



Dr. Avinash Dwivedi

## CNN-SSPSO: a hybrid and optimized CNN approach for peripheral blood cell image recognition and classification

Authors Rajiv Kumar, Shivani Joshi, Avinash Dwivedi

Publication date 2021/4/4

Journal International Journal of Pattern Recognition and Artificial Intelligence

Volume 35

Issue 05

Pages 2157004

Publisher World Scientific Publishing Company

**Description** White blood cells (WBCs) play a main role in identifying the health condition and disease characteristics of a normal person. An automated classification system is capable of recognizing white blood cells that may help doctors to diagnose several diseases like malaria, anemia, leukemia, etc. Automated blood cell analysis allows fast and accurate outcomes and often involves broad data without performance negotiation. The state-of-the-art systems use a lot of different stages (feature extraction, segmentation, pre-processing, etc.) to provide the automated blood cell analysis using blood smear images which is a lengthy process. To overcome these problems, this paper presents an efficient peripheral blood cell image recognition and classification using a combination of the salp swarm algorithm and the cat swarm optimization (SSPSO) algorithm-based optimized convolutional neural networks (SSPSO-CNN) method ...

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## Hybrid DSSCS and convolutional neural network for peripheral blood cell recognition system

[PDF] from wiley.com  
Full View

Authors Shivani Joshi, Rajiv Kumar, Avinash Dwivedi

Publication date 2020/12

Journal IET Image Processing

Volume 14

Issue 17

Pages 4450-4460

Publisher The Institution of Engineering and Technology

**Description** In this study, an efficient a deep learning architecture-based peripheral blood cell image recognition and classification is proposed using hybrid disruption-based salp-swarm and cat swarm (DSSCS)-based optimized convolutional neural networks (DSSCSCNNs) method. The DSSCSCNN method is employed to overcome the hyperparameter problem in CNN and it also helps this model to work on small peripheral blood cell data sets. In the DSSCSCNN method, the authors develop a binary coding technique that converts parameter tuning problems into an optimization problem. The original salp swarm algorithm is enhanced using a disruptive operator and salp swarm optimization algorithm to form the novel DSSCS algorithm which increases the diversity of the search space by providing higher classification accuracy. In this study, the CNNs use Vgg-16 architecture is used for training purposes. The global ...

**Total citations** [Cited by 23](#)

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S Joshi, R Kumar, A Dwivedi - IET Image Processing, 2020

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## Prediction of mobile user behavior using clustering

[\[PDF\] from researchgate.net](#)

Authors Sandhya Avasthi, Avinash Dwivedi

Publication date 2013/2

Journal International Journal of Scientific and Research Publications

Volume 3

Issue 2

Pages 1-5

**Description** Services which are recommended to the mobile devices like PDAs, Cellular Phones, smart phones and Laptops while moving using ISAP (Information Service and Application Provider) are increased by accurately predicting user usage pattern. But these discovery may not be always be good enough since the differentiated mobile behaviors among users and temporal periods are not considered simultaneously in the previous works. User relations and temporal property are used simultaneously in this work. Here CTMSP-Mine (Cluster-based Temporal Mobile Sequential Pattern-Mine) algorithm is used to mine CTMSPs. Cluster-Object-based Smart Cluster Affinity Search Technique (CO-Smart-CAST) generates user clusters and similarities between mobile sequences are evaluated by Location-Based Service Alignment (LBS-Alignment). The specific time intervals to group the huge mobile logs are found using Genetic Algorithm based method called GetNTSP (Get Number of Time Segmenting Points). CTMSP-Mine technique, which creates CTMSPs utilizes Co-Smart-Cast and time intervals results. These patterns are used to predict the mobile user future behavior and service recommendations are given accordingly.

**Total citations** [Cited by 14](#)

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2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

**Scholar articles** [Prediction of mobile user behavior using clustering](#)  
S Avasthi, A Dwivedi - International Journal of Scientific and Research ..., 2013  
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LSTM-based adaptive whale optimization model for classification of fused multimodality medical image [PDF] from researchgate.net

Authors Vipin Rai, Ganesh Gupta, Shivani Joshi, Rajiv Kumar, Avinash Dwivedi

Publication date 2023/7

Journal Signal, Image and Video Processing

Volume 17

Issue 5

Pages 2241-2250

Publisher Springer London

Description Multimodality medical image fusion is the important area in the medical imaging field which enhances the reliability of medical diagnosis. Medical image fusion as well as their classification is employed to achieve significant multimodality of medical image data. The single modality image does not provide the adequate information needed for an accurate diagnosis. An adaptive whale optimization algorithm (AWOA) with long short-term memory (LSTM) based efficient multimodal medical image fusion classification is proposed to enhance diagnostic accuracy. To obtain the fused images, discrete wavelet transform with an arithmetic optimization algorithm is used for the fusion process by taking the multimodal medical images. In this AWOA algorithm, the classification accuracy is enhanced, and also the weight of the LSTM is optimized. The three dataset images used in evaluating the experimental set with the ...

