - شانس چاپ کدام یکی از مقالات زیر بیشتر است؟
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    - یک مقاله با محتوای نسبتا خوب اما نگارش قوی.

نوشتن مناسب و صحیح مقاله به اندازه تحقیق اهمیت دارد.

- **نوشتن مناسب یک مقاله**
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- **جمع بندی**
  - مطمئن شوید که می‌دانید چه می‌خواهید بگویید.
  - مطمئن شوید که آنچه که می‌خواهید بگویید را درست منتقل کرده‌اید.

عدم رعایت اصول نگارش منتهی به چنین جوابی خواهد شد.

REFEREE REPORT

Title:

General flowshop scheduling problem with the sequence dependent setup times: a heuristic approach

This paper presents simple heuristics for the permutation flowshop problem with sequence dependent setup times as well as a local search phase that results in limited general (no non-permutation) schedules.
Overall, the paper is plainly horrible. I am sorry to be so direct, and I am going to be constructive and comprehensive in my comments, but really, the paper is amateurish at best. The English used is sub-standard with many errors that could have been fixed by simply using a spell checker. The paper is extremely short and lacks many details and explanations, the results are really hard to believe and misleading as I will show. The list of problems is endless.
As a result, I strongly recommend the rejection of the manuscript. Furthermore, the authors should seriously consider all my comments so that they learn from their mistakes and they are able to send good papers in the future. Below I substantiate my recommendations.

اصول نگارش یک مقاله علمی

- کوتاه و در عین حال کامل بودن مقاله
- رعایت ساده‌نویسی
- واضح و صریح بودن (یک نوشته در صورتی واضح است که هرگز بصورت اشتباه درک نشود)
- وظیفه خواننده دنبال کردن تفکرات نویسنده است (مرتب کردن ذهن خواننده برای درک بهتر مطلب).
- خواننده جمله بعدی را همان طور که حدس می‌زند ببیند.
- خواننده همان‌طور که شما دوست دارید فکر کند.
- دور نشدن از بحث اصلی مقاله.

انحراف از شرح جنگل به دلیل ارائه توضیح های زیاد در مورد بلندی درختان

- **نشانه هایی از انحراف یک مقاله از موضوع اصلی**
  - ارائه فهرستی طولانی از کارهای سایرین
  - فهرستی طولانی از متغیرهای قابل بررسی
  - ارائه فهرستی از داده‌ها بصورت‌های مختلف که بعدا مورد استفاده قرار نمی‌گیرند.

اعتبار یک مقاله

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- معتبر نبودن یک تحقیق در صورت چاپ در یک مجله غیر متعبر

ویژگی‌ها

- ارزیابی فرایندهای عقلانی و فکری نویسنده مقاله
- دسترسی به مشاهده‌ها
- امکان تکرار تجربه‌ها
- نگارش شده بر مبنای اصول نگارش مقاله‌های علمی
- رعایت اصول نگارش مجله انتخاب شده
- رعایت اصول اخلاق علمی


