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**Society of Engineering &
Technology, Computer,
Basic & Applied Sciences**



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CONFERENCE PROCEEDINGS

BOOK OF ABSTRACTS ECBA-2018

**International Conference on
“Engineering & Technology, Computer, Basic and Applied
Sciences”
(ECBA-2018), Seoul, South Korea**



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Book of Abstracts Proceeding

**International Conference on
“Engineering & Technology, Computer, Basic and Applied
Sciences”
(ECBA-2018)
Seoul, South Korea**

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**International Conference on
“Engineering & Technology, Computer, Basic and
Applied Sciences”
Seoul, South Korea
Venue: Nine Tree Premier Hotel Myeongdong 2,
South Korea**

ORGANIZING COMMITTEE

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CONFERENCE CHAIR MESSAGE

Dr. Malika Ait Nasser

International Conference on “Engineering & Technology, Computer, Basic & Applied Sciences” serves as platform that aims to help the scholarly community across nations to explore the critical role of multidisciplinary innovations for sustainability and growth of human societies. This conference provides opportunity to the academicians, practitioners, scientists, and scholars from across various disciplines to discuss avenues for interdisciplinary innovations and identify effective ways to address the challenges faced by our societies globally. The research ideas and studies that we received for this conference are very promising, unique, and impactful. I believe these studies have the potential to address key challenges in various sub-domains of social sciences and applied sciences.

I am really thankful to our honorable scientific and review committee for spending much of their time in reviewing the papers for this event. I am also thankful to all the participants for being here with us to create an environment of knowledge sharing and learning. We the scholars of this world belong to the elite educated class of this society and we owe a lot to return back to this society. Let's break all the discriminating barriers and get free from all minor affiliations. Let's contribute even a little or single step for betterment of society and welfare of humanity to bring prosperity, peace and harmony in this world. Stay blessed.

Thank you.

Dr. Malika Ait Nasser

Conference Chair

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Conference Program
DAY 01 Saturday (December 15, 2018)

Venue Nine Tree Premier Hotel Myeongdong 2

09:00 am – 09:10 am	Welcome Reception & Registration
09:10 am – 09:20 am	Introduction of Participants
09:20 am – 09:30 am	Inauguration and Opening address
09:30 am – 09:40 am	Grand Networking Session
09:40 am– 10:00am	Tea Break

DAY 01 Saturday (December 15, 2018)

Session I (10:00 am – 12:00 pm)

Session Chair: Leon Yap

Track A: Business, Economic, Social Sciences and Humanities

GSBEM-DEC-104	The Move From E-Learning, To M-Learning And Technology Based Learning And Challenges In Regulated Learning Spaces In South Africa	Mr. Joseph Venables
GSBEM-DEC-112	Optimal Reserve Accumulation with Capital Controls	Bada Han
GSBEM-DEC-109	determinants of Firms' Presence on and Use of Twitter: An Empirical Study	Sok H Kang
GSBEM-DEC-114	Visual Representation Based on an Empirical Study of Mean-Variance-Skewness Model	Miao Yun Wei
GSBEM-DEC-118	You Know Me? Then Follow Me: An Investigation Of Impact Of Brand Familiarity And Source Congruity	Sua Jeon

Track B: Engineering, Technology Computer and Applied Sciences

RCEET-128-KR103	Non-invasive home management neurostimulation solution for relieving venous stasis and edema in lower limbs	James Mok
SEO-3128-103E	Lightweight Pem Fuel Cell Stack For Unmanned Aerial Vehicle	Jinmyun Jo

Track C: Medical, Medicine and Health Sciences

SEO-3128-105M	Establishment of the Shari'ah Framework for the Application of Somatic Gene Therapy in Human	Zakiah Samori
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Lunch (12:00 pm – 01:00 pm) Closing Ceremony

List of Conference Attendees

The following Scholars/ practitioners/educationist who don't have any paper presentation, however they will attend the conference as delegates & observers.

