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(E & T - 2020)
October 26-27, 2020

International Research and Development Center for Publication (IRDPC)

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About Conference

International Conference on Engineering and Technology (E & T- 2020)

During the worldwide lockdown due to COVID 19 pandemic, a lot of important activities have come to a halt. However, when we look at the brighter side, all of us have more time for adding to our knowledge and insights.

With this aim, to keep contributing to learning and motivation International research and development Center for publication is going to organize a two-day International Conference with the title “**International Conference on Engineering and Technology (E & T- 2020)**” on Oct 26-27, 2020 through online mode.

We hope, this online mode of the conference in COVID-19 pandemic will be an appreciable step in promoting the research activities and new information between researchers, developers, students, academicians and practitioners working in and around the world by keeping the social distance in view to stop the spread of COVID-19 disease. This conference aims is to present the current researches being carried out in the field of social science and education development around the globe.

Prospective authors from academia as well as industry are invited to submit their abstracts that illustrate original/unpublished works and industrial applications describing advances and significant innovations in the field.

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Message

I am extremely pleased to share that International Research and Development Center for Publication (IRDCP) is organizing a two days **International Conference on Engineering and Technology (E & T- 2020)** on Oct 26-27, 2020.

I am sure the state of art lectures from the invited experts and the research findings of researchers, academicians, utility engineers will enrich the knowledge of all the participants. It will provide an excellent opportunity for students to learn new ideas.

I offer my best wishes to the whole team of the organizing committee, the participants, and volunteers for the grand success of the conference.

Dr. Kiran
Convenor EARD-2020

Message

I am happy to know that International Research and Development Center for Publication (IRDCP) is organizing a two days **International Conference on Engineering and Technology (E & T- 2020)** on Oct 26-27, 2020. I am sure that, this conference would provide an ideal platform for the academicians, scholars and experts to present and exchange their research findings and Ideas.

I wish the conference a great success.

Dr. Praveen Kumar Jain

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Abstract of E & T-2020

Thinning and springback prediction of Mg alloy AZ31 in deep drawing process – Influence of BHF and friction conditions

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Abstract— Magnesium is nowadays the lighter metal used in structural applications with expressive advantages over steel and aluminum. Due to its low density and high specific strength, magnesium alloys represent a promising alternative, especially for applications in automobile industry, being used in structural components in order to reduce weight and, consequently, improve fuel efficiency. In the recent decades, several researches have been performed in order to improve the use of Mg alloys in forming process since its formability is strongly affected by some conditions such as temperature. In this study, a Finite Element Analysis (FEA) is performed in order to simulate the sheet metal deep drawing process of the magnesium alloy AZ31. The main objective is to evaluate the effect of the blank holder force and friction conditions in the formability by predicting results of springback, thickness distribution and thinning of the sheet metal blank. In total, 54 simulations were performed.

Keywords— Blank holder force, Deep drawing, Finite elements, Friction, Lightweight alloy, Metal forming, Thickness distribution, Springback.

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Society 5.0 and Social Sciences

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Abstract— The digital society, in which the digital dimension permeates the interactions between individuals and the relationships between groups, is already among us, affecting even the processes of socialization and personal backup. One of its achievements could possibly and potentially be called Society 5.0. In understanding this Society 5.0 – a concept with a strong political component, the contribution of social sciences, by mobilizing an interdisciplinary perspective, is essential in fostering a critical literacy of this Society 5.0, which, like all processes, has potential advantages but also limitations in promoting sustainable social development.

Keywords— critical literacy, digital society, digitalization, social sciences, Society 5.0, sustainability digital innovations.

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Social order and social networks

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Abstract— This presentation discusses the relationship between social order and social networks that are (re)created in the digital world. Elements such as alienation and fake news are emphasized, focusing the attention on the digital interaction of social (re)production.

Keywords— alienation, digital interaction, fake news, social isolation, social networks, social order.

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Optical gain analysis of type-II AlAsSb/InGaAs/GaAsSb nanoscale heterostructure under the effect of the external pressure

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Abstract— In this work, a novel design of AlAsSb/InGaAs/GaAsSb nanoscale heterostructure with two quantum well is proposed. The electronic and optical properties of the proposed structure are investigated theoretically with different material composition of the quantum well material layer and under the effect of external pressure. The simulation results indicate the designed quantum well structure is suitable for near-infrared applications such as optical fiber communication and spectroscopy in food production. The results also show that the emission wavelength and optical gain can be optimized under the effect of the external electric field. The optical gain in both TE and TM polarization mode are computed for the designed heterostructure. The entire structure has been modeled on the GaAs substrate at room temperature 300 K.

