

Summary Compilation: Advanced Computational Approaches for Medical Resource Scheduling

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2024-01-17

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Preface

This summary compilation is created to track the reviewed and analysed literature materials in scope of advanced computational approaches for medical resource scheduling.

Review #0001

Short Summary

“Artificial Intelligence for Patient Scheduling in the Real-World Health Care Setting: A Metanarrative Review” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **5 group**. After grasping **90%** of the work’s content, the reviewed work get **B+ general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0001US23**

Initial reference: **x034**

Short note: *RAMESES publication standards*

The original **article** can be accessed by the following URL: <https://doi.org/10.1016/j.hlpt.2023.100824>

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Keywords

Appointments and schedules Artificial intelligence Decision support systems – clinical Machine learning Patient care Resource allocation
Colours explained: *Method, Objectives, Subject, Property, Tool*

Research Methods

Source References

Databases

Search Databases

Medical Datasets

Classification

Patient Types

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Level of Integration

Constraints

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Focus Review

Summary

Dacre Knight et al. [?] conducted a metanarrative literature review for Artificial Intelligence and Machine Learning technologies implemented in healthcare. The researchers define three types of studies: pre-pilot, pilot and implemented. Major databases were searched on August 14, 2020, and only the publications of the third type were selected for deeper review. The

review paper highlights the advantages and obstacles of using AI technologies in healthcare. The authors consider their work's limitations and outline future research directions.

Objectives

The artificial intelligence and machine learning approaches are uncharted territory in the optimal scheduling.

Methods

The authors use systematic review of publications starting from August 2020. The reviews of literature were conducted by two independent specialists per each article.

Results

Areas of AI application are: double-booking, missed appointment risk, wait time, disease-type matching performance, scheduling efficiency, examination length prediction, and surgical operation time.

Conclusions

Prooved the AI competence and found new ravenues for development

Notes

- Studies split into three stages: pre-pilot, pilot, implementation;
- 11 implemented works;
- general statements, low-on-insights reviw;
- 2 reviewers + consultant investigator

Review #0002

Short Summary

“Current Trends in Operating Room Scheduling 2015 to 2020: a Literature Review” is published in **2022**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **5 group**. After grasping **95%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:**SR0002US22**

Initial reference:**x079**

Short note:*Reviews cascade 2000-2020*

The original **article** can be accessed by the following URL:<https://doi.org/10.1007/s43069-022-00134-y>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

Research Methods

Source References

Databases

Search Databases

Medical Datasets

Classification

Patient Types

Decision Levels

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Constraints

Bias Assessment

Scan Review

Focus Review

All-In Review

Master Review

Review #0003

Short Summary

“Machine learning models to predict surgical case duration compared to current industry standards: scoping review” is published in **2023**, and in the current study it represents **analyser** domain. Objectives of the published material are: *Compare the novel machine learning approaches for predicting surgical case duration to present industry standards..* The material was **analysed** and allocated to the **5 group**. After grasping **94%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0003GB23**

Initial reference: **x084**

Short note: *PRISMA, Arksey, and O’Malley*

The original **article** can be accessed by the following URL: <https://doi.org/10.1093/bjsopen/zrad113>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

Research Methods

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Bias Assessment

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Focus Review

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Master Review

Review #0004

Short Summary

“Surgery case scheduling in a multistage operating room department: A literature review” is published in **2018**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **5 group**. After grasping **80%** of the work’s content, the reviewed work get **F general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0004TN18**

Initial reference: **x104**

Short note: *Do not recommend*

The original **article** can be accessed by the following URL: https://www.researchgate.net/publication/326265568_Surgery_case_scheduling_in_a_multistage_operating_room_department_A_literature_review

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

Research Methods

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Review #0005

Short Summary

“Fractured systems: a literature review of OR/MS methods applied to orthopaedic care settings and treatments” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *The aim is to quantify and taxonomise the current state of the OR/MS approaches implemented in orthopaedic department..* The material was **analysed** and allocated to the **5 group**. After grasping **87%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **none declared**, and the funding is **fully funded**.

