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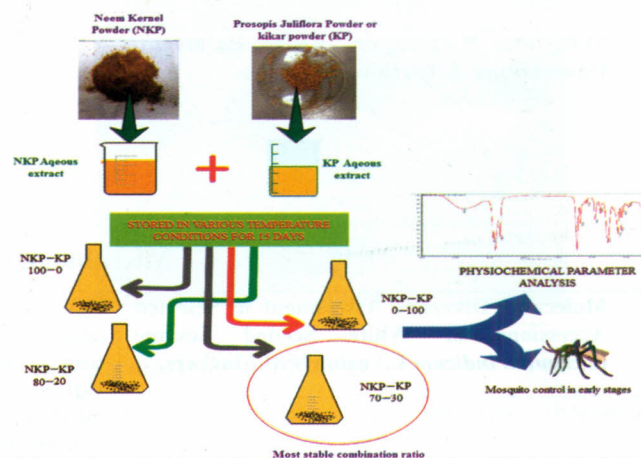
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CONTENTS

Rural Development Technology

- 297 **Physical Stability and Bio-Efficacy Enhancement of Neem Kernel Aqueous Extract by Optimized Amount of Botanical Synergist for the Control of Early Stages of Mosquitoes**
- The aim of present study is to enhance the stability of physico-chemical characteristics of neem kernel aqueous extract by botanical stabilizer system. There are variety of bioactive constituents are present in neem which give broadspectrum of insecticidal activity. Neem aqueous extract is commonly used and found very effective in pest control applications without harming the environment. However, due to hydrolytically unstable characteristics of neem active ingredients which results its lesser bioactivity and limits its usage in aqueous form. To overcome this un-stability issue oil extracted botanical stabilizer (*Prosopis juliflora*) (Jungle kikar) were used in various ratios. In 70-30 (NKP-KP) composition, neem aqueous extract was found stable without any turbidity, pH change and fungal growth.

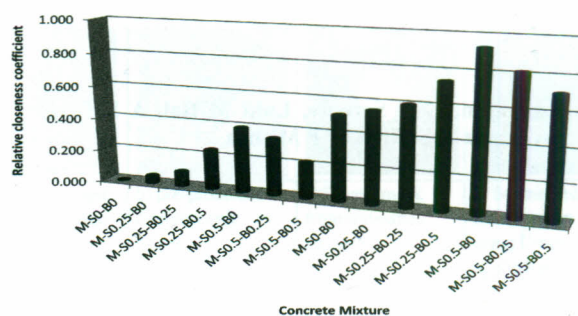
Nusrat Iqbal, Saurabh Dubey, Natish Kumar, Amrisha Agrawal & Jitender Kumar



Civil Engineering

- 304 **Application of Multi Criteria Decision Making tools in Selection of Concrete Mix**
- Now a day decision making plays a major role in deciding the execution of any task. Two key tools are available to serve the purpose of decision-making. These include AHP as well as TOPSIS, both falls under Multi Criteria Decision Making (MCDM) tools. These techniques are now also brought in the field of civil engineering. MCDM techniques are used in various applications of civil engineering. This paper presents comparison of AHP and TOPSIS for making final decisions for the best concrete mix with fibres of steel and basalt available with different proportions. The comparison is made on the tests of split tensile strength, compressive strength and flexure results.

Uzair Khan, Rajat Verma, Binod Kumar Singh & Vikash Yadav

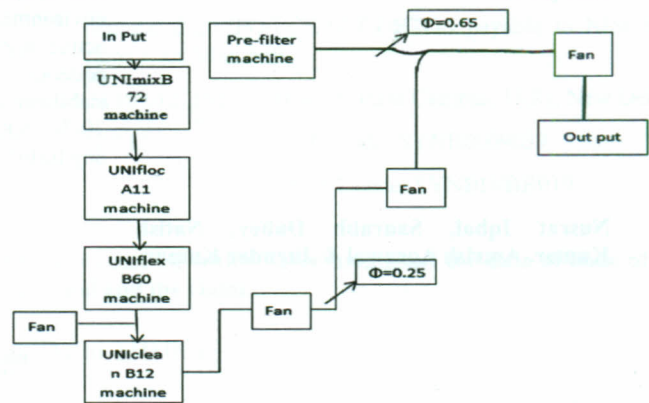


Mechanical Engineering

- 310 **Experimental Investigation of the Effect of Fluid-Solid Mixture Flow by Pneumatic System in Textile Industry**

