



**WORKSHOP ON
INTELLIGENT SYSTEM AND APPLICATIONS (ISA'17),
FACULTY OF COMPUTERS AND INFORMATICS,
BENHA UNIVERSITY.**

May 13, 2017

Workshop on Intelligent System and Applications (ISA'17),

Faculty of Computers and Informatics, Benha University, Egypt

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Chair Professor Aboul Ella Hassanien

Faculty of Computers and Information, Minia University

Founder and Chair of the Scientific Research Group in Egypt (SRGE)



Co-chair Dr. Essam Halim Houssein

Faculty of Computers and Information, Minia University

Vice chair of the Scientific Research Group in Egypt

11.00 : 2:00

Registration

11.00 : 11:10

Welcome message by Professor Aboul Ella Hassanien

Keynote speaker

Human thermal face recognition approach

Dr. Tarek Gaber

11.10 : 11:30



Abstract: Accurate human identification is very crucial in many applications including the passports utilization, cellular telephones, driving licenses and other computer vision applications. Face recognition, as a natural mode of identification among humans, is the most appealing modality for human identification. There are many successful face recognition systems based on visual images. However, they are still prone to errors (variable illumination and disguises including facial wear and hair). To address these errors, investigating face image outside the visible part of the spectrum (wavelength ranging from 390 to 750nm) has been explored. The main idea of thermal imaging is that each object emits infrared energy different than other objects, i.e., each object has different thermal signatures. In the case of the human face, this signature is primarily derived from the pattern of the superficial blood vessels existed under the face skin. Because of the vein and tissue structure of each face are unique for each person thus its thermal image is also unique. This paper proposes a human thermal face recognition approach with two variants based on Random linear Oracle (RLO) ensembles. For the two approaches, the Segmentation-based Fractal Texture Analysis (SFTA) algorithm was used for extracting features and the RLO ensemble classifier was used for recognizing the face from its thermal image. For the dimensionality reduction, one variant (SFTALDA-RLO) was used the technique of Linear Discriminant Analysis (LDA) while the other variant (SFTA-PCA-RLO) was used the Principal Component Analysis (PCA). The classifier's model was built using the RLO classifier during the training phase and in the testing phase then this model was used to identify the unknown sample images. The two variants were evaluated using the Terravic Facial IR Database and the experimental results showed that the two variants achieved a good recognition rate at 94.12% which is better than related work.

Session (I): Intelligent System and applications

Session Chair Dr. Essam Halim, Faculty of Computers and Information, Minia University

<p>11.30: 11.45 Sara Abdelghafar</p>	<p>Telemetry Data Mining for Space Systems</p>  <p>Abstract: Space systems are amongst today's most complex, extremely sensitive and highly sophisticated technical systems, they fulfil their mission in a very special, harsh, and challenging environment. So it is practically impossible to completely eliminate the possibility of anomalies or faults, even if we increase the reliability of the system components to the limit. In addition to, it is extremely difficult to directly inspect or repair a damaged component of these systems once a severe failure occurs. Therefore, early detection and predication of anomalies and faults in the system behaviour is significantly important to avoid disastrous situations such as loss of control.</p>
<p>11.45: 12.00 Usama Mokhtar</p>	<p>Binary moth flam features selection approach</p>  <p>Abstract: The feature selection process is one of the most important tasks for pattern recognition and classification. The main goal of feature selection is to find a minimal feature subset from a problem domain with high accuracy in representing the original features. In this paper, a new binary version of the moth flame optimization (MFO) is presented. Then this approach is used to select optimal feature subset for classification purposes. In the proposed (BMFO) approach, sigmoidal function is used to squash the continuously updated position, then randomly threshold these values to find the updated binary moth flame position.</p>
<p>12.00:12.15 Shahd Tarek</p>	<p>Microscopic Images in Blood Diseases</p>  <p>Abstract: Blood consist of Plasma, Red Blood Cells, White Blood Cells and Platelets, changing in blood condition show the development of diseases and help in the diagnosis of blood cells disorder . There are many disorders include benign disorders, as well as cancers that occur in blood. This presentation will give short brief to summarize blood diseases, including the definition, types, symptoms that helps in early detection through visual inspection of microscopic images.</p>
<p>12.15: 12.30 Abd allah Moustafa</p>	<p>CT Liver Segmentation Using Artificial Bee Colony Optimization</p>  <p>Abstract: The automated segmentation of liver is an essential phase in liver diagnosis in medical images. In this paper, the artificial bee colony optimization algorithm (ABC) is used as a clustering technique to segment the whole liver. ABC calculates the centroids of clusters in CT liver image and extracts a binary image for each cluster. Using some morphological operations can help to remove small and thin regions, which represents parts of flesh around liver, sharp edges of organs and small lesions inside the liver. Then the large regions in each cluster binary image are filled. Summation of the binary images results in a considerable image of segmented liver. Finally the resulting image will be enhanced using simple region Growing (RG) technique. A set of 38 images, taken in pre-contrast phase, was used to segment the liver and test the approach. Similarity index is used to validate the success of the approach. The experimental results showed that the overall</p>

