PROCEEDINGS

AMPE-2019

2nd International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology

Venue: Hotel Mystays Ochanomizu Conference Center

Tokyo, Japan

Date: January 19-20, 2019

Consortium of Engineering & Technology

CONFERENCE BOOK OF ABSTRACT PROCEEDINGS

Consortium-ET

Consortium of Engineering & Technology

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2nd International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology (AMPE-2019)

Venue: Hotel Mystays Ochanomizu Conference Center Tokyo, Japan

Conference Theme: The idea of the conference is for the scientists, scholars, engineers and students from the Universities all around the world and the industry to present ongoing research activities, and hence to foster research relations between the Universities and the Industry

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Michael Sasaoka
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Conference Supervisor
Email: contact@consortium-et.com

Natthawut Kaewpitoon (Ph.D.)
Conference Cordinator
Email: contact@consortium-et.com

CONFERENCE TRACKS

- Computer and Software Engineering
- Mechanical & Metallurgical Engineering
- Electrical & Electronics Engineering
- Civil Engineering
- Bio-Technology & Food Technology
- Chemistry & Chemical Engineering
- Physical, Applied and Life Sciences
- Interdisciplinary

CONFERENCE CHAIR MESSAGE

Michael Sasaoka

"International Conference of Consortium of Engineering & Technology" is a platform that thrives to support the worldwide scholarly community to analyze the role played by the multidisciplinary innovations for the betterment of human societies. It also encourages academicians, practitioners, scientists, and scholars from various disciplines to come together and share their ideas about how they can make all the disciplines interact in an innovative way and to sort out the way to minimize the effect of challenges faced by the society. All the research work presented in this conference is truly exceptional, promising, and effective. These researches are designed to target the challenges that are faced by various sub-domains of the social sciences and applied sciences.

I would like to thank our honorable scientific and review committee for giving their precious time to the review process covering the papers presented in this conference. I am also highly obliged to the participants for being a part of our efforts to promote knowledge sharing and learning. We as scholars make an integral part of the leading educated class of the society that is responsible for benefitting the society with their knowledge. Let's get over all sorts of discrimination and take a look at the wider picture. Let's work together for the welfare of humanity for making the world a harmonious place to live and making it flourish in every aspect. Stay blessed.

Thank you.

Michael Sasaoka
Conference Chair
Email: contact@consortium-et.com

Start Time

09:00 am - 09:10 am:	Registration & Kit Distribution
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

Tea/Coffee Break (09:40 am -10:00 am)

Session: 01
10:00 am 12:30 pm: Presentation Session
Track A: Engineering, Technology & Applied Sciences

Presenter Name	Manuscript Title	Paper ID
AMPE-JAN19-101	Automatic Venipuncture Insertion Point Recognition Based on Machine Vision	Cheng-Ho Chen
AMPE-JAN19-102	Passive Filtration System with Embedded Shape Memory Alloys Wires for Unfiltered Splash Lubricated Gearboxes	Mr. Chi Yang
AMPE-JAN19-103	A Low-Power Variable-Gain LNA	Prof. Jian-Yu Hsieh
AMPE-JAN19-104	A Low-Power VCO	Prof. Jian-Yu Hsieh
AMPE-JAN19-105	A Model for Identification of Potential Experts and Leaders Based on Online Discussions	Jiang Liang Hou
TKE-319-101	Using the Numerical Wave Tank to Study on the Non-linear Long Wave Propagation over a Submerged Breakwater	Jen-Yi Chang
Track B: Business, Economics, Social Sciences & Humanities		
BMSS-JAN1262019	Sustainability in the automotive interior Comparison of volume and premium brand manufacturers	Wanja Wellbrock
BMSS-JAN104-2019	The relationship between Cultural intelligence and in-role performance with the mediating effect of work-family positive spillover	Yuan Ko
BMSS-JAN106-2019	The relationship between emotional intelligence and in-role performance and the mediating role of psychological capital among nurses in Taiwan	Shiou-Min Wang

Lunch Time (12:30 pm - 01:30 pm)

Session: 02
01:30 pm 03:30 pm: Presentation Session
Track C: Medical, Medicine, and Health Sciences