The transport of multiphase flows of slurry (fluid-solid) through pipelines is usually encountered through several hurdles in various industries such as cement, textile and chemical industries. The flow parameters such as solids concentration, pipe directions and so on, add to these complexities and concepts associated with transport of slurries seems to be uncertain which has resulted in significant research being conducted on flow of slurries through pipelines. The investigation has been carried out in Textile and garment factory at Ethiopia in eastern Africa. The objective of the investigation is to study the effects of transporting of fluid-solid mixture (air-cotton ball) through horizontal, vertical and inclined pipelines in a textile factory. For this purpose one generalized mathematical model developed by Shrivastava and Kar (SK Model) was applied to predict more accurate results of pressure drop.

Millerjothi Kalamegam, Redae Haimanot,
Udayakumar & Parthiban Kandan



Microbiology and Biotechnology

- 315 **Molecular Diversity Assessment in Selected Accessions of White Seeded Sesame (*Sesamum indicum* L.) using SSR Markers**

Fifty sesame accessions with 10 simple sequence repeat (SSR) markers were used for their molecular characterization and assessment of genetic diversity. It was observed through this study that the accessions have enough genetic variability at molecular levels. Thirty five alleles with mean polymorphism information content of 0.42 resulted from the molecular studies very explicitly indicate the superiority of SSR primers in assessment of genetic diversity. These primer bands size varied from 200 to 400 bp. The number of alleles per locus in selected accessions varied from 3 to 6 and heterozygosity per primer ranged from 0.00 to 0.40. The pair wise genetic similarity varied from 0.44 to 0.86. A closure view of dendrogram identified two major clusters, indicating high genetic resemblance among sesame accessions. Hence, under the study here, diversity assessment through SSR markers was proved to be stronger tools for discriminating *Sesamum indicum* accessions.

Yogranjan, G K Satpute, Lalit M Bal, A K
Srivastava & Sudhakar P Mishra

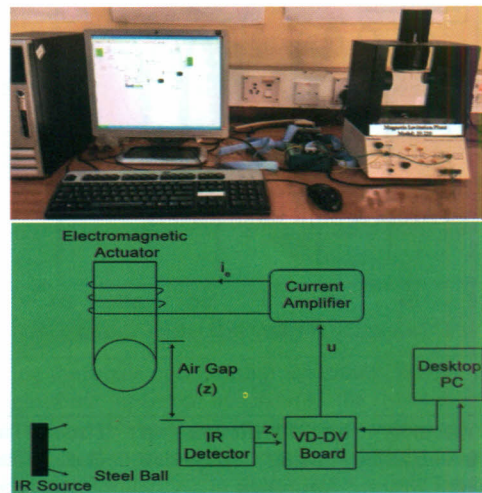


Electronics & Telecommunication

322 A Comparative Performance Assessment of Evolutionary Fractional Order PID Controllers for Magnetic Levitation Plant with Time Delay

Fractional Order controllers have been extensively applied to various fields of science and engineering, since several decades, because of the ability to control more parameters and consequent better control. However, to achieve this advantage, proper tuning of the associated parameters plays an important role. To achieve this objective, this paper employs a multi-agent symbiotic organisms search (MASOS) algorithm for appropriately tuning the parameters of fractional order proportional-integral-derivative (FOPID) controller for stabilizing a magnetic levitation plant (MLP) with time delay. Three different FOPID controllers have been precisely tuned and their performance has been evaluated and compared in this paper. The results demonstrate that the I-PD configuration produces the best performance in terms of time domain as well as frequency domain specifications, when compared with the other configurations.