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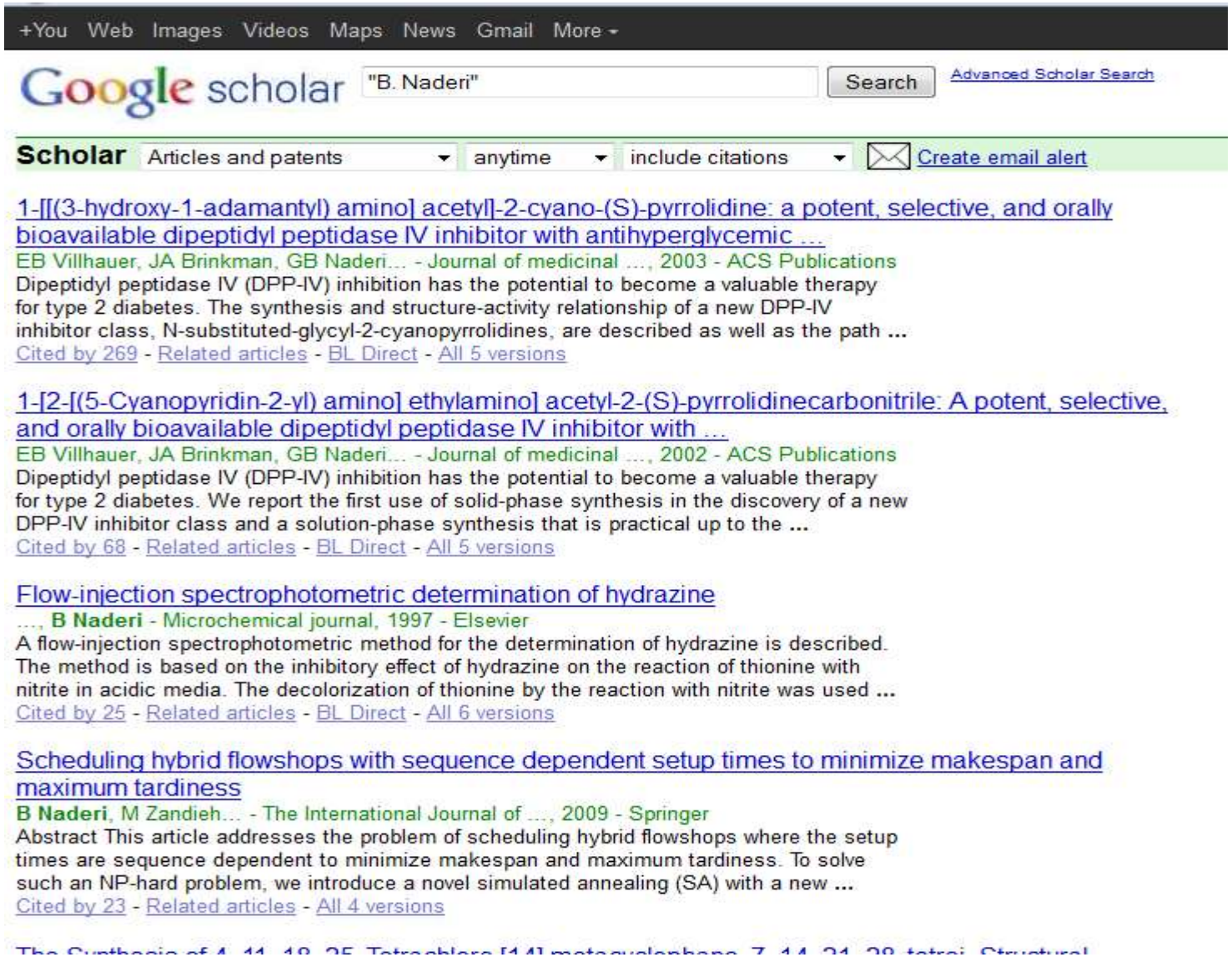

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Flow-injection spectrophotometric determination of hydrazine
..., **B Naderi** - Microchemical journal, 1997 - Elsevier
A flow-injection spectrophotometric method for the determination of hydrazine is described. The method is based on the inhibitory effect of hydrazine on the reaction of thionine with nitrite in acidic media. The decolorization of thionine by the reaction with nitrite was used ...
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Scheduling hybrid flowshops with sequence dependent setup times to minimize makespan and maximum tardiness
B Naderi, M Zandieh... - The International Journal of ..., 2009 - Springer
Abstract This article addresses the problem of scheduling hybrid flowshops where the setup times are sequence dependent to minimize makespan and maximum tardiness. To solve such an NP-hard problem, we introduce a novel simulated annealing (SA) with a new ...
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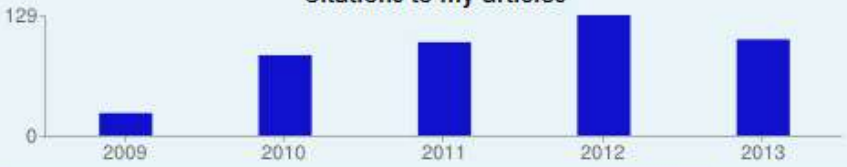

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Scheduling hybrid flowshops with sequence dependent setup times to minimize makespan and maximum tardiness B Naderi, M Zandieh, V Roshanaei The International Journal of Advanced Manufacturing Technology 41 (11-12 ...	45	2009
Electromagnetism-like mechanism and simulated annealing algorithms for flowshop scheduling problems minimizing the total weighted tardiness and makespan B Naderi, R Tavakkoli-Moghaddam, M Khalili Knowledge-Based Systems 23 (2), 77-85	40	2010
A variable neighborhood search for job shop scheduling with set-up times to minimize makespan		

- ساختار نگارش یک مطلب
  - کلمه‌ها
  - جمله‌ها
  - پاراگراف‌ها

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دزدی آکادمیک Academic plagiarism

- دزدی آکامیک زمانی رخ داده است که نویسنده بیش از ۴ کلمه متوالی از یک منبع چاپ شده بدون استفاده از علامت " " بکار برد.

- انواع دزدی آکادمیک
  - ارائه یافته‌های علمی دیگران به نام خود
  - استفاده از متن ارائه شده توسط دیگران

Original source (text)

Alvin Kernan, *The Playwright as Magician*. New Haven: Yale University Press, 1979. pp. 102–103.