Presenter Name	Manuscript Title	Paper ID
TKM-319-103	The research on adolescent anti-smoking media literacy in Taiwan	An-Chi Hsu
TKM-319-109	Assessing Border Community Readiness for Health Management Prior to the Special Border Economic Zone in Thailand: A Case Study of Sadao District Songkhla Province, Thailand	Sawpheeyah Nima
Track B: Business, Economics, Social Sciences & Humanities		
BMSS-JAN108-2019	An Empirical Study of the Key Successful Marketing Strategies from the Resource-Based Perspective	Chien Pin Tang
BMSS-JAN109-2019	To Identify The Key Success Competitive Factors by Chain Drugstore Teng-Chang Hao	
BMSS-JAN110-2019	Health Behaviour, Change in Behaviour and Personalised Nutrition: The Conception Of Lifelong Health	Dr. Zoltn Szakly
BMSS-JAN115-2019	Convergence Among Cities in China	Shu-hen Chiang
BMSS-JAN118-2019	Semi-Static Hedging And Pricing American Floating Strike Lookback Options	Jr-Yan Wang
BMSS-JAN130-2019	Study Of The Http 404 and Reincarnation Phenomenon Under The Internet Governance In Mainland China	Yu-Li Wang

Closing Ceremony (03:30 pm - 04:30 pm)

Participants Registered As Listener/ Observer

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

Official ID: BMSS-JAN105-2019
Tsung-Hsien Chiang
National Taiwan University, Taiwan

Official ID: BMSS-JAN110A-2019
Dr. Kroly Pet
University professor, Debrecen University, Faculty of Economics and Business, Institute of Rural Development, Tourism and Sports Management

Official ID: TKM-319-104A
Tommy Chun On Lam
University of Queensland (Queensland Health

Official ID: TKM-319-107A
Tamar Khmaladze.
Medical college Panacea

Official ID: TKM-319-108A
Mindia Berelashvili
Medical college Panacea

Conference Day 02 (January 20, 2019)

Second day of conference will be specified for touristy. Relevant expenses are borne by Individual him/herself.

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TRACK A

BUSINESS, ECONOMICS, SOCIAL SCIENCES & HUMANITIES

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An Approach for Evaluating the Output Errors of a Project Scheduling Model with Uncertain Parameters

[1*]Shangyao Yan,[2]Sin-Siang Wang
[1]1Professor, Department of Civil Engineering, National Central University; No. 300, Jhongda Rd, Jhongli Dist., Taoyuan 32001, TaiwanChina
[2]PGraduate Student, Department of Civil Engineering, National Central University; No. 300, Jhongda Rd., Jhongli Dist., Taoyuan 32001, Taiwan
Corresponding Email: t320002@cc.ncu.edu.tw

Keywords: Project Scheduling Model, Uncertain Parameter, Objective Function, Constraint Set, Output Error.

The decision makers always hope to obtain optimal decisions when solving various opti- mization problems, such as project scheduling problems. To accomplish this goal, and solve these types of problems, optimization models constructed based on the system optimization concept have been widely used. However, when faced with practical problems, the optimization models may contain uncertain parameters. In this case, decisions made based on the obtained model solu- tion may not be optimal. In this study, we develop an approach to evaluate the output errors for a project scheduling model in which uncertain parameter values are included in the objective func- tion and the constraint set. Since there may be both certain and uncertain parameters included in the objective function and the constraint set, uncertain parameters included in the model have to be identified before performing the error tests. In addition, there are multiple controllable and random errors that occur when evaluating uncertain parameter values. Therefore, several various error sce- narios are designed to reflect possible controllable and random errors that occur when evaluating the uncertain parameter values included in the model. In addition, in order to understand the influ- ence of different solution tolerance errors on the model solution with input errors, several different solution tolerance errors are set when solving the model under each error scenario. Extensive test instances are used to perform the error tests over uncertain parameter values. Regression analysis of the test results of each error scenario is performed to further understand the correlation among the model input errors, the solution tolerance errors and the model output errors. Finally, some useful information and managerial meanings about designing the project scheduling models and solution algorithms in practice are illustrated from the test results.

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The Relationship between Cultural Intelligence and In-Role Performance with the Mediating Effect of Work-Family Positive Spillover

[1*]Yuan Ko,, [2]Angela Shin-yih Chen
[1,2]Dept. of Business and Administration, National Taipei University, New Taipei City, Taiwan
Corresponding Email: a0952959728@gmail.com

Keywords: Cultural Intelligence, Work-Family Positive Spillover, In-Role Performance
Article Type: Refereed Papers