Local reference:**SR0005GB23**

Initial reference:**x122**

Short note:*Has advanced searching techniques*

The original **article** can be accessed by the following URL:<https://doi.org/10.1080/20476965.2023.2264348>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

Research Methods

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Review #0006

Short Summary

“AI for patient scheduling in the real-world health care setting: A metanarrative review” is published in **2022**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *The work aims to overview the papers in the field of Master Surgery Scheduling Problem, identify trends and address the existing research gaps..* The material was **analysed** and allocated to the **5 group**. After grasping **90%** of the work’s content, the reviewed work get **B general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0007MY22**

Initial reference: **x236**

Short note: *Has solution evaluation methods*

The original **article** can be accessed by the following URL: <https://doi.org/10.1109/ACCESS.2022.3202546>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0008

Short Summary

“Data science, analytics and artificial intelligence in e-health: trends, applications and challenges” is published in **2023**, and in the current study it represents **analyser** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **5 group**. After grasping **93%** of the work’s content, the reviewed work get **C general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **has coi**, and the funding is **partially funded**.

Local reference:**SR0008ES23**

Initial reference:**x249**

Short note:*Data preprocessing + NMF + Python*

The original **article** can be accessed by the following URL:<https://ddd.uab.cat/record/276042>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0009

Short Summary

“Healthcare related event prediction from textual data with machine learning: A Systematic Literature Review” is published in **2022**, and in the current study it represents **analysed** domain. Objectives of the published material are: *Investigate a medical event prediction solution with textual data on the input..* The material was **analysed** and allocated to the **5 group**. After grasping **95%** of the work’s content, the reviewed work get **B general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:SR0009NL22

Initial reference:x349

Short note:Quality assessment method?

The original **article** can be accessed by the following URL:<https://doi.org/10.1016/j.health.2022.100107>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0010

Short Summary

“Integrated Planning in Hospitals: A Review” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *Research the existing literature in scope of healthcare integrated planning..* The material was **analysed** and allocated to the **4 group**. After grasping **96%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **fully funded**.

Local reference: **SR0010NL23**

Initial reference: **x338**

Short note: *Health departments disconnection*

The original **article** can be accessed by the following URL: <https://doi.org/10.48550/arXiv.2307.05258>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0011

Short Summary

“Taxonomic classification of planning decisions in health care: a structured review of the state of the art in OR/MS” is published in **2012**, and in the current study it represents **both** domain. Objectives of the published material are: *Aim to guide health-care professionals in the field of OR/ MS..* The material was **analysed** and allocated to the **6 group**. After grasping **94%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **fully funded**.

Local reference: **SR0011NL12**

Initial reference: **x029**

Short note: *Reach on definitions and descriptions*

The original **article** can be accessed by the following URL: <https://doi.org/10.1057/hs.2012.18>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0012

Short Summary

“Applications of Artificial Intelligence in the Radiology Roundtrip: Process Streamlining, Workflow Optimization, and Beyond” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **6** group. After grasping **85%** of the work’s content, the reviewed work get **C** general grade and **-99** certainty points. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **has coi**, and the funding is **not funded**.

Local reference: **SR0012US23**

Initial reference: **x076**

Short note: *Appropriate Use Criteria CDS model*

The original **article** can be accessed by the following URL: <https://doi.org/10.1053/j.ro.2023.02.003>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0013

Short Summary

“Operating room planning and surgical case scheduling: a review of literature” is published in **2019**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **6 group**. After grasping **95%** of the work’s content, the reviewed work get **B general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **has coi**, and the funding is **multiple funding**.

Local reference: **SR0013CN19**

Initial reference: **x203**

Short note: *Terms definitions*

The original **article** can be accessed by the following URL: <https://doi.org/10.1007/s10878-018-0322-6>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0014

Short Summary

“A Literature Review of Service Capacity Planning for Medical Technology Department” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **6** **group**. After grasping **95%** of the work’s content, the reviewed work get **D** **general grade** and **-99** **certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0014CN23**

Initial reference: **x243**

Short note: *General overview*

The original **article** can be accessed by the following URL: <http://dx.doi.org/10.25236/ajmhs.2023.040306>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0015

Short Summary

“Stochastic optimization approaches for elective surgery scheduling with downstream capacity constraints: Models, challenges, and opportunities” is published in **2022**, and in the current study it represents **both** domain. Objectives of the published material are: *Motivated by research collaboration with a large health system in Pennsylvania..* The material was **analysed** and allocated to the **6 group**. After grasping **84%** of the work’s content, the reviewed work get **A+ general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0015US22**

