STEM 2019 A

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Batch A

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Editor-in-Chief
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Batch A

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PREFACE

The StemConferences 2019 held on 03rd – 04th January, 2019, at London, United Kingdom.

London, the capital of England and the United Kingdom, is a 21st-century city with history stretching back to Roman times. At its centre stand the imposing Houses of Parliament, the iconic 'Big Ben' clock tower and Westminster Abbey, site of British monarch coronations. Across the Thames River, the London Eye observation wheel provides panoramic views of the South Bank cultural complex, and the entire city.

StemConferences 2019 provides a chance for Academic and Industry professionals to discuss the recent progress in the area of Multiple. The outcome of the conference will trigger for the further related research and future technological improvement. This conference highlights the novel concepts and improvements related to the research and technology.

The technical committee consists of experts in the various course subfields helped to scrutinize the technical papers in various fields, support to maintain the quality level of the proceedings of conference which consist of the information of various advancements in the field of research and development globally and would act as a primary resource of researchers to gain knowledge in their relevant fields.

The constant support and encouragement from all the associated has helped a lot to conduct the conference and to publish the proceedings within a short span. I would like to express my deep appreciation and heartfelt thanks to the publishers team members. Without them, the proceedings could not have been completed in a successful manner. I would like to express my sincere thanks to our management, student friends and colleagues for their involvement, interest, enthusiasm to bring this proceeding of the conference in a successful way.

Dr James Cameron,

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Shape Recognition using Regression Curves with the EM Algorithm

Abdullah A Al-Shaher[1]

[1]Department of Computers and Information Systems, College of Business Studies,
Public Authority for Applied Education and Training, Kuwait

Abstract: *In this paper, we demonstrate how regression curves can be used to recognize 2D non-rigid handwritten shapes. Each shape is represented by a set of non-overlapping uniformly distributed landmarks. The underlying models utilize 2nd order of polynomials to model shapes within a training set. To estimate the regression models, we need to extract the required coefficients which describe the variations for a set of shape class. Hence, a least square method is used to estimate such modes. We proceed then, by training these coefficients using the apparatus Expectation Maximization algorithm. Recognition is carried out by finding the least error landmarks displacement with respect to the model curves. Handwritten isolated Arabic characters are used to evaluate our approach.*

Chemical Compound Mining for Big Data

Jungkee Kim[1]
[1]Sungkonghoe University, Seoul, Korea

Abstract: *The increasing size of data in chemistry and biological sciences requires a new development methodology for mining useful information. Research papers for chemistry and biological science are new source of information for chemistry structures. Mining chemical structures from the papers gives a state-of-the-art chemistry structure information. This paper introduces a case study of a chemical mining process to collect chemical structures and present in three-dimensional graphic from a number of research papers and propose a set of key components necessary for processing on the big data.*

International Conference on Education and Learning 2019

The India Window Program – in Private Public Partnership Model

Jungkee Kim[1]
[1]Sungkonghoe University, Seoul, Korea

Abstract: *The India Window Program was started in 2000 and has been in service for about 20 years. However, the India Window Program is not widely known due to lack of English documents for the program. In this paper, we introduce a variation of the Private Public Partnership Model between Korea and India. We present the current status and result of the India Window Program. We next provide the processes of preparing the program in the two countries, the relationships of the education institutions in India, the operation of the educational program, and remote the education to advise the IWP participants.*

International Conference on Grid and Distributed Computing 2019

Rule-based Classification for Web Robots

Jungkee Kim[1]
[1]Sungkonghoe University, Seoul, Korea

Abstract: *The Internet provides a general communication environment for resource sharing and Web is an example of a communication medium used for information representation and exchange on the Internet. Many organizations maintain Web servers which can collect the access logs of the Web users. These access logs provide a valuable source of information about the visitors' access patterns in the Web site, but Web robots may mislead the analysis of the access logs. Despite of advances in Web robot detection techniques, this paper propose a set of key components necessary for robot classification based on the access logs and provides a case study of the rule-based classification based on the proposed robot classification algorithm.*

A Study on the Ecological Characteristics in Korean Traditional House

Kim Hyo Won[1], Jae Eun Yoon[2]