Deep Shekhar Acharya, Sudhansu Kumar Mishra & Ganapati Panda

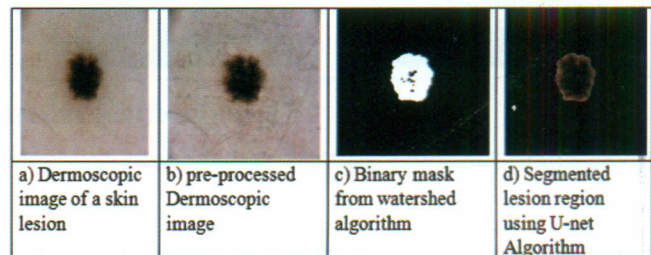


Computer Science & Information Technology

328 Segmentation and Classification of Skin Lesions from Dermoscopic Images

Skin melanoma cancer, particularly among non-Hispanic white women and men, has been one of the highest risks of spreading disease among all cancers. It should be treated earlier for effective treatment. Due to high costs of screening each patient by dermatologists, it is important to establish an automated method to determine the risk of melanoma for a patient by using image scan of their skin lesions that can provide accurate diagnosis. The major challenge is segmenting the skin lesion from the digital scan image. For segmenting the lesion, a novel algorithm based on skin texture is proposed in which a set of representative texture distributions is analysed from a non-illuminated image. The ridge in the skin image is labeled as either normal segment or lesion, based on the presence of sample texture distributions by calculating the texture distinctiveness metrics. In comparison with other benchmark models the suggested algorithm has greater precision in segmentation about 95% accuracy.

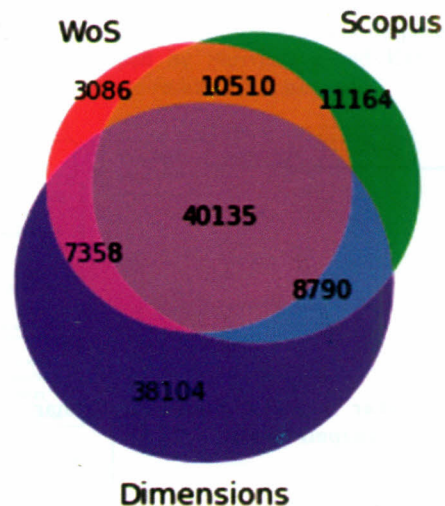
Lakshmi Harika Palivela, Joshan Athanesious J, V Deepika & M Vignesh



336 India's Rank and Global Share in Scientific Research: How Data Sourced from Different Databases Can Produce Varying Outcomes?

India is emerging as a major knowledge producer of the world in terms of proportionate share of global research output and the overall research productivity rank. Many recent reports, both of commissioned studies from Government of India as well as independent international agencies, show India at different ranks of global research productivity (variations as large as from 3rd to 9th place). The paper examines this contradiction; tries to analyse as to why different reports place India at different ranks and what may be the reasons thereof. The research output data for India, along with the ten most productive countries in the world, is analysed from three major scholarly databases- Web of Science, Scopus and Dimensions for this purpose.

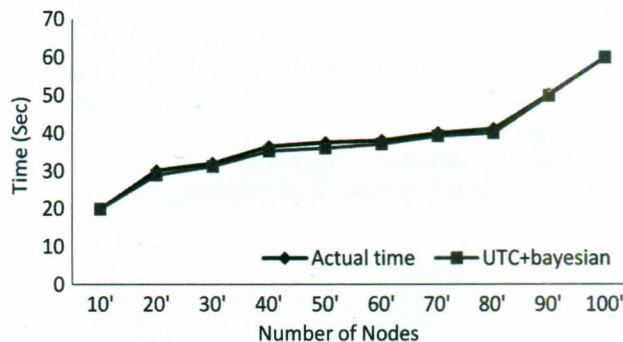
Prashasti Singh, Vivek Kumar Singh, Parveen Arora & Sujit Bhattacharya