Sr. No	Official ID	Name	Affiliation Details
1.	SEO-3128-101BA	Jin Gyu “Phillip” Park	College of Visual Arts & Design, University of North Texas, USA
2.	SEO-3128-106MA	Natalie Cohen	NC Biologics Consulting, Consultant, drug development, Israel



DAY 02 Sunday (December 16, 2018)

City Tour and Shopping Day

All respective guests are free to conduct their own sightseeing and tour. The second day of the event is reserved for this memorable purpose.



**TRACK A: ENGINEERING & TECHNOLOGY,
COMPUTER, BASIC & APPLIED SCIENCES**



Non-Invasive Home Management Neurostimulation Solution for Relieving Venous Stasis and Edema in Lower Limbs

James Mok*

Abstract Revene(X-Pro) is non-invasive, compact, on-demand home management solution for relieving venous stasis and edema in lower limbs of patients with early stages of chronic venous insufficiency. We have recently completed its initial proof of concept study where a working concept prototype was successfully developed and tested for safety and efficacy in a 10-patient first-in-man trial which has validated the methodology and approach of the proposed medical device. In subsequent phases, the team aims to advance this technology by focusing on the new functional product development and necessary trials required as sufficient documentation and evidence for future regulatory review (e.g. US FDA 510(k)). The product development will consist of further human factors/ethnographic studies and understanding of the intended disease application to refine the technical and design requirements and to get to a design system architecture for design freeze.

Keywords: Non-Invasive Home Management, Neurostimulation

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Lightweight Pem Fuel Cell Stack For Unmanned Aerial Vehicle

Efren Cervantes¹, Anthony Porter¹, Jorge D. Lopez Irlanda², N'Dea Jackson¹, Dwayne Geter¹, Can Zhou³, Xiyu Zhang³, Jinmyun Jo*¹

Abstract Fuel cell is an electrochemical device that converts fuel into electricity. Polymer electrolyte membrane fuel cells (PEMFCs) have been used for ground transportation due to its high efficiency and zero carbon emission. When it comes to unmanned aerial vehicles (UAVs), PEMFCs can support much longer flight endurance than internal combustion engine and battery do. However, lightweight PEMFC stack is required in order to carry enough payload for UAVs. In this research, a light weight fuel cell stack was developed and fabricated based on the Horizon fuel cell stack. The stack components, including end plates, bipolar plates, and interconnects were redesigned and fabricated to replace those heavy components. Additive manufacturing (3D printing) and electroplating were used to fabricate bipolar plates and interconnects. The fabricated lightweight PEMFC stack was evaluated and compared with the standard performance. The presentation includes design and fabrication, performance characterization, weight reduction strategy, and future work.

Keywords: Lightweight Fuel Cell, UAV, PEMFC, Bipolar Plate, 3D Printing, Electroplating

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**TRCAK B: MEDICAL, MEDICINE AND HEALTH
SCIENCES**



Establishment of the Shari'ah Framework for the Application of Somatic Gene Therapy in Human

Zakiah Samori¹, Fadilah Abd Rahman²

Abstract Human gene therapy is best known as a transfer of nucleic acids to either the somatic cells or germ cells of an individual. It introduces genetic materials which have therapeutic purpose ranging from inherited genetic disorders to certain malignancies and infectious diseases. This medical scientific breakthrough has received lucrative demand worldwide as it offers potential treatment to cure genetic diseases in human at the molecular level. Since then, thousands of people have already participated in the trials thus it is likely to be part of medical practice in the future. Despite of the tremendous benefits that it promises, this new biomedical technology has given rise to several contentious issues from the ethical and religious point of view. Since it comprises of two different therapies namely somatic and germ line gene therapy, each involves different procedures thereby poses different legal ruling and decision. This study attempts to propose a complementary model of the Shari'ah framework on the human gene therapy with special reference to the somatic gene therapy. This proposed framework is designed and developed to fulfil the lacuna of the Shari'ah Framework on the application of the somatic gene therapy after an in depth study of its position from the Shari'ah point of view. In achieving this, a detailed analysis and outlook into the Qur'anic evidences along with the Hadith of the Prophet Muhammad pbuh were carried out. Following this, its position from the pragmatic approach of the Maqasid al-Syariyyah (Objective of the Shari'ah) and the Qawa'id Fiqhiyyah (Islamic Legal Maxims) is also analysed in further detail. This model of Shariah Framework would serve as the ethical basis for the application of somatic gene therapy in Malaysia and beyond (particularly Muslim countries) especially for Muslim doctors, scientists and Muslims at large. For Muslim countries such as Malaysia where Muslims makes the majority of the population and Islam as the official religion in Article 3 of its Federal Constitution, this framework is deemed to be important reference in providing the essential guidelines on the permissibility of this therapy. Consideration of the position of Somatic Gene Therapy from the Shari'ah perspective is undeniably crucial in any attempt to regulate Somatic Gene Therapy in any Muslim countries in the future.