Initial reference: **x335**

Short note: *Essential work to master*

The original **article** can be accessed by the following URL: <https://doi.org/10.1016/j.cor.2021.105523>

Authors

Keywords

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Review #0016

Short Summary

“Solutions in radiology services management: a literature review” is published in **2015**, and in the current study it represents **none** domain. Objectives of the published material are: *Review existig issues with radiology services: “to develop hypotheses; increase investigators’ awareness of a given environ- ment, fact or phenomenon, in order to further and more ac- curately investigate in the future, or to modify and clarify concepts”*. The material was **rejected** and allocated to the **0 group**. After grasping **98%** of the work’s content, the reviewed work get **E general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:**SR0016BR15**

Initial reference:**x073**

Short note: *With patients in Facebook and Twitter*

The original **article** can be accessed by the following URL:<https://doi.org/10.1590/0100-3984.2014.0065>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0017

Short Summary

“Approaches to the Algorithmic Allocation of Public Resources: A Cross-disciplinary Review” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *To overview of the existing works in the field of public resource allocation and suggest guidance for the policy makers..* The material was **analysed** and allocated to the **6** [group](#). After grasping **98%** of the work’s content, the reviewed work get **B+** [general grade](#) and **-99** [certainty points](#). There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:AR0017GB23

Initial reference:x121

Short note:*Healthcare, disaster relief, organ transplantation, homelessness, welfare;*

The original **article** can be accessed by the following URL:<https://doi.org/10.48550/arXiv.2310.06475>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0018

Short Summary

“Healthcare Operations Research and Management under Pandemics: a Review” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *Increase of social welfare from Healthcare System’s point of view and public policymakers..* The material was **analysed** and allocated to the **6 group**. After grasping **60%** of the work’s content, the reviewed work get **B general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **partially funded**.

Local reference: **SR0018CA23**

Initial reference: **x128**

Short note: *Papers on medical resource allocation under pandemic pressure.*

The original **article** can be accessed by the following URL: <https://optimization-online.org/2023/10/healthcare-operations-research-and-management-under-pandemics-a-review/>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0019

Short Summary

“The effect of overlapping surgical scheduling on operating theatre productivity: a narrative review” is published in **2022**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *Analyse the effect of overlapping surgeries in scope of operation theatre time usage, ethics, training and safety aspects..* The material was **analysed** and allocated to the **6 group**. After grasping **98%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **has coi**, and the funding is **not funded**.

Local reference:**SR0019GB22**

Initial reference:**x333**

Short note:*COVID19 consequence > 6 million patients in waiting list; Turnover = 15% = 72min in 8-h list;*

The original **article** can be accessed by the following URL:<https://doi.org/10.1111/anae.15797>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0020

Short Summary

“Operating room planning and scheduling: A literature review” is published in **2010**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *Summarise the current trends in operating room planning and scheduling, and identify the directions for further research..* The material was **analysed** and allocated to the **6 group**. After grasping **96%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:**SR0020BE10**

Initial reference:**x228**

Short note:*Data envelopment analysis (DEA);*

The original **article** can be accessed by the following URL:<https://doi.org/10.1016/j.ejor.2009.04.011>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0021

Short Summary

“Surgical demand scheduling: a review” is published in **1978**, and in the current study it represents **both** domain. Objectives of the published material are: *To address high medical resource cost, low healthcare facility utilisation, and increasing demand for departments dependent on the surgical suite..* The material was **analysed** and allocated to the **6 group**. After grasping **85%** of the work’s content, the reviewed work get **B general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0021US78**

Initial reference: **x235**

Short note: *Admissions Scheduling and Control System (ASCS);*

The original **article** can be accessed by the following URL: <https://api.semanticscholar.org/CorpusID:46189607>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0022

Short Summary

“A Review of Reinforcement Learning for Natural Language Processing, and Applications in Healthcare” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *Assess the impact of modern technologies on healthcare..* The material was **analysed** and allocated to the **6 group**. After grasping **85%** of the work’s content, the reviewed work get **C general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **none declared**, and the funding is **fully funded**.