Owing to the rapid advancement of technology, the world has become a global village. More and more multinational corporations are developing, and this has forced enterprises to have more expatriates within their organizational structure. However, during their intercultural interaction with the locals, individuals may have problems adapting to various aspects of their new environ- ment. Therefore, how to be accustomed to unfamiliar cultural context has become more and more important. The purpose of the current study was to examine the effects of cultural intelligence (CQ) and work-family positive spillover on individuals in-role performance. We collected data from the Taiwanese who were working overseas and we developed questionnaires through the Internet. By excluding invalid questionnaires, there were 232 responses which were valid. We adopted hierarchical regression to analyze the data and to test the effects of CQ on work-family positive spillover and in-role performance after controlling for gender, age, and English ability, respectively. In addition, we examined the mediating effect of work-family positive spillover on the relationship between CQ and in-role performance. The results showed that CQ had a positive effect on in-role performance. Besides, we found that work-family positive spillover mediated the relationship between CQ and in-role performance. The findings demonstrated that individuals with high CQ would be satisfied with both work and family, and then further enhance ones job perfor- mance. It is crucial to strike a balance between work and family. Thence, in the end, our current study provided discussion, theoretical implications, practical contributions, limitations, and rec- ommendations for the future study and management.

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The Relationship between Emotional Intelligence and In-Role Performance and the Mediating Role of Psychological Capital Among Nurses in Taiwan

*Shiou-MinWang
Department of Business and Administration, National Taipei University, New Taipei City, Taiwan
Corresponding Email:ssmwang0703@gmail.com

Keywords: Emotional Intelligence, Psychological Capital, In-Role Performance.

The purpose of the current study is to examine the effects of emotional intelligence (EI) and psychological capital (PsyCap) on in-role performance. We collect data from nurses in a major medical center in Taiwan. The number of valid questionnaires is 217, and the return rate was 86.8%. We adopt hierarchical regression to analyze the data and to test the effects of EI on PsyCap and in-role performance after controlling for age, gender, education, and seniority, respectively. In addition, we examine the mediating effect of PsyCap on the relationship between EI and in- role performance. The research results show that EI has a positive effect on in-role performance. Besides, PsyCap mediates the relationship between EI and in-role performance. After adding Psy- Cap to the regression, EI continues to have a significant positive effect on in-role performance. Therefore, we confirm that PsyCap partially mediates the relationship between EI and in-role per- formance. Our findings demonstrate new knowledge in the field of EI and PsyCap. These findings indicate that individuals with high EI and a positive attitude would show better ability to adjust and performance. In addition, the present study discovers that EI might be the predictor of a persons PsyCap, so both elements could help individuals to perform well in their position.

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An Empirical Study of the Key Successful Marketing Strategies from the Resource-Based Perspective

*Chien-Pin Tang
Senior District Sales Manager Janssen Taiwan, Janssen Pharmaceutical Companies of Johnson & Johnson Johnson & Johnson Taiwan Ltd. Room A1, 13F, Cathay Building, 502, Jou-Ru 1st Road, Kaohsiung 807, Taiwan
Corresponding Email: atang2@its.jnj.com

Keywords: Resource-Based View, Marketing Strategy, Key Success Factors, Medical Biologics, Industry and Pharmaceutical Industry.

The booming global biotechnology and pharmaceutical industry, the increased demand caused by changes in the global demographic structure, as well as the more actively transnational activities brought about by the liberalization of free trade, have created many opportunities for the global biological industry. The medical biologics industry is an important part of the biotechnology indus- try., the multinational corporations have a mixture of resources, capabilities and competitiveness, which creates a unique market position. The source of enterprise core competitiveness is come from the collection and integration of internal and external resources and knowledge. Therefore, how to establish the position and the image of the enterprise, as well as obtain the strategic compet- itiveness of excess profits must constantly examine the resources and capabilities of the enterprise itself. Nowadays, the global medical biologics industry is changing rapidly, Taiwans medical biolog- ics industry is booming. The mastery of marketing strategy has become an important factor in mar- ket success. However, the current medical biologics industry in Taiwan has not been thoroughly studied. To realize Taiwans medical biologics industry marketing strategy and its feature are very urgent indeed. Therefore, this empirical study is based on the four characteristics of the resource- based view such as: valuable (V), rare (R), inimitable (I) and non-substitutable (N)-VRIN criteria (Armstrong and Shimizu, 2007; Barney, 1991) and focuses on the immune biological medicine in the pharmaceutical industry to explore its key success for the feasibility of marketing strategy prac- tice. For exploring the key success factors, this study emphasis on the immune diseases medicine industry, conducts practical verification to improve the competitiveness of enterprises.

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To Identify the Key Success Competitive Factors by Chain Drugstore

*Teng-Chang Hao
General Manager, Chain of Hao Hao drugstore, No. 290 Fenglin Road, Fengshan District, Kaohsiung City, Taiwan 830, R.O.C
Corresponding Email: howardjr0406@gamil.com

Keywords: Resource-Based View, Chain Drugstore, Aging Market, Key Success Factors.

With the rapid development of technology and the Internet, the consumption pattern is con- stantly changing. The small pharmacies must adapt or face