Keywords: Somatic Gene Therapy, Shari'ah Framework, Islamic Principles Maqasid Syariyyah Qawaid Fiqhiyyah

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**TRACK C: BUSINESS, ECONOMICS, SOCIAL
SCIENCE & HUMANITIES**



The Move From E-Learning, To M-Learning And Technology Based Learning And Challenges In Regulated Learning Spaces In South Africa

Mr. Joseph Venables^{1*}, Juan Nel², Lize Moldenhauer³ Cindy Londt⁴

Abstract Electronic Learning (e-learning), like Mobile Learning (m-learning) and Technology Based Learning (t-learning) is a wide and varied subject that has the common ability to ask more questions than it is capable of answering. Adding to the technical specifications of the learning platform, is the ability to use it in a regulated learning space, which is varied in South Africa with Higher Education (university based learning) having e-learning guidelines, but Sector Education, Training Authorities still not supporting the implementation of learning because of the various platforms and their quality assurance regulatory framework. One of the most pressing issues internationally is how e-learning is able to offer progression within the work environment. There are several countries that have initiatives in place that are able to facilitate this enterprise, for example Norway, United Kingdom and the United States of America, however, challenges still remain in South Africa when it comes to dealing with this subject matter. As can be clearly deduced, being a country with financial issues, funding tends to be a major challenge when considering platforms within the field of e-Learning that can be used by organisations. South Africa has low GDP per capita when compared with other countries such as the US, the UK and especially the Scandinavian countries. Technology is the driving force of businesses, not just with profit-making, but with the way the business is conducted. It is impossible, or at least improbable, that progress can be made without some kind of technology based learning for potential employees but one that works in conjunction with regulatory authorities.

Keywords: E-learning, M-learning, Accredited Learning in South Africa

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Optimal Reserve Accumulation with Capital Controls

Bada Han*

Abstract In this paper, we first build a model of international reserves as a policy tool against sudden stops where we introduce two distinctive features. First, we assume that reserves can work as a collateral so as to provide Emerging Market Economies (EMEs) more leverage. This assumption not only provides an incentive to hold costly reserves, but also explains why EMEs were hesitant to deplete their reserves during sudden stops. Second, following recent papers of foreign exchange market interventions, we assume that UIP does not perfectly hold in foreign exchange markets in EMEs, which allows reserve accumulation to raise the Net Foreign Assets of the EME. However, despite the two advantages of accumulating reserves, holding reserves results in a form of moral hazard of decentralized agents. Moreover, because of the moral hazard, the reserves management policy is time-inconsistent. With the constructed model, we explore how macroprudential capital controls can handle these side effects. Like the preceding works, we find that the optimal tax on the foreign borrowing eliminates the moral hazard, which greatly raises the effectiveness of reserve accumulation. Further, we show the optimal tax rate on foreign borrowings increases in reserves since the size of the overborrowing becomes larger as the government accumulates more reserves. Based on this finding, we suggest a simple, yet effective taxation in which the tax rate increases in reserve accumulation.