From time to time this submerged or latent theater in becomes almost overt. It is close to the surface in Hamlet's pretense of madness, the "antic disposition" he puts on to protect himself and prevent his antagonists from plucking out the heart of his mystery. It is even closer to the surface when Hamlet enters his mother's room and holds up, side by side, the pictures of the two kings, Old Hamlet and Claudius, and proceeds to describe for her the true nature of the choice she has made, presenting truth by means of a show. Similarly, when he leaps into the open grave at Ophelia's funeral, ranting in high heroic terms, he is acting out for Laertes, and perhaps for himself as well, the folly of excessive, melodramatic expressions of grief.

Verbatim plagiarism, or unacknowledged direct quotation (lifted passages are underlined)

Almost all of Shakespeare's Hamlet can be understood as a play about acting and the theater. For example, there is Hamlet's pretense of madness, the "antic disposition" that he puts on to protect himself and prevent his antagonists from plucking out the heart of his mystery. When Hamlet enters his mother's room, he holds up, side by side, the pictures of the two kings, Old Hamlet and Claudius, and proceeds to describe for her the true nature of the choice she has made, presenting truth by means of a show. Similarly, when he leaps into the open grave at Ophelia's funeral, ranting in high heroic terms, he is acting out for Laertes, and perhaps for himself as well, the folly of excessive, melodramatic expressions of grief.

Original source (text)

From time to time this submerged or latent theater in *Hamlet* becomes almost overt. It is close to the surface in Hamlet's pretense of madness, the "antic disposition" he puts on to protect himself and prevent his antagonists from plucking out the heart of his mystery. It is even closer to the surface when Hamlet enters his mother's room and holds up, side by side, the pictures of the two kings, Old Hamlet and Claudius, and proceeds to describe for her the true nature of the choice she has made, presenting truth by means of a show. Similarly, when he leaps into the open grave at Ophelia's funeral, ranting in high heroic terms, he is acting out for Laertes, and perhaps for himself as well, the folly of excessive, melodramatic expressions of grief.

Lifting selected passages and phrases without proper acknowledgment (lifted passages are underlined)

Almost all of Shakespeare's *Hamlet* can be understood as a play about acting and the theater. For example, in Act 1, Hamlet adopts a pretense of madness that he uses to protect himself and prevent his antagonists from discovering his mission to revenge his father's murder. He also presents truth by means of a show when he compares the portraits of Gertrude's two husbands in order to describe for her the true nature of the choice she has made. And when he leaps in Ophelia's open grave ranting in high heroic terms, Hamlet is acting out the folly of excessive, melodramatic expressions of grief.

Original source (text)

From time to time this submerged or latent theater in Hamlet becomes almost overt. It is close to the surface in Hamlet's pretense of madness, the "antic disposition" he puts on to protect himself and prevent his antagonists from plucking out the heart of his mystery. It is even closer to the surface when Hamlet enters his mother's room and holds up, side by side, the pictures of the two kings, Old Hamlet and Claudius, and proceeds to describe for her the true nature of the choice she has made, presenting truth by means of a show. Similarly, when he leaps into the open grave at Ophelia's funeral, ranting in high heroic terms, he is acting out for Laertes, and perhaps for himself as well, the folly of excessive, melodramatic expressions of grief.

Paraphrasing the text while maintaining the basic paragraph and sentence structure

Almost all of Shakespeare's Hamlet can be understood as a play about acting and the theater. For example, in Act 1, Hamlet pretends to be insane in order to make sure his enemies do not discover his mission to revenge his father's murder. The theme is even more obvious when Hamlet compares the pictures of his mother's two husbands to show her what a bad choice she has made, using their images to reveal the truth. Also, when he jumps into Ophelia's grave, hurling his challenge to Laertes, Hamlet demonstrates the foolishness of exaggerated expressions of emotion.

Academic plagiarism دزدی آکادمیک

- مرجع را صریح ذکر نمایید.

- **Plagiarism:**

  Professor Hexham brilliantly observes that Hertzog recognized the danger and stood up for the rights of the Afrikaner. Only the National Party offered a Christian solution to South Africa's racial problems. The politics of the nationalists, were in the view of *Het Westen*, unquestionably Christian. The Afrikaner People were a Christian people, therefore their politics must of necessity be Christian.

- **Correct usage:**

  Hexham writes "But General Hertzog recognized the danger and stood up for the rights of the Afrikaner. Only the National Party offered a Christian solution to South Africa's racial problems. The politics of the nationalists, were in the view of *Het Westen*, unquestionably Christian. The Afrikaner People were a Christian people, therefore their politics must of necessity be Christian."