Total citations Cited by 12

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Scholar articles LSTM-based adaptive whale optimization model for classification of fused multimodality medical image  
V Rai, G Gupta, S Joshi, R Kumar, A Dwivedi - Signal, Image and Video Processing, 2023  
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Peripheral blood cell classification using modified local-information weighted fuzzy C-means clustering-based golden eagle optimization model

Authors Avinash Dwivedi, Vipin Rai, Amrita, Shivani Joshi, Rajiv Kumar, Sanjeev Kumar Pippal

Publication date 2022/12

Journal Soft Computing

Volume 26

Issue 24

Pages 13829-13841

Publisher Springer Berlin Heidelberg

Description This paper presents a novel medical image processing technique for analyzing different peripheral blood cells such as monocytes, lymphocytes, neutrophils, eosinophils, basophils, and macrophages. However, the existing systems suffered from low accuracy while classifying the different blood cell images and also consume higher processing power. The proposed model consists of two major steps such as segmentation and classification of peripheral blood cells. The modified local-information weighted intuitionistic Fuzzy C-means clustering (MLWIFCM)-based golden eagle optimization algorithm performs the nucleus segmentation. Finally, the peripheral blood cell classes such as Basophil, Lymphocyte, Neutrophil, Monocyte, and Eosinophil are effectively classified using hybrid-parameter RNN-based remora optimization algorithm. The MATLAB R2019b is used as the implementation platform. To analyze the ...

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A Dwivedi, V Rai, Amrita, S Joshi, R Kumar, SK Pippal - Soft Computing, 2022  
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Dr. Avinash Dwivedi

## RFID SYSTEM-used for monitoring and tracking patient (MTP)

Authors Shivani Joshi, Avinash Dwivedi

Publication date 2020/3/13

Conference 2020 International Conference on Computer Science, Engineering and Applications (ICCSEA)

Pages 1-10

Publisher IEEE

Description According to recent studies and survey of the World Health Organization(WHO), millions of patients injured or die due to incorrect medical care. It has been observed that these death ratio has increased due to misidentification of diseases and last medical history of the patient. RFID and IOT Technology help to assist them by providing better services in hospitals or health centers. It reduces file work and errors, RFID has successfully introduced in field of supply chain management and proved to be a great success. Now in the field of healthcare it has been launched to improve the efficiency and safety. It proves to be of greater benefit in healthcare industry and is cost effective. RFID device is used to track and monitor the patient as it enters the hospital and retrieves the database if any past illness record, allergies etc. In this paper, I have discussed how RFID helps in Monitoring and Tracking Patient(MTP)

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S Joshi, A Dwivedi - 2020 International Conference on Computer Science ..., 2020  
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## Water wave optimized nonsubsampling shearlet transformation technique for multimodal medical image fusion

[\[PDF\] from researchgate.net](#)

Authors Amrita, Shivani Joshi, Rajiv Kumar, Avinash Dwivedi, Vipin Rai, Sansar Singh Chauhan

Publication date 2023/3/25

Journal Concurrency and Computation: Practice and Experience

Volume 35

Issue 7

Pages e7591

Publisher John Wiley & Sons, Inc.

**Description** Medical image fusion has advanced to the point that it is now possible to combine multiple medical images for accurate disease diagnosis and treatment. The state-of-art techniques based on spatial and transform domains suffer from different limitations such as low fused image quality, spectral degradation, contrast reduction, low edge information preserving, lack of shift-invariance, high computational complexity, classification accuracy, and sensitivity to noise. The main motivation of this work is to generate a single image with excellent visual clarity that retains the features of the source images. This article proposes a water wave optimized nonsubsampling shearlet transformation technique (NSST) for multimodal medical image fusion, in which the water wave optimization (WWO) algorithm is used to allocate the weights of the NSST approach's high-frequency subbands. The NSST approach is primarily used in ...