Local reference:**SR0022US23**

Initial reference:**x090**

Short note:*General overview of ML tools in health care*

The original **article** can be accessed by the following URL:<https://doi.org/10.48550/arXiv.2310.18354>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0023

Short Summary

“A Comparative Study of Artificial Intelligence Applications in the Healthcare Sector” is published in **2023**, and in the current study it represents **none** domain. Objectives of the published material are: *Analyse the gaps between the practicies of AI in Bahrain and other countries around the world..* The material was **rejected** and allocated to the **0 group**. After grasping **90%** of the work’s content, the reviewed work get **E general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0023US23**

Initial reference: **x101**

Short note: *General overview*

The original **article** can be accessed by the following URL: https://doi.org/10.1007/978-981-99-6101-6_48

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0024

Short Summary

“A Comprehensive Review and Analysis of Operating Room and Surgery Scheduling” is published in **2020**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **2 group**. After grasping **65%** of the work’s content, the reviewed work get **B general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **none declared**, and the funding is **not funded**.

Local reference:**SR0024IR20**

Initial reference:**021IRSchedulingReview2020**

Short note:*Scheduling OT on the strategic, tactical, and operational levels of planning*

The original **article** can be accessed by the following URL:<https://doi.org/10.1007/s11831-020-09432-2>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0025

Short Summary

“Operating Room Turnover Time: Definitions and Future Research Needs” is published in **2019**, and in the current study it represents **analyser** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **2 group**. After grasping **65%** of the work’s content, the reviewed work get **D general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:**SR0025US19**

Initial reference:**023USORTurnover2019**

Short note:*List of possible constrains for OT turnover time estimation*

The original **article** can be accessed by the following URL:<https://doi.org/10.1177/1071181319631301>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0026

Short Summary

“Healthcare scheduling in optimization context: a review” is published in **2021**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *not specified*. The material was **analysed** and allocated to the **2 group**. After grasping **65%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **considers** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:**SR0026MY21**

Initial reference:**024MYSchedulingReview2021**

Short note:*Hard/soft constraints; Open-source db; Specialty statistics*

The original **article** can be accessed by the following URL:<https://doi.org/10.1007/s12553-021-00547-5>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0027

Short Summary

“A state of the art review of intelligent scheduling” is published in **2020**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *Survey intelligent scheduling systems*. The material was **read** and allocated to the **AR group**. After grasping **80%** of the work’s content, the reviewed work get **A general grade** and **3 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:**AR0027IR20**

Initial reference:**032IRSchedulingReview2020**

Short note:*Pros and cons of metaheuristics*

The original **article** can be accessed by the following URL:<https://doi.org/10.1007/s10462-018-9667-6>

Authors

Mohammad Hossein Fazel Zarandi*Department of Industrial Engineering, Amirkabir University of Technology, Tehran, Iran* **Ali Akbar Sadat Asl***Department of Industrial Engineering, Amirkabir University of Technology, Tehran, Iran* **Shahabeddin Sotudian***Division of Systems Engineering, Boston University, Boston, USA* **Oscar Castillo***Tijuana Institute of Technology, Tijuana, Mexico*

Keywords

Intelligent scheduling Fuzzy logic Expert system Machine learning Stochastic local search optimization algorithms Constraint programming
Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0029

Short Summary

“The Application of Operations Research Information System Tools in Hospital Operations Management in Developing Nations: A Systematic Literature Review” is published in **2023**, and in the current study it represents **both** domain. Objectives of the published material are: *Analyse OR&M situation in developing nations of Africa*. The material was **analysed** and allocated to the **4** [group](#). After grasping **80%** of the work’s content, the reviewed work get **B** [general grade](#) and **-99** [certainty points](#). There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference: **SR0029UG23**

Initial reference: **044UGOpResInDevNatReview2023**

Short note: *Comparison of OR&M in developing countries and developed nations*

The original **article** can be accessed by the following URL: <https://doi.org/10.4314/udslj.v18i1.9>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0020

Short Summary

“Operating room planning and scheduling: A literature review” is published in **2010**, and in the current study it represents **scheduler** domain. Objectives of the published material are: *Summarise the current trends in operating room planning and scheduling, and identify the directions for further research..* The material was **analysed** and allocated to the **6 group**. After grasping **96%** of the work’s content, the reviewed work get **A general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **does not consider** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **not mentioned**, and the funding is **not mentioned**.

