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On behalf of the organizing committee, we are pleased to announce that the International Conference On Engineering Technology And Innovation is held on ***September 13-17, 2023 in Belgrade, Serbia*** *(Hybrid Conference).* ***ICETI 2023*** *provides an ideal academic platform for researchers to present the latest research findings and describe emerging technologies, and directions in Engineering Technology And Innovation. The conference seeks to contribute to presenting novel research results in all aspects of Engineering Technology And Innovation. The conference aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Engineering Technology And Innovation. It also provides the premier interdisciplinary forum for scientists, engineers, and practitioners to present their latest research results, ideas, developments, and applications in al lareas of Engineering Technology And Innovation. The conference will bring together leading academic scientists, researchers and scholars in the domain of interest from around the world.* ***ICETI 2023*** *is the oncoming event of the successful conference series focusing on Engineering Technology And Innovation. The International Conference on Engineering Technology and Innovation* ***(ICETI 2023)*** *aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Engineering Technology and Innovation. It also provides the premier interdisciplinary forum for scientists, engineers, and practitioners to present their latest research results, ideas, developments, and applications in all areas of Engineering Technology and Innovation. The conference will bring together leading academic scientists, researchers and scholars in the domain of interest from around the world. The conference's goals are to provide a scientific forum for all international prestige scholars around the world and enable the interactive exchange of state-of-the-art knowledge. The conference will focus on evidence-based benefits proven in technology and innovation and engineering experiments.*

Best regards,

Prof. Dr. Özer ÇINAR

STUDYING THE IMPACT OF UAVS ADOPTION ON THE SAFETY PERFORMANCE OF CONSTRUCTION PROJECTS USING AGENT-BASED MODELING

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Abstract:

Despite recent improvements in construction safety, this industry remains one of the major contributors to the number of work-related injuries and fatalities. Unsafe site conditions and unsafe behavior by workers are the two main reasons behind accidents and accordingly these two factors should be continuously monitored. The traditional practice of safety inspection by a safety officer who navigates the site is very tedious and time consuming. Drones or unmanned aerial systems (UAS) can be used to aid in this process since they can fly around the site collecting assets rapidly and frequently and can reach limited-access locations. The use of this technology in construction is still new and studies related to the employment of UASs on actual construction projects for safety monitoring are scarce in the literature. Therefore, this study employs agent-based modeling to examine the effect of the adoption of drones for safety inspections on the safety performance of construction sites compared to the traditional practice. The safety performance is evaluated using three types of indicators: incident rate, safety behavior, and hazards reported. Moreover, the safety performance is explored under various scenarios reflecting important features of the project, such as, the level of site risk and the initial attitude of workers towards safety. The results show that at the end of one year, the mean incident rate is 3.9 in the case of the inspector and 0.63 with the UAS. Moreover, during this year, 42% of hazards were detected by the inspector versus 79% by the UAS. Finally, a total decrease of 13.6% in the unsafe behavior of workers is observed with the UAS, while an increase in the unsafe behavior is noticed in the case of the inspector. For the case of the UAS, the performance shows better results in projects with high levels of risk, and in projects where the initial safety culture is weak. The study contribution lies in providing safety managers and practitioners with a preliminary idea about the practical benefits of drones when used for safety monitoring, as well as the chance to understand, based on the nature of the project, whether employing the UAS can add value to their system.

Keywords: Agent-Based Modeling, Construction Safety, Safety Performance, Safety Inspector, Unmanned Aerial System (UAS)

TOPOLOGY OPTIMIZATION PROCESS OF AN IC ENGINE MOUNT BRACKET

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Abstract:

Performing a computational structural analysis effectively during mechanical design process might heavily depend on the selection of the tool that will be used for a given task. Besides, some techniques such as trial-and-error methods might take enormous computational & analysis times for the user. To overcome this issue, optimization processes were introduced to the literature some time ago. People who work in the field of computational mechanics have shown an interest in optimization tools for saving time in their studies. An optimization process needs a simultaneous collaborative study between CAD, CAE and manufacturing experts. It is inevitable that handling an optimization problem might also come up with several challenging matters. Hence, suitable software is necessary to avoid any potential difficulties & inaccuracies associated with the analysis tool. One example of this software is the Optistruct program which requires Hypermesh for finite element modeling and meshing. In that way, a full solid model can be used as an input to the Optistruct program along with limitations related to the design space, strength limits and resonance considerations. To accomplish this task, all these parameters must be considered in detail. Following the computational analysis, experimental setups are required for the sake of accuracy and results validation. In this study, steps involved for this type of analysis are explained in detail. Pros and cons of the computational procedure are also presented. To give a demonstration on this problem, a topology optimization problem which involves an IC engine mount bracket is illustrated. Validations are realized through experimental analysis. Future possible applications of the current methodology are discussed as well.

Keywords: Topology Optimization, Optistruct Software, Finite Element Modeling For Optimization

EXAMINATION OF THE IMPACT OF INCREASING THE NUMBER OF CAVITIES IN MOLDS ON PRODUCTION EFFICIENCY

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Abstract:

The industrial sector is constantly looking for ways to increase productivity and satisfy the market's rising needs. The optimization of mold design, namely the quantity of cavities within a mold, is one area of attention. The goal of manufacturers is to boost production speeds and overall efficiency by increasing the number of cavities.

The aim of this study is to determine how production efficiency is affected by the number of cavities. highlighting the advantages and disadvantages of increased mold cavities. The production efficiency of a sample product with an increased number of cavities was examined in terms of production speed, cycle time and mold costs.

According to preliminary research, molds with more cavities can produce goods with a significantly higher level of efficiency. Higher cavity counts have shown the ability to boost output, shorten cycle times, and maximize resource efficiency. The need for careful quality control procedures and higher mold costs are just a couple of the potential trade-offs that must be taken into account.

The findings of this study offer useful information to manufacturers looking to enhance their production procedures. By providing evidence for the effects of mold cavity count on production efficiency, the findings add to the body of existing knowledge. The outcomes can serve as a roadmap for decision-making, influencing mold design decisions and facilitating the adoption of cost-effective tactics in the manufacturing sector.

Keywords: Mold Design, Number Of Cavity, Production Efficiency, Cycle Time, Manufacturing Industry

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