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Amrita, S Joshi, R Kumar, A Dwivedi, V Rai... - Concurrency and Computation: Practice and ..., 2023

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## Identification of Pneumonia in Corona Virus Patient

[\[PDF\] from researchgate.net](#)

Authors Rajiv Kumar, Shivani Joshi, Vipin Rai, Avinash Dwivedi, Neha Jha

Publication date 2022/5/20

Conference 2022 International Conference on Computational Intelligence and Sustainable Engineering Solutions (CISES)

Pages 419-423

Publisher IEEE

Description A novel corona virus is dangerous and life threatening as patient's lungs are affected very severely by pneumonia. When found in x-ray the chest was fully dense and made lungs rubber type. This pneumonia was quite different from normal pneumonia. In Corona virus 19 people's lungs were so much affected that they were unable to breathe and their oxygen level declined very rapidly and the nebulizer didn't work for them as it is more effective in normal pneumonia patients. In this paper we have taken 2000 dataset to study the difference between person suffering from lung disease chest x-ray/ corona virus patient chest x-ray and pneumonia patient chest x-ray by using deep learning. With the help of chest X-ray (CXR) pictures, system categorizes corona virus into pneumonia, non- pneumonia, and healthy images. 1468 CXR pictures were acquired from publicly available datasets, consisting of 222, 683, and 700 ...

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FASO-C: A rapid visualization technique based on optimized fusion with crossover-based atom search for multi-band imagery

Authors Shivani Joshi, Rajiv Kumar, Vipin Rai, Praveen Kumar Rai, Manoj Singhal, Avinash Dwivedi

Publication date 2024/9/1

Journal Expert Systems with Applications

Volume 249

Pages 123609

Publisher Pergamon

Description Multi-band image fusion is a vital image processing technique used to combine data from multiple images or sensor bands, particularly in scenarios where a wide range of spectral information is available. Its primary objective is to create a single, comprehensive image that not only visually enhances the scene but also preserves critical details and characteristics present in each source. This paper proposes a novel image fusion technique that combines the useful features from a set of source images to provide a quick visualization of the scene. The approach is highly beneficial for multi-band images, including a large number of bands acquired by sampling the wavelength spectrum at narrow intervals. The fusion process depends on a multi-objective cost function, which optimizes the resultant fused image according to specific desired characteristics. By solving this optimization framework, an optimal set of weights is ...

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S Joshi, R Kumar, V Rai, PK Rai, M Singhal, A Dwivedi - Expert Systems with Applications, 2024  
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## Optical Text Translator from Images using Machine Learning

[\[PDF\] from researchgate.net](#)

Authors Shivani Joshi, Praveen Kumar Rai, Rajiv Kumar, Avinash Dwivedi

Publication date 2022/5/20

Conference 2022 International Conference on Computational Intelligence and Sustainable Engineering Solutions (CISES)

Pages 95-100

Publisher IEEE

**Description** In the actual world, when people go to a new location, they may have difficulties with language, signboards, or other kinds of communication. People in the digital age utilize Google Translate, Pocket Dictionary, and other similar applications. A signboard or other kind of notice may communicate important information or even act as a warning. Important information may be lost if the message is unavailable to individuals of different linguistic backgrounds; furthermore, visitors may struggle to carry out their duties in a new place if they do not comprehend the language spoken there. A portable dictionary, on the other hand, may be ineffective if users wish to translate a language in which words are not organized alphabetically. In another research, it is also understood in the same manner that users are unable to type the text of what they see. Because they are unable to comprehend the language despite the pocket ...

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**Scholar articles** [Optical Text Translator from Images using Machine Learning](#)  
S Joshi, PK Rai, R Kumar, A Dwivedi - 2022 International Conference on Computational ..., 2022  
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# Brain Tumor Detection Using ADARN Optimizer

Authors	Rajiv Kumar, Avinash Dwivedi, Shivani Joshi, Vikas Chandra Tripathi
Publication date	2024/3/15
Conference	2024 2nd International Conference on Disruptive Technologies (ICDT)
Pages	1271-1275
Publisher	IEEE
Description	The use of MRI scans to identify and categorise brain tumors is the main focus of this study. The goal is to develop a precise and reliable method for early identification and accurate categorisation of brain tumours, including pituitary neoplasms, meningiomas, and gliomas. Deep learning methods were utilized to analyze MRI image databases, resulting in a 96% identification accuracy for brain tumors and a 98% categorization accuracy for the three types. This research demonstrates the potential of deep learning techniques for accurate brain tumor identification and categorization. The early identification and precise categorization of brain tumors can assist medical professionals in making informed decisions about the best treatment options for patients, leading to better outcomes and survival rates. The article provides an extensive review of current methods for identifying and classifying brain tumors using MRI data ...
Scholar articles	<a href="#">Brain Tumor Detection Using ADARN Optimizer</a> R Kumar, A Dwivedi, S Joshi, VC Tripathi - 2024 2nd International Conference on Disruptive ..., 2024 <a href="#">Related articles</a>



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# A Detailed Structured Monitoting System for ICU Patient Mortality rate by using AI Algorithm

Authors Shivani Joshi, Rajiv Kumar, Vipin Rai, Avinash Dwivedi, Vikash Chandra Tripathi