	accuracy offered by the proposed approach, results in 93.73% accuracy.
<p>12.30:12.45 Ahmed Hassan</p>	<p>Chemoinformatics and Drug Discovery</p>  <p>Abstract: Discoveries of new drugs is very costly process. To reduce costs for drugs design, new techniques are needed. Chemoinformatics implements the informational techniques and computer science like machine learning and graph theory to discover the chemical compounds properties, such as toxicity or biological activity. This is done through analyzing their molecular structure (molecular graph). Therefore, there is an increasing need for algorithms to analyze and classify graph data to predict the activity of molecules.</p>
<p>12.45: 1.00 Abdelhameed Ibrahim</p>	<p>Spectral Reflectance Images and Optimization Techniques</p>  <p>Abstract: Spectral imaging has received a great deal of attention recently. Spectral reflectance observed from object surfaces provides crucial information in computer vision and image analysis which include the essential problems of feature detection, image segmentation, and material classification. The estimation of spectral reflectance is affected by several illumination factors such as shading, gloss, and specular highlight. A spectral invariant representation is one of the solutions for obtaining reliable spectral reflectance images. The invariant formulas for spectral images of natural objects preserve spectral information and are invariant to highlights, shading, surface geometry, and illumination intensity. The optimization techniques, such as Grasshopper Optimization Algorithm (GOA), Whale Optimization Algorithm (WOA), Sine Cosine Algorithm (SCA), Moth-Flame Optimization algorithm (MFO), etc., can then be used to improve the material classification based on the invariant representations, which can results in reliable segmentations for natural scenes and raw circuit boards spectral images.</p>
<p>1.00: 1.15 Mohammed Nasef</p>	<p>Parallel whale optimization algorithm Optimization</p>  <p>Abstract: Algorithms are the key engine in numerous methods, techniques and applications. Meanwhile, The Applications' Data is keep getting bigger and bigger exponentially. Due to these new complexities, using parallelism to enhance the performance of large-scale programs becomes more and more vital. In this paper we propose an OpenMP inspired parallel version of the Whale optimization algorithm; PWhale, it is automatically detect the number of available processors and divide the workload automatically among them to accomplish the best use of available resources. PWhale was tested using 23 benchmarks on multiple dimensions. The performance of PWhale was measured using parallel metrics such as speed, efficiency. The results of the proposed version were compared of its sequential counterpart. The comparison illustrates that the proposed version archived the same results performance while exceeding the sequential version in performance.</p>
<p>1.15: 1.30 Rizk masoud</p>	<p>A Hybrid Sine Cosine Optimization Algorithm for Solving Global Optimization Problems</p>  <p>Abstract: In this paper, a hybrid sine cosine optimization (denoted as HSCO) algorithm is proposed, in which a local search strategy is hybridized with the sine cosine optimization. The local search strategy aims to enhance the solutions and to prevent premature convergence of the population. By this way, the algorithm can avoid the running without any improvements in the obtained results. The simulations were conducted on a set of the benchmark problems and compared to other optimization techniques that reported in the literature. The obtained results demonstrate the superiority of the proposed HSCO compared to other</p>

	optimization techniques that are reported in the literature.
1.30: 1.45 Mohamed Abd-Elfattah	<p>Handwritten manuscripts image binarization (problems and solutions)</p>  <p>Abstract: Since the importance of the optimization algorithms in many real-life applications. Optical character recognition, word spotting, and other application need a cleared binarized image. A cleared binarized image without any distortion or hidden character. In this lecture, a quick review about the handwritten manuscripts problems and solutions will be presented. In addition to, the comparison between different binarization methods will be presented.</p>
1.45:2.00 Eman El-Amir	 <p>Spatial Data Analytics</p>
12.00:2.00 Amr Mausad	 <p>Parallel whale optimization algorithm Swarm Optimization Big data etc ...</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>Intelligent systems الرد علي اي استفسارات لها علاقة بـ في حلقات نقاش مصغرة.</p> </div>
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