کلمه‌ها

- استفاده از کلمات ساده
- استفاده از کلمه مناسب از میان کلمه‌های مترادف
- ایراد بزرگ: استفاده از تعدادی کلمات عمومی محدود

- It is frequently used.
- It is widely used.
- It is frequently utilized.

کلمه‌ها

- انتخاب کلمه‌های تخصصی مناسب

  درک اشتباه در اثر استفاده نامناسب از کلمه‌ها

- ایراد بزرگ: نگارش یک مقاله تخصصی با کلمات عمومی

- مثال: در مباحث مالی
  - خریدن: Long position
  - فروختن: Short position

- **عدم استفاده از کلمات نادقیق**
  - The length of the plastic was changed.
  - Animals were studied 4-9 weeks later.
  - The wood was heated for several hours.

- **عدم استفاده از کلمات غیر ادبی و متداول در محاوره**
  - انشاالله ...
  - دستش درد نکند ...
  - Don't

  - Wrong: The length has got no thing to do with its temperature.
  - Correct: The length does not impact on its temperature.

- استفاده مناسب از قیدها
  - I hit him in the eye yesterday.
  - I hit him in the eye yesterday only.
  - I hit only him in the eye yesterday.
  - I only hit him in the eye yesterday.
- نگارش حرفی اعداد یک رقمی و عددی اعداد بزرگتر
- Three algorithms
- 12 algorithms

- Abbreviation: در صورت تکرار زیاد یک کلمه آن را مخفف کنیم.

More formally, we define the sequence dependent setup times hybrid flexible flowshop (SDST/HFFS) as follows: a set N of jobs, $N=\{1,\ldots,n\}$ have to be processed in a set M of stages, $M=\{1,\ldots,m\}$. At every stage i, $i \in M$ we have a set $M_i=\{1,\ldots,m_i\}$ of identical parallel machines. Every machine at each stage is capable of processing all the jobs. Each job has to be processed in exactly one out of the m_i identical parallel machines at each stage i. However, not every job has to visit each stage. We denote by F_j the set of stages that job j, $j \in N$ has to visit. Obviously, $1 \leq |F_j| \leq m$. Furthermore, since we are dealing with a flowshop, only stage skipping is allowed, for example, it is not possible for a given job to visit stages {1, 2, 3} and another one to visit stages {3, 2, 1}. The processing time of job j at stage i is denoted by p_{ij}. Lastly, S_{ijk} denotes the setup time between jobs j and k, $k \in N$ at stage i. The optimization criterion is the minimization of the maximum completion time or makespan. C_j denotes the completion time of job j, which is basically when the job is finished at its last visited stage. The makespan is calculated as $C_{max}=\max_{j\in N}\{C_j\}$. Vignier et al. [11] extended the three field notation for hybrid flowshops. With this in mind, the SDST/HFFS problem studied in this paper can be denoted as $HFFSm$, $((PM^{(i)})_{i=1}^{m})/F_j$, S_{ijk}/C_{max}. Notice that makespan criterion has been sometimes criticized for not being realistic. However, in a make-to-stock environment, where products are manufactured to refill stocks, increasing throughput (which is related to minimizing makespan) is a very important measure. Furthermore, in short term finite capacity scheduling, due dates might be distant in the future and it might be easy to fulfill all of them. In all these scenarios, minimizing makespan is preferable. Realistic scheduling with makespan criterion has been also studied and motivated by Ruiz and Maroto [3] and Ruiz et al. [12].

Additionally, the following usual assumptions are also considered in the SDST/HFFS:

2. Literature review of SDST hybrid flexible flowshops

Since Johnson's pioneering work [17] on the two-machine regular permutation flowshop, a large number of studies have been published about scheduling. Citing only the review papers that have appeared in the last years will need probably several references. Recall that the SDST/HFFS problem considered in this paper has three main characteristics that are jointly considered: hybrid setting, where there are parallel machines at each stage; flexibility, where stages might be skipped; and sequence dependent setup times. In the literature, we find reviews of each one of these three characteristics and we refer the reader to them for more details. Hybrid flowshops are reviewed in [11,18]. More recently, Kis and Pesch [19] have published a review about exact techniques for hybrid flowshops. Notice that the literature on hybrid flowshops, with identical parallel machines per stage and no setups, is plenty. Some recent references are the study of Haouari and Hidri [20] in lower bounds or the metaheuristics proposed by Jin et al. [21]. Flexible flowshops, often referred to as flexible flow line problems, are reviewed in [22], among others. Lastly, and as commented, setup time scheduling is excellently reviewed by Allahverdi et al. [4,5].