Local reference:**SR0020BE10**

Initial reference:**x228**

Short note:*Data envelopment analysis (DEA);*

The original **article** can be accessed by the following URL:<https://doi.org/10.1016/j.ejor.2009.04.011>

Authors

Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0031

Short Summary

“State-of-the-Art Review and Synthesis: A Requirement-based Roadmap for Standardized Predictive Maintenance Automation Using Digital Twin Technologies” is published in **2023**, and in the current study it represents **na** domain. Objectives of the published material are: *NA*. The material was **todo** and allocated to the **NA** group. After grasping **NA**% of the work’s content, the reviewed work get **NA** general grade and **-99 certainty points**. There is **neutral** outcomes of the work, the work **NA** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **na**, and the funding is **na**.

Local reference:**NA**

Initial reference:**x035**

Short note:*NA*

The original **article** can be accessed by the following URL:<https://doi.org/10.48550/arXiv.2311.06993>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0032

Short Summary

“Current Trends in Operating Room Scheduling 2015 to 2020: a Literature Review” is published in **2022**, and in the current study it represents **na** domain. Objectives of the published material are: *NA*. The material was **todo** and allocated to the **NA group**. After grasping **NA**% of the work’s content, the reviewed work get **NA general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **NA** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **na**, and the funding is **na**.

Local reference:**NA**

Initial reference:**x082**

Short note:*NA*

The original **article** can be accessed by the following URL:<https://doi.org/10.1007/s43069-022-00134-y>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0033

Short Summary

“Ensemble Learning for Addressing Class Imbalance in Cardiology Appointment Scheduling and Overbooking” is published in **2023**, and in the current study it represents **na** domain. Objectives of the published material are: *NA*. The material was **todo** and allocated to the **NA** [group](#). After grasping **NA**% of the work’s content, the reviewed work get **NA** [general grade](#) and **-99** [certainty points](#). There is **neutral** outcomes of the work, the work **NA** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **na**, and the funding is **na**.

Local reference:**NA**

Initial reference:**x147**

Short note:*NA*

The original **article** can be accessed by the following URL:<https://doi.org/10.21203/rs.3.rs-3359966/v1>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0034

Short Summary

“Development of an efficient method to approximate the risk measure of Lower Partial Moment of the first order” is published in **2019**, and in the current study it represents **na** domain. Objectives of the published material are: *NA*. The material was **todo** and allocated to the **NA group**. After grasping **NA%** of the work’s content, the reviewed work get **NA general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work *NA COVID-19 pandemic or other pandemic outbreaks*, the conflict of interests are **na**, and the funding is **na**.

Local reference:**NA**

Initial reference:**x161**

Short note:*NA*

The original **article** can be accessed by the following URL:<https://www.sciencedirect.com/science/article/pii/S0360835219303481>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0035

Short Summary

“Improving and Interpreting Surgical Case Duration Prediction with Machine Learning Methodology” is published in **2020**, and in the current study it represents **na** domain. Objectives of the published material are: *NA*. The material was **todo** and allocated to the **NA group**. After grasping **NA%** of the work’s content, the reviewed work get **NA general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **NA** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **na**, and the funding is **na**.

Local reference:**NA**

Initial reference:**x289**

Short note:*NA*

The original **article** can be accessed by the following URL:<https://www.medrxiv.org/content/early/2020/12/08/2020.06.10.20127910>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0036

Short Summary

“Constraint Handling” is published in **2015**, and in the current study it represents **na** domain. Objectives of the published material are: *NA*. The material was **todo** and allocated to the **NA group**. After grasping **NA%** of the work’s content, the reviewed work get **NA general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work *NA* COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **na**, and the funding is **na**.

Local reference:**NA**

Initial reference:**x314**

Short note:*NA*

The original **book** can be accessed by the following URL:https://doi.org/10.1007/978-3-662-44874-8_13

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0037

Short Summary

“A deep learning approach for predicting early bounce-backs to the emergency departments” is published in **2022**, and in the current study it represents **na** domain. Objectives of the published material are: *NA*. The material was **todo** and allocated to the **NA** group. After grasping **NA**% of the work’s content, the reviewed work get **NA** general grade and **-99** certainty points. There is **neutral** outcomes of the work, the work **NA** COVID-19 pandemic or other pandemic outbreaks, the conflict of interests are **na**, and the funding is **na**.