Keywords— Quantum well, Polarization, Heterostructure.

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The Use of Eye Gaze Gesture Interaction Artificial Intelligence Techniques for PIN Entry

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Abstract— With an increasing number of computer devices around us, and the increasing time we spend for interacting with such devices, we are vehemently motivated in finding new interaction methods which ease the use of computers or increase interaction efficiency. Eye tracking seems to be a promising technology to achieve this goal. This paper researches interaction methods based on eye gaze tracking technology with emphasis in PIN entry. Personal identification numbers (PINs) are one of the most common ways of electronic authentication these days and they are used in a wide variety of applications. The PIN-entry user study used three different gaze-based techniques for PIN entry. The first and second method used gaze pointing to enter the PIN on a number pad displayed on the screen. The first method used a dwell time of 800 milliseconds and the second method used a button, which had to be pressed when looking at the correct number on the number pad display. The second method was introduced as hardware key or gaze key, but called look & shoot method in the context of the user study as this name is self-explaining and got high acceptance by the participants. The third method used gaze gestures to enter the digits. The use of gaze gestures protects accidental input of wrong digits.

Keywords— Eye Tracker, Gaze Gesture, Human Computer Interaction, Personal Identification Number.

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Student's Satisfaction Model in Open and Distance Learning Mode of Education system: a structural equation modeling approach

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Abstract— The main purpose of this study was to develop a student's satisfaction model in open and distance learning (ODL) mode of education system. There are different factors that can influence the student's satisfaction in ODL mode of education system, but in our study we have taken only three factors namely student's Technology Expertise, Flexibility of ODL mode of education system and Usefulness of ODL mode of education system. Here we proposed a model based on Technology Acceptance Model (TAM) with the above mentioned factors as a core constructs together with the construct satisfaction. The participants in this study were 196 learners who enrolled various graduate, postgraduate, diploma and certificate programmes in different ODL institutions in North-East region. A self-designed questionnaire that comprises 19 items was administered as a tool for data collection. The collected data were coded and analyzed using SPSS AMOS v.23. Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) were used to validate and explore the relationship among constructs of the model. The outcome of this study reveals that student's Technology Expertise, Flexibility and Usefulness significantly influenced the student's satisfaction in ODL mode of education system. Furthermore students Technology Expertise was found to be a significant predictor of Flexibility of ODL mode of education system.

Keywords— Open and Distance Learning, Technology Acceptance Model, Technology Expertise, Confirmatory Factor Analysis, Structural Equation Modeling.

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Impact of pharmaceutical industry wastewater on photosynthetic pigments and proline content of *Spirodela polyrhiza* (L.) Schleid.

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Abstract— The present study was conducted to assess the impact of pharmaceutical industry wastewater on photosynthetic pigments (chlorophyll a, chlorophyll b, total chlorophyll, carotenoid, anthocyanin) and proline content of *Spirodela polyrhiza*. The plants were exposed to 25, 50, 75, and 100 percent effluent concentrations for seven days under laboratory conditions. The results of the study showed that chl a, chl b, total chlorophyll, anthocyanin and carotenoid content of *Spirodela polyrhiza* decreased significantly with increasing effluent concentration at all the exposure periods. On contrary, proline content of *Spirodela* was increased with both concentration and duration of exposure. The overall findings revealed that *Spirodela polyrhiza* positively respond to abiotic stress induced by pharmaceutical wastewater and can be used for the treatment of wastewater.

Keywords— Biochemical parameters, Pharmaceutical wastewater, Plant, *Spirodela*

Thermographic Image Classifier Using Transfer Learning

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Abstract— The present work proposes to develop a tool to classify images generated from thermographic inspections. The proposal is to classify the situation of the equipment as normal and critical. For the development of this classifier, transfer learning techniques were used using already trained convolutional neural networks and recognition in the artificial intelligence environment. These networks have grown a lot in recent years and are being used in several applications that involve image classification. Finally, the work presents a comparison of a basic convolutional neural network and the VGG-16 and ResNet-50 networks that are already widespread in the midst of deep learning.

Keywords— Classifier, convolutional neural network, images, thermographic inspections, transfer learning.

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