However, from all these reviews and to the best of our knowledge, the studies about SDST/HFFS–which is, in reality, a generalization of all the previous problems–are really scarce. Kurz and Askin [14] consider dispatching rules for the SDST/HFFS. They investigate three classes of heuristics based on simple greedy methods, in... tion heuristics and adaptations of Johnson's rule. Later, Kur... Askin [15] formulate the SDST/HFFS as an integer programmin... model. Because of the difficulty in solving the IP model directly, they develop a random keys genetic algorithm (RKGA). Problem data are generated to compare the RKGA against other heuristic rules. Zandieh et al. [16] propose an immune algorithm, and compare it

جمله ها

- درک بهتر با جمله‌های ساده و کوتاه
- ایراد بزرگ: استفاده از جملات بلند

such NP-hard problems and gives inferior performance compared with meta-heuristic algorithms; however, it is known that the performances of genetic algorithms strongly depends on the choice of the operators and parameters (Ruiz *et al.* 2006).

In this work we present a high-performing genetic algorithm (GA) for the problem. Hence, having reviewed different operators and tuned the GA parameters appropriately, we explore the impact of the fine-tuning of the operators and parameters on the performance of the genetic algorithm by means of the Taguchi optimisation technique, which is widely used in quality engineering to build robustness into an experimental setup (Eddie *et al.* 2006). We have been motivated to utilise the Taguchi method because it is regarded as a cost-effective and labour-saving method. It can investigate simultaneously several factors and distinguish quickly those that have principal impacts by carrying out a

جمله ها

- استفاده مناسب از علامت‌ها

- **Wrong**: Two different methods are developed . The first one is …
- **Correct**: Two different methods are developed. The first one is …

- **Wrong**: on shops ; moreover ,all mentioned papers
- **Correct**: on shops; moreover, all mentioned papers

- پرهیز از استعاره و تشبیه

- استفاده از زمان حال برای بیان مطلب اثبات شده
  - The results show a definite improvement.
  - The algorithm is designed so as to consider …..

- توصیه:
  - موضوع اصلی جمله را به عنوان فاعل استفاده کنید.
  - عمل انجام شده روی موضوع را به عنوان فعل بکار ببرید.

- Two different experiments are carried out to analyze the performance.
- The performance is analyzed by two different experiments.

- مجهول بودن جملات

- Wrong: In Table 1, we present the trend …
- Correct: The trend …. is presented in Table 1.
- Correct: Table 1 presents the trend …

پاراگراف

- نکات:
  - تطابق ضمیر با مرجع
  - تطابق فعل و فاعل
  - رعایت حجم یک پاراگراف (عدم وجود پاراگراف ۱.۵ خطی)

پاراگراف

- ارائه مرتب ایده‌های مرتبط در یک پاراگراف
- متصل کردن عبارات و جملات مرتبط

Moreover, Also, Furthermore, Besides

Thus, Hence, Therefore, As a result

Although, However,

To do so, To this end,

Since, Because

In other words, That is

Where, While

Modeling realistic hybrid flexible flowshop scheduling problems

Rubén Ruiz[a,*], Funda Sivrikaya Şerifoğlu[b], Thijs Urlings[c]

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of the art for different scheduling environments also allow us to draw similar conclusions (see [10,11] or [12]). The results of the statistical review of Reisman et al. [13] are also interesting, from a total of 184 reviewed papers, only five (less than a 3%) dealt with realistic production settings.

There is a recent trend where research work is targeting at providing solution approaches to more realistic problems. However, there has been little effort towards providing models to complex scheduling problems where many realistic situations are jointly considered. In this paper, we propose a new formulation along with a mixed integer mathematical model and some heuristics for a problem that tackles highly realistic flowshop scheduling environments where we find many simultaneous restrictions and characteristics. These include release dates for machines, unrelated parallel machines at each stage, sequence-dependent setups on machines, machine eligibility, time lags on operations and precedence constraints among jobs. While this set of characteristics might seem excessive, problems found in real life contain many of them. Some examples are the food processing industry, where one finds many canning lines with different unrelated machines, with setups and lags in order to ensure/avoid cooling of product before sealing cans. Other examples are the ceramic tile manufacturing or the processing of wood and the manufacture of furniture. We aim at investigating the effect of including such realistic considerations on problem difficulty. In order to test the performance of the proposed model and to characterize the factors that affect its performance we have solved a comprehensive benchmark and then analyzed the results by means of advanced statistical tools that, to the best of our knowledge, have not been applied in this context before. These tools are automatic interaction detection (AID) techniques and their derivatives along with decision trees. The results of the thorough analysis allow us to identify which characteristi the complex problem considered result in harder to solve problems. For solving realistically sized problems, w have employed various heuristic rules.

- از which و that کمتر استفاده کنید.

