



Learn Beyond

KPR Institute of  
Engineering and  
Technology

(Autonomous, NAAC "A")

## Book of Abstracts

# 2024 International Conference on Cognitive Robotics and Intelligent Systems



Organized by

**Centre for Research and Development (CFRD)**

KPR Institute of Engineering and Technology  
Coimbatore, India

17-19, April 2024

Technical Sponsors



**IEEE**  
MADRAS SECTION



**IEEE**

S.No.	Paper Title & Authors	Page No
37	Automated Near-Duplicate Image Detection using Sparrow Search Algorithm with Deep Learning Model <i>Srinidhi Sundaram, Sasikala Jayaraman, Kamalakkannan Somasundaram</i>	33
38	Novel Deep Convolutional Neural Network for Chest X-ray Classification <i>Cherukuri S, Rustagi R, Cherukuri N, Adesina N, Amalapurapu S</i>	34
39	Classification of Early Skin Cancer prediction using Nesterov- Accelerated Adaptive Moment Estimation (NADAM) Optimizer Algorithm <i>Harish V, Vijaya Kumar T, Rajasekaran P, Poovizhi P, Jason Joshua P, Sridhar R</i>	35
40	Early Accurate Identification of Grape leaf Disease Detection using CNN based VGG-19 model <i>Prathiksha B J, Vijaya Kumar T, M. Krishnamoorthi, Poovizhi P, Sowmiya D, Thrishaa B</i>	36
41	Early Detection of Fetal Brain Abnormalities using CNN Framework <i>Monisha D, Ramya R, Rathiya R, Rajkumar T, Divyabharathi K, Jeba Jerlin G</i>	37
42	An Effective Machine Learning Model to Detect and Analyze the Autism Spectrum Disorder <i>D. Linett Sophia, J. Praveenchandar, D. Pavunkumar, N. Gomathi, A. Suriya, S. Pavish</i>	38
43	Deep Learning for Glioblastoma Subtyping: Leveraging DenseNet-201 in Brain Tumor Radiogenomic Classification <i>S. Alvin Jesuraj, S.V.Evangelin Sonia, C.P.Shirley</i>	39
44	Detecting Deepfake Videos using Face Recognition and Neural Networks <i>Muthu Aravind Murugan, T.Mathu, S Jeba Priya</i>	39
45	Edge-based Heart Disease Prediction using Federated Learning <i>Ancy Jenifer. J, Getzi Jeba Leelipushpam Paulraj, Gladston Rosario.M, Immanuel JohnRaja Jebadurai, Snowlin Preethi Janani, M. Shilpa Aarthi,</i>	40
46	Ensemble of Vision Transformers and CNNs for Accurate Diabetic foot Ulcer Classification <i>Arnold Anand Pagadala, Salaja Silas, Emmanuel Joy</i>	40
47	Identifying Drought-Tolerant Rice Genotypes using Drought Response Indices and Machine Learning <i>D Alan Daniels, Asish K. Binodh, Kumudha Raimond, Sugitha Thankappan</i>	41
48	ML Based Age Related Heart Disease Prediction <i>Gracious S, Shirley C P</i>	41
49	Oral Cancer Analysis for Early Detection Using Deep Learning <i>K M Shaheer, E. Bijolin Edwin, Stewart Kirubakaran, T. Mathu, V.Ebenezer, M. Roshni Thanka</i>	42
50	Predictive Vehicle Maintenance using Deep Neural Networks <i>Neil Johnson, S.E. Vinodh Ewards, Salaja Silas, G. Jasper W Kathrine</i>	43
51	Retrospective Analysis of an Interpretable Skin Cancer Classification using Deep Learning Models <i>Shaun Shaji Abraham, J. Dinesh Peter</i>	43
52	Sign Language Translation to Natural Voice Output: A Machine Learning Perspective <i>Elvina Sharon, Getzi Jeba Leelipushpam, Immanuel JohnRaja Jebadurai, Christina Merlin</i>	44
53	A Novel Approach for Leukemia Classification using Multi-Neural Networks <i>J Senthil Kumar, Ramalakshmi B</i>	45
54	A Unified Deep Learning Approach for Integrating Retinal Image Diagnosis and Surgical Tool Classification <i>Jesica J, Anitha J, Sujitha Juliet D, Belfin R V</i>	46
55	Enhancing Deepfake Detection: An Ensemble Deep Learning Approach for Efficient Attribute Manipulation Identification <i>Sudharsana P P, Rajalaxmi R R, Devak A, Gokul R, Annamalai R, Gokila Brindha P</i>	47
56	Unveiling the Power of Machine Learning and Deep Learning in Advancing American Sign Language Recognition <i>Shanthi N, Sharmila C, Muthuraja M, Janupritha S, Kavim P, Keerthi J</i>	48

## Automated Near-Duplicate Image Detection using Sparrow Search Algorithm with Deep Learning Model

\*Srinidhi Sundaram  
Research Scholar, Department of  
Information Technology,  
Annamalai University, Annamalai  
Nagar - 608002.  
srinidhibalaji.pec@gmail.com

Sasikala Jayaraman  
Associate Professor, Department  
of Information Technology,  
Annamalai University, Annamalai  
Nagar - 608002.  
sasikala.au@gmail.com

Kamalakkannan Somasundaram  
Associate Professor,  
Department of Information  
Technology,  
School of Computing Sciences  
VISTAS, Pallavaram,  
Chennai,  
Tamil Nadu – 600 117.  
kannan.scs@velsuniv.ac.in

**Abstract:** Recently, automatic Near-Duplicate (ND) imaging pair recognition by utilizing computer vision and pattern detection machinery has attracted extensive interest, but it has significant possible values within the application of image copyright violation recognition, management of device hardware stored, fake image recognition, and automated automobile driving. A common human-crafted local factor-based method like extremely implemented Histograms of Oriented Gradients (HOG) methods, achieves the image-level factors by integrating manners, like Vectors of Locally Aggregated Descriptors, fisher vector, Scale-Invariant Feature Transform, and so on. These approaches are affected by the difficulty of complex extraction steps and restricted representation capabilities. Most recently, because of the excellent feature learning skill of Convolutional Neural Network (CNN), scientists have employed CNN to manage the ND image pair recognition problem. In this aspect, this study presents an automated ND Image Detection by utilizing a Sparrow Search Algorithm with Deep Learning (NDID-SSADL) model. The objective of the NDID-SSADL model is to accomplish accurate and automated recognition of ND images. To achieve this, the AVPR-SSADL methodology employs a Gaussian Filtering approach for image pre-processing. For learning complex and intricate features, the Inception v3 feature extractor is used with an SSA-based hyperparameter optimizer. Finally, Manhattan distance-based similarity measurement can be used for the recognition of ND images. The experimental analysis of the NDID-SSADL methodology on the benchmark dataset exhibits a maximum achievement of 94.50% over the compared methods.

**Keywords:** Near Duplicate, Deep Learning, Image Detection, Sparrow Search Algorithm, Manhattan Distance.

---