Publication date 2024/2/9

Conference 2024 IEEE International Conference on Computing, Power and Communication Technologies (IC2PCT)

Volume 5

Pages 476-480

Publisher IEEE

Description The complexity and seriousness of diseases in ICU patients, though, make it difficult for medical practitioners to identify high-risk patients who may face irreversible harm. With ANN (Artificial Neural Network), this study will provide an ICU admission prediction model to help identify high-risk patients at an earlier stage. After collecting and analyzing extensive data from various perspectives including demographics, medical history, vital signs, test results and treatment modalities, exploratory data analysis has been conducted. These are used as markers on how statistical techniques and machine learning algorithms can be used to predict mortality among critically ill patients. Consequently, the parameters are designed within the ANN model to create a predictive model that will be able to effectively classify those at higher risk. Advanced machine learning algorithms together with modern tools such as deep learning ...

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S Joshi, R Kumar, V Rai, A Dwivedi, VC Tripathi - 2024 IEEE International Conference on Computing ..., 2024  
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## Oppositional Grass Hopper Optimization with Fuzzy Classifier for Face Recognition from Video Database

Authors Ganesh Gupta, Avinash Dwivedi, Vipin Rai, Shivani Joshi, Rajiv Kumar

Publication date 2023/10

Journal Wireless Personal Communications

Volume 132

Issue 3

Pages 1651-1680

Publisher Springer US

**Description** Recognizing faces from the video employs artificial intelligence-based computer technology. This includes applications such as law enforcement, biometrics, security, personal safety, etc., for tracking and enabling surveillance in real-time. However, detection and recognition of the face from the video are influenced by the change in variation of pose, brightness, occlusion, expression, and resolutions. While facial images are simple to detect, others may necessitate the use of specialized software. To address those challenges we propose an efficient face detection and recognition system with optimal features. Initially, the keyframes are extracted by the Key Frame Extraction method which utilizes Wavelet Information. Subsequently, the characteristics such as holo-entropy, appearance features, SURF feature, and multi-angle movement feature are extracted. The Oppositional Grass Hopper Optimization Algorithm is ...

**Scholar articles** [Oppositional Grass Hopper Optimization with Fuzzy Classifier for Face Recognition from Video Database](#)

G Gupta, A Dwivedi, V Rai, S Joshi, R Kumar - Wireless Personal Communications, 2023

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## Traffic Density Monitoring and Controller using RFID

Authors Indrajeet Kumar, Noor Mohd, Devendra Kumar, Avinash Dwivedi, Vikas Chaudhary

Publication date 2024/3/14

Conference 2024 International Conference on Automation and Computation (AUTOCOM)

Pages 675-679

Publisher IEEE

**Description** Traffic management is one of the most serious road problems in today's situation. To manage all the traffic, Traffic signal plays a major role in traffic management. The current traffic signal system or ordinary traffic light signal system is a pre-arranged traffic system. Therefore, these traffic signal systems have been referred to as fixed traffic lights. This pre-arranged traffic is worked on static time i.e. fix time. Therefore, this system can't change the waiting time to needy vehicle. Thus, the present work has proposed a traffic management system using analyzing the traffic density. The proposed traffic signal management system avoids traffic management problems with the help of Radio-frequency identification (RFID) that usually arise with common traffic management systems. RFID is a tool that provides an effective solution to automatic traffic detection and management. The proposed decided to green or red the traffic ...

**Scholar articles** [Traffic Density Monitoring and Controller using RFID](#)  
I Kumar, N Mohd, D Kumar, A Dwivedi, V Chaudhary - 2024 International Conference on Automation and ..., 2024  
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## An Efficient Similarity Search Approach to Incremental Multidimensional Data in Presence of Obstacles [\[PDF\] from academia.edu](#)

Authors Shelley Gupta, Avinash Dwivedi, RK Issac, Sachin Kumar Agrawal

Publication date 2013

Conference Proceedings of the International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA)

Pages 93-101

Publisher Springer Berlin Heidelberg

**Description** In data mining field similarity search has always been a crucial task. A similarity search finds the data points from the same data set space that matches the given query sequence exactly or differs slightly, and is done for whole sequence matching or partial sequence matching. In data sets the existence of obstacle information greatly affects the performance of similarity search in terms of efficiency and effectiveness. Thus, in this paper we present an efficient approach to similarity search based on dynamic selection of input features or attributes in presence of obstacles in respect to better running time and accuracy, with the incremental multidimensional data set. The results show that performance of the similarity search is highly dependent on data size. Thus, our approach can improve the data analysis of financial market, engineering and scientific databases, and telecom industry, providing better performance ...

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