A new heuristic parallel simulated annealing algorithm for travelling salesman problem with different transporters and budget constraint

Abstract

In today's competitive transportation systems, passengers search to find traveling agencies that provide services to them with the least traveling times with reasonable transportation costs. In this paper, we present a new model for the traveling salesman problem with different transporters and budget constraint (TSPDTBC), which means that each city has different transporter vehicles and the cost of travel through each city is depended on the type of transporter vehicles, the aim is to determine an optimal sequence of visited cities with minimum traveling times by available transporter vehicles and limited budget in hand. First, the mathematical model of TSPDTBC is presented. Next, as the model is such an NP-hard one, we propose a new heuristic parallel simulated annealing algorithm with new coding scheme. To analyze the performance of proposed algorithm, 50 numerical examples with different budget types have been presented and were solved by the algorithm and compared to direct parallel simulated annealing. The results of this comparisons show that our algorithm is an excellent approach and demonstrate to deal with the real world application.

Keywords: Traveling salesman problem; transporter vehicles, Budget constraint; Mathematical programming;Simulated annealing algorithm.

- ارائه یک مطلب خاص در هر پاراگراف
- مرور کلی مطلب در جمله ابتدایی پاراگراف و سپس ارائه جزییات

Considering scheduling and preventive maintenance in the flowshop sequencing problem

1. Introd

Production scheduling is one of the most important tasks carried out in manufacturing systems. It is responsible for the scheduling of jobs in machines and the specification of the sequence and time to be carried out. Some productive systems present a special configuration that has been widely studied in the literature. This configuration implies a natural ordering of the machines in the shop, in such a way that the jobs go through the same machines in the same order. This type of configuration is called flowshop.

Another task closely related to production scheduling in industrial settings is maintenance, understood as the operations or techniques that allow to maintain or restore equipment to a specific state and guarantee a given service. Usually, scheduling of maintenance operations and production sequencing are dealt with separately in the literature and, therefore, also in the industry. Both activities conflict since, as it is known, maintenance operations consume production time whereas delaying maintenance operations until the production sequence allows a period of free time may increase the probability of machine failure.

The objective of this paper is to provide tools that allow flowshop production scheduling by implicitly taking into consideration the necessary maintenance operations to achieve a high level of reliability in machines. Preventive maintenance (PM) operations are first calculated and then sequenced along with the operations to be performed in the flowshop. This problem has been chosen because it is a very active field of research inside scheduling.

The paper is structured as follows: Section 2 introduces the topic and the basic concepts on preventive maintenance. Section 3 describes the problem under study in this paper: the permutation flowshop. Section 4 deals with the criterion scheduling preventive maintenance operations to the production sequence. Section 5 experiments with six heuristic metaheuristic methods and carries out two experimental computations with 3600 instances each to show the efficiency of the methods used. Finally, Section 6 presents the conclusions of this paper.

- رعایت پیوستگی بین پاراگراف‌ها

مقاله Distributed job shop

بخش‌های مختلف یک مقاله علمی

قسمت‌های اصلی یک مقاله

	بخش	هدف
۱	Title	عنوان
۲	Authors' information	اطلاعات نویسندگان
۳	Abstract	چکیده از آنچه در مقاله
۴	Keywords	کلمات کلیدی نشان دهنده ماهیت موضوعی مقاله
۵	Introduction	پرسش تحقیقی مقاله (تعاریف و اهیمت)
۶	Materials and Method	روش‌های یافتن پاسخ
۷	Results	ارائه نتایج تحقیق و تحلیل آنها
۸	Conclusion	جمع‌بندی و ارائه نتایج تحقیق
۹	References	ارائه مراجع مورد استفاده

Title

- هدف: مشخص کردن موضوع تحقیق، خصوصیت‌های مسئله و نوآوری ارائه شده در مقاله

- ویژگی‌ها:
  - جذاب (هدف پنهان: جذب خوانندگان)
  - کوتاه (۱۰-۶ کلمه)
  - جمله ناقص (فعل ندارد)

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Two new robust genetic algorithms for the flowshop scheduling problem

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Abstract

The flowshop scheduling problem (FSP) has been widely studied in the literature and many techniques for its solution have been proposed. Some authors have concluded that genetic algorithms are not suitable for this hard, combinatorial problem unless hybridization is used. This work proposes new genetic algorithms for solving the permutation FSP that prove to be competitive when compared to many other well known algorithms. The optimization criterion considered is the minimization of the total completion time or makespan (C_{max}). We show a robust genetic algorithm and a fast hybrid implementation. These algorithms use new genetic operators, advanced techniques like hybridization with local search and an efficient population initialization as well as a new generational scheme. A complete evaluation of the different parameters and operators of the algorithms by means of a Design of Experiments approach is also given. The algorithm's effectiveness is compared against 11 other methods, including genetic algorithms, tabu search, simulated annealing and other advanced and recent techniques. For the evaluations we use Taillard's well known standard benchmark. The results show that the proposed algorithms are very effective and at the same time are easy to implement.
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Keywords: Flowshop; Genetic algorithms; Local search