Keywords: International Reserve, Capital Control, Sudden Stop

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Determinants of Firms' Presence on and Use of Twitter: An Empirical Study

Sok H Kang*

Abstract In this paper we explore the determinants of a firm's decision to create and use a Twitter account, and its volume of tweets for dissemination of information and engagement with the firm's stakeholders. We use a sample of 170,029 firm - quarters (50,439 Twitter firm - quarters), 7.64 million tweets, 38.30 million retweets, 0.92 million likes and 5.5 million followers from the primary Twitter accounts of 3,085 unique Twitter firms between January, 2006 and December, 2017 for our analysis. This makes it the most comprehensive study, to the best of our knowledge, about firms' use of Twitter accounts and their Tweets. Our results suggest that the main determinants of a firm's decision to create a primary Twitter account are business and financial information uncertainty, customer engagement and information dissemination, peer pressure and CEO influence, market - concentration, and litigation risk. In particular, we find that firms with growth options (market - to - book), revenue volatility, loss in previous quarters, higher proportion of intangible assets, lower institutional ownership, younger CEOs, belonging to hi - tech or retail or litigation risky or higher percentage of Twitter firms or higher hh - index (higher concentration) industries are more likely to have a presence on and also use Twitter for dissemination of information and engagement with their followers. We also find that dissemination on Twitter and management guidance are complementary. We further find that market - to book, proportion of industry firms on Twitter, hh - index, loss - dummy, litigation risk, hi - tech firms, retail firms, sales, and proportion of intangible assets have a positive association whereas revenue volatility, return volatility, proportion of R&D expenses and firm,s age have a negative association with the volume of tweets by firms . Our results also suggest that firms and their followers (stakeholders) may have different incentives in engaging on Twitter as hi-tech industry firms, hh-index, proportion of intangible assets and institutional ownership (insignificant for firm's volume of tweets) are negatively associated with the volume of retweets and likes by followers.

Keywords: Determinants of, Twitter, An Empirical Study

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Visual Representation Based On An Empirical Study Of Mean-Variance-Skewness Model

Liang Chuan Wu¹, Miao Yun Wei^{2*}

Abstract The use of a mean-variance-skewness model in portfolio performance has increasingly been the object of studies in recent years and there are a lot of studies on mathematical guidance. However, there are few specific methods in empirical studies. The purpose of this paper focuses on the practical research and visualization results in the mean-variance-skewness model. This study will argue that there will be better portfolio options conditional on mean-variance-skewness than conditional on mean-variance when investors consider the situation in skewness. The paper studies a mean-variance-skewness model in the Standard & Poor's 500(S&P 500) Stock Index log-return by using MATLAB. To begin with, the study generates random asset weight combinations. Then, calculating weights to estimate the proportion of each company stock in the S&P 500 Index through exponential functions. In addition, computing means, standard deviations, and skewness of portfolio return according to weights. Last but not least, the study visualizes data generated by the 3-dimension chart. Furthermore, this research uses the visualization tool to analyze results by representing charts of different orientations in a mean-variance-skewness model. The study can examine the influence on mean-variance by means of comparing different points. As a result, the study can get optimal portfolio selections. The results indicate that there are more opportunities to choose which takes skewness into account when compared mean-variance-skewness to mean-variance. Moreover, there is more risk diversification based on mean-variance-skewness than based on mean-variance. These results have implications for empirical research of mean-variance-skewness model and data visualization.

Keywords: Empirical Study, Visual Representation, Mean-Variance

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You Know Me? Then Follow Me: An Investigation Of Impact Of Brand Familiarity And Source Congruity

Sua Jeon*

Abstract There has been less attention to source-audience congruity research and also very little is known about the exact relationship between source-audience congruity and customer behavior. Thus, this research attempts to investigate the effect of brand familiarity on consumers' attitude formation and behavioral intention. More specifically, this study aims to explore the role of source congruity on consumer behavior within the advertising context. Using a 2 (brand familiarity: high vs. low) x (source congruity: high vs. low) between-subjects factorial design, this study found that brand familiarity plays the most important role in promoting consumers' attitude toward brand, product, and advertisement and behavioral intention. In addition, findings reveal that there is a significant effect of interaction between the brand familiarity and source congruity on attitude toward advertisement. This implies that the interaction may perhaps reduce consumer uncertainty and in return foster the creation of positive feelings toward advertisement.

Keywords: Brand Familiarity, Source Congruity, Experiments

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