Abstract: *Since industrialization, modern architectures seem to be superior to nature, but as a result of the interaction, various environmental pollution such as dust, waste, etc. has resulted in various damage such as ecosystem destruction, abnormal weather, and fine dust. Beginning in the 1990s, diverse methods and continuous interest have been presented in the reflection of Western civilization and green architectural methods. Therefore, the purpose of the research is to provide an opportunity for us to think back about our future direction through the architecture of a fleet neglected by reckless development. Therefore, in this study, the ecological characteristics of traditional Korean houses are analysed by deriving theoretical considerations and spatial characteristics of traditional houses through cases of straw and roof tiles that best depict the characteristics of traditional Korean housing. The ecological characteristics of Korean traditional houses derived from the conclusion are shown in environmental, structural, and technological aspects. First, Hanok is an energy-saving house suitable for the climate and natural environment. Second, energy dimension and living space were secured by minimizing external influences through deployment. Third, in terms of technology, the roof was secured with dirt and tiles, and a large load was used to push the column to design the seismicity.*

A Study on the Contextual Characteristics of Airport Architecture – Focusing on the architecture of Curtis Fentress

Jia Lee[1], Jae Eun Yoon[2]

Abstract: *The design of airport architecture provides a first impression of a country, with symbolic and comprehensive information, and is an important factor in public perception. Governments and architects have identified airports as a landmark by understanding airport construction as a measure of economic growth. Curtis W. Fentress, a proven architect, demonstrates sustainable architecture reminiscent of a region. In order to understand the contextual features of airport design, characteristics of architecture are extracted after considering concepts, meanings, and factors based on an area's background. Firstly, as an essential part of the architecture process, the natural elements and surrounding environments of the area are assigned to the buildings, offering organic design elements to the airport's construction. Secondly, by imitating or transforming the flow, history and culture of the area, the symbolism of the architecture becomes more prominent. Lastly, the relationship between architecture and the environment is conveyed throughout the building by expressing the unique characteristics and climate of the region. Fentress' airport architecture has become very well-known as it is capable of keeping a constant connection between the environment and human beings simply by expressing three main characteristics in the design. The purpose of this study of Curtis W. Fentress' airport architecture is to emphasise the relationship between the design of a building and it's surrounding environment.*

A Study on Spatial Structures in Green Architectural Design - Focusing on Award-Winning Works from 2017 Korea Green Architecture Competition

Kim Su Yeun[1], Jae Eun Yoon[2]

Abstract: *Globally, with the aim of coping with climate change from global warming and realizing nature-friendly development, such as through the reduction of greenhouse gases and efficient use of energies, there is an ever-growing demand for green architectural activities that will create healthy living spaces by planning ways in which both humans and nature can coexist in harmony. With the same goal, Korea has also been holding a number of large-scale high-quality competitions intended to discover best practices of green architecture to cope with climate change and promote R&D for related technologies, as well as to broaden the base of green architectural buildings. In this study, the scope of study involves the award-winning works from "2017 Korea Green Architecture Competition," the most prestigious one in Korea, and an analysis has been conducted on the spatial structures found in the green architectural designs by a total of 10 award-winning works. In the case of the study method, based on the theoretical contemplation of the background in which green architecture came into being and its conceptual definition, the spatial characteristics (spatial structure; windows and doors; landscaping; traffic line, etc.) appearing in the green architectural design by each award-winning work were largely divided into vertical and horizontal structures and then a comprehensive analysis was carried out.*

A Study on the Practical Characteristics of 3D Printing Architecture

Jisoo Kim[1], Jae Eun Yoon[2]

Abstract: *3D printers are used in various fields for designing, manufacturing, and production. They have emerged as new tools that blur the boundaries between consumers and producers. This study focuses on architectural applications of 3D printing technology and analyses the practical characteristics of 3D printed architecture present in various countries. In this study, we examine the practical applications of 3D printing in architecture in terms of economics, morphology, and the environment. Firstly, the economic advantages of 3D printed architecture result in reductions in construction times, manpower, and overall expense. Secondly, diverse design expressions have appeared that use various geometric curves which broaden the morphological aspects. Lastly, 3D printing can increase the use of recyclable materials thus minimizing environmental waste. The advantages of 3D printing align with what architecture of the future aspires to. 3D printing is currently a technology used in many fields, however it is still developing and is expected to become increasingly useful in architecture in the future. Known as it is capable of keeping a constant connection between the environment and human beings simply by expressing three main characteristics in the design. The purpose of this study of Curtis W. Fentress' airport architecture is to emphasise the relationship between the design of a building and it's surrounding environment.*