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Discrete Optimization

Cooperative metaheuristics for the permutation flowshop scheduling problem

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Received 11 April 2007; accepted 5 November 2007

Abstract

In this work, we propose cooperative metaheuristic methods for the permutation flowshop scheduling problem considering two objectives separately: total tardiness and makespan. We use the island model where each island runs an instance of the algorithm and communications start when the islands have reached certain level of evolution, that is, communication is not allowed from the beginning of the execution. Subsequent ones occur when new better solutions are found. We carry out an exhaustive comparison of the cooperative methods against the sequential counterparts running in completely comparable scenarios. Results have been carefully analysed by means of statistical procedures and we can conclude that the cooperative methods yield much better results than the sequential algorithms and state-of-the-art methods running in the same number of processors but without communications. The proposed cooperative schemes are easy to apply to other algorithms and problems.
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Keywords: Cooperative metaheuristics; Scheduling; Permutation flowshop; Total tardiness; Makespan

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Complexity of flow shop scheduling problems with transportation constraints

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Available online 27 November 2003

Abstract

In most manufacturing and distribution systems, semi-finished jobs are transferred from one processing facility to another by transporters such as Automated Guided Vehicles, robots and conveyors, and finished jobs are delivered to warehouses or customers by vehicles such as trucks.

This paper investigates two-machine flow shop scheduling problems taking transportation into account. The finished jobs are transferred from the processing facility and delivered to customers by truck. Both transportation capacity and transportation times are explicitly taken into account in these models. We study the class of flow shop problems by

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Heuristics for hybrid flow shops with controllable processing times and assignable due dates

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Abstract

This paper considers a generalization of the permutation flow shop problem that combines the scheduling function with the planning stage. In this problem, each work center consists of parallel identical machines. Each job has a different release date and consists of ordered operations that have to be processed on machines from different machine centers in the same order. In addition, the processing times of the operations on some machines may vary between a minimum and a maximum value depending on the use of a continuously divisible resource. We consider a nonregular optimization criterion based on due dates which are not a priori given but can be fixed by a decision-maker. A due date assignment cost is included into the objective function. For this type of problems, we generalize well-known approaches for the heuristic solution of classical problems and propose constructive algorithms based on job insertion techniques and iterative algorithms based on local search. For the latter, we deal with the design of appropriate neighborhoods to find better quality solution. Computational results for problems with up to 20 jobs and 10 machine centers are given.

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A genetic algorithm for hybrid flowshops with sequence dependent setup times and machine eligibility

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Available online 14 March 2005

Abstract

After 50 years of research in the field of flowshop scheduling problems the scientific community still observes a noticeable gap between the theory and the practice of scheduling. In this paper we aim to provide a metaheuristic, in the form of a genetic algorithm, to a complex generalized flowshop scheduling problem that results from the addition of unrelated parallel machines at each stage, sequence dependent setup times and machine eligibility. Such a problem is common in the production of textiles and ceramic tiles. The proposed algorithm incorporates new characteristics and four new crossover operators. We show an extensive calibration of the different parameters and operators by means of experimental designs. To evaluate the proposed algorithm we present several adaptations of other well-known and recent metaheuristics to the problem and conduct several experiments with a set of 1320 random instances as well as with real data taken from companies of the ceramic tile manufacturing sector. The results indicate that the proposed algorithm is more effective than all other adaptations.
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An improved simulated annealing for hybrid flowshops with sequence-dependent setup and transportation times to minimize total completion time and total tardiness

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Keywords:

ABSTRACT

In this communication, we strive to apply a novel simulated annealing to consider scheduling hybrid

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Algorithms for a realistic variant of flowshop scheduling

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ARTICLE INFO

Available online 12 May 2009

Keywords:
Scheduling
Hybrid flexible flowshops
Sequence dependent setup times
Dynamic dispatching rule heuristic
Iterated local search metaheuristic

ABSTRACT

This paper deals with a realistic variant of flowshop scheduling, namely the hybrid flexible flowshop. A hybrid flowshop mixes the characteristics of regular flowshops and parallel machine problems by considering stages with parallel machines instead of having one single machine per stage. We also investigate the flexible version where stage skipping might occur, i.e., not all stages must be visited by all jobs. Lastly, we also consider job sequence dependent setup times per stage. The optimization criterion considered is makespan minimization. While many approaches for hybrid flowshops have been proposed, hybrid flexible flowshops have been rarely studied. The situation is even worse with the addition of sequence dependent setups. In this study, we propose two advanced algorithms that specifically deal with the flexible and setup characteristics of this problem. The first algorithm is a dynamic dispatching rule heuristic, and the second is an iterated local search metaheuristic. The proposed algorithms are evaluated by comparison against seven other high performing existing algorithms. The statistically sound results support the idea that the proposed algorithms are very competitive for the studied problem.