Local reference:**NA**

Initial reference:**x341**

Short note:*NA*

The original **article** can be accessed by the following URL:<https://www.sciencedirect.com/science/article/pii/S2772442522000028>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Review #0038

Short Summary

“Taxonomic classification of planning decisions in health care: a structured review of the state of the art in OR/MS” is published in **2012**, and in the current study it represents **na** domain. Objectives of the published material are: *NA*. The material was **todo** and allocated to the **NA group**. After grasping **NA%** of the work’s content, the reviewed work get **NA general grade** and **-99 certainty points**. There is **neutral** outcomes of the work, the work **NA COVID-19 pandemic** or other pandemic outbreaks, the conflict of interests are **na**, and the funding is **na**.

Local reference:**NA**

Initial reference:**x381**

Short note:*NA*

The original **article** can be accessed by the following URL:<https://doi.org/10.1057/hs.2012.18>

Authors

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Keywords

Colours explained: *Method, Objectives, Subject, Property, Tool*

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Legend

Literature Material Groups

SR - Specialised Review

This group of studies represent literature reviews in the scope of medical resource scheduling problem related to focusing to operating theatres and related to this subject areas.

SO - Specialised Online Materials

Specialised Online posts, ads, commercial articles related to the medical resource scheduling problem, analytics of the healthcare for businesses, healthcare administrators, and technicians.

SC - Specialised Case Study

Specialised Case and application of the previous theory on practice;

SM - Specialised Idealised Model

Specialised Models developed specially for MRS problems;

SF - Specialised Full Study

Specialised Full work of developing model and implementing it;

ST - Specialised Theoretical Work

Specialised Theory works;

SS - Strategies for Healthcare Administrators

Specialised Administration related works;

AR - Review on the Alternative Approaches out of Healthcare

Alternative Reviews of methods applicable to MRS;

AO - Alternative Online Resources

Alternative Online resources;

AC - Alternative Case Studies

Alternative Case which applied in a similar field or somehow related to MRS problems;

AF - Alternative Full Studies

Alternative Full work of developing model and implementing it;

AM - Developments of Alternative Models

Alternative Models for scheduling resources;

AT - Alternative Theory Works

Alternative Theory works;

AS - Strategies for Other Resource Management

The scheduling approaches which are not related to the healthcare, but can be adapted from other fields of reseach. (This is very similar to AT so possibly redundant)

HP - Healthcare Policies, Regulations, and Protocols

Healthcare policies, regulations, protocols, and rules which can differ from country to country and in some cases even from hospital to hospital.

OM - Other Materials

Other materials like posters, databases, memes, videos, etc.

NA - Undefined

Materials which are yet to be identified with one of the outlined above groups.

Local Grading System

(A+) -

(A) -

(B+) -

(B) -

(C) -

(D) -

(E) -

(F) -

(F-) -

Certainty of Evidence Grading

1st point:

The results of the research are mentioned in the body of the report paper with explanation how the results were obtained.

2nd point:

The process of reaching the findings of the study is clearly stated. The results are mentioned in the body of the research and underlined in the conclusions of the work.

3rd point:

The output of the research is highlighted in the short summaries of the paper (abstract, conclusions, or discussions). The authors of the work presented the data in structured digestible form.

4th point:

The findings demonstrated with charts or tables, and there is a link to the manuscripts, research data, or additional supplementary materials. However, the original data is not accessible, or in order to access the data, other researchers need to make a request, fully and extend the architecture of the storage platform, where the data was reserved.

5th point:

The results are presented in a table and the collected data during the research is fully available and easily accessible for the replication of the results by other investigators. The data in the presented tables is consistent with the values presented in the text and the raw data of the research.

Glossary

SLR - Systematic Literature Review

OT - Operating Theatre

OR - Operating Room

OR&M - Operations Research and Management

LoS - Length of Stay

ICU - Intensive Care Unit

PACU - Post Anaesthetic Care Unit

CoI - Conflict of Interests

References