347 Cybersecurity by Prediction of Time Synchronization using Bayesian Base Gradient Descent Approach

Time Commerce tends to struggle, which necessities an improved time framework. Legal escalations for conflicts of time commerce in the digital economy demand a solution that helps to address technology, standards, and policies. To meet the demand, we have to build a system that can understand every domain essential for building an inter-organizational system. "Date" and "Timestamp" reflect the root of the current term "Date Trade" in the cyber world. The threat to these roots has been studied in-depth and proposed solutions specific to UTC NPLI. The electricity grid shifts to the energy network to improve operating efficiency and reliability by developing advanced information and communication technology. However, the Internet also provides a range of entry points dependent on the internet, which produce additional vulnerabilities due to malicious cyber-attacks, thereby threatening Nations' economic health. This paper proposes therefore a new mechanism to protect critical infrastructure against these malicious attacks, based on interval state predictors.

Amutha Arunachalam, K Seetharaman & Ashish Agarwal

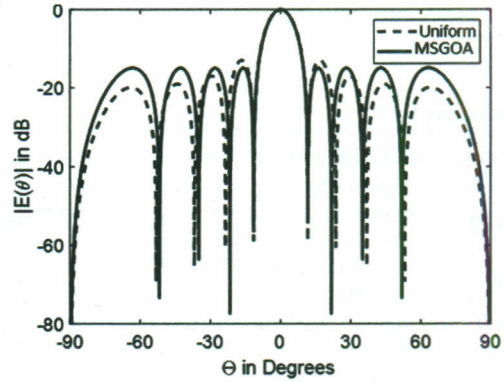


CONTENTS

354 Optimization of linear arrays using modified social group optimization algorithm

In this paper, optimization of the linear array (LA) antenna is performed using modified social group optimization algorithm (SGOA). First step of the work involves in transforming the electromagnetic engineering problem to an optimization problem which is completely described in terms of objectives. Linear array synthesis is inherently considered as a multi-attribute problem. The pattern synthesis of LA is carried out with several objectives involving sidelobe level (SLL), beam-width (BW) and desired nulls. The SLL suppression with BW constraint is considered as first objective of this work and the results are compared with several evolutionary computing algorithms like ant lion (ALO), grey wolf (GWO) and root-runner (RRA). Following this, the MSGOA is further used to synthesise null patterns in which the pattern is completely described in terms of nulls with SLL and BW as constraints. The entire simulation-based experimentation is performed using Matlab® on i5 computing system.

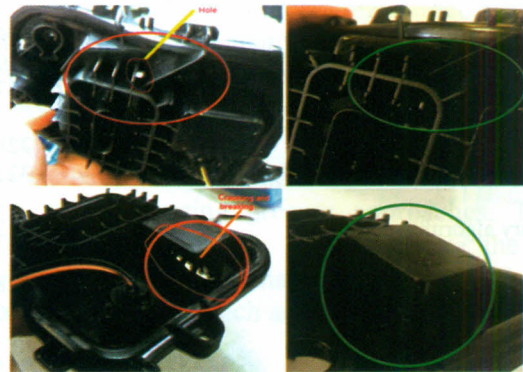
E V S D N S L K Srikala, M Murali, M Vamshi Krishna & G S N Raju



360 Optimizing Plastic Injection Process Using Whale Optimization Algorithm in Automotive Lighting Parts Manufacturing

In this study, using the whale optimization algorithm (WOA), one of the recent optimization algorithms inspired by nature, the plastic injection process parameters of an automotive sub-industry company were tried to be optimized. For this purpose, we tried to provide the maximum weight criterion for the “356 MCA Plastic Housing”(which is an automotive lighting part) produced by plastic injection method. The decrease in the weight of the product indicates that the material injected into the mold is missing and naturally indicates that there will be quality problems. In order to achieve this aim, the best factor levels were tried to be determined for the mold temperature (°C), injection speed (m/s), injection pressure (bar), holding time (s), and injection time (s), which are the controllable parameters of injection process.

Aslan Deniz Karaoglan & Burak Baydeniz



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