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The distributed permutation flowshop scheduling problem

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Keywords:
Distributed scheduling
Permutation flowshop
Mixed integer linear programming
Variable neighborhood descent

ABSTRACT

This paper studies a new generalization of the regular permutation flowshop scheduling problem (PFSP) referred to as the distributed permutation flowshop scheduling problem or DPFSP. Under this generalization, we assume that there are a total of F identical factories or shops, each one with m machines disposed in series. A set of n available jobs have to be distributed among the F factories and then a processing sequence has to be derived for the jobs assigned to each factory. The optimization criterion is the minimization of the maximum completion time or makespan among the factories. This production setting is necessary in today's decentralized and globalized economy where several production centers might be available for a firm. We characterize the DPFSP and propose six different alternative mixed integer linear programming (MILP) models that are carefully and statistically analyzed for performance. We also propose two simple factory assignment rules together with 14 heuristics based on dispatching rules, effective constructive heuristics and variable neighborhood descent methods. A comprehensive computational and statistical analysis is conducted in order to analyze the performance of the proposed methods.

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Considering scheduling and preventive maintenance in the flowshop sequencing problem

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Abstract

The aim of this paper is to propose tools in order to implicitly consider different preventive maintenance policies on machines regarding flowshop problems. These policies are intended to maximize the availability or to keep a minimum level of reliability during the production horizon. It proposes a simple criterion to schedule preventive maintenance operations to the production

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DOI 10.1007/s00170-005-2529-9

ORIGINAL ARTICLE

J. Jerald · P. Asokan · R. Saravanan · A. Delphin Carolina Rani

Simultaneous scheduling of parts and automated guided vehicles in an FMS environment using adaptive genetic algorithm

Received: 18 October 2004 / Accepted: 20 December 2004 / Published online: 21 December 2005
© Springer-Verlag London Limited 2005

Abstract Automated Guided Vehicles (AGVs) are among various advanced material handling techniques that are finding increasing applications today. They can be interfaced to various other production and storage equipment and controlled through an intelligent computer control system. Both the scheduling of operations on machine centers as well as the scheduling of AGVs are essential factors contributing to the efficiency of the overall flexible manufacturing system (FMS). An increase in the performance of the FMS under consideration would be expected as a result of making the scheduling of AGVs an integral part of the overall scheduling activity. In this paper, simultaneous scheduling of parts and AGVs is done for a particular type of the adaptive genetic algorithm. The results are compared to those obtained by conventional genetic algorithm.

Keywords Adaptive genetic algorithm · Automatic guided vehicles · Flexible manufacturing system · Genetic algorithm and scheduling

1 Introduction

Rapid advances in technology and changes in demand pa
to include customized features in manufactured products

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- هدف: معرفی نویسندگان
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Discrete Optimization

Cooperative metaheuristics for the permutation flowshop scheduling problem

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Abstract

In this work, we propose cooperative metaheuristic methods for the permutation flowshop scheduling problem considering two objectives separately: total tardiness and makespan. We use the island model where each island runs an instance of the algorithm and communications start when the islands have reached certain level of evolution, that is, communication is not allowed from the beginning of the execution. Subsequent ones occur when new better solutions are found. We carry out an exhaustive comparison of the cooperative methods against the sequential counterparts running in completely comparable scenarios. Results have been carefully analysed by means of statistical procedures and we can conclude that the cooperative methods yield much better results than the sequential algorithms and state-of-the-art methods running in the same number of processors but without communications. The proposed cooperative schemes are easy to apply to other algorithms and problems.
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Keywords: Cooperative metaheuristics; Scheduling; Permutation flowshop; Total tardiness; Makespan

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Modeling realistic hybrid flexible flowshop scheduling problems

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Robotics and Computer-Integrated Manufacturing

Evaluations of operational control rules in scheduling a flexible manufacturing system

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Heuristic constructive algorithms for open shop scheduling to minimize mean flow time

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  - مسئولیت تمامی مطالب توسط تمامی نویسندگان
  - یک اسم یکسان را در تمامی مقاله‌ها استفاده کنید.
  - نویسنده مسئول مکاتبات Corresponding author

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سبقت از سایه ها به بیشتر دویدن نیست!

به سوی نور که باشی، سایه‌ها در پس تواند،

حتی آنگاه که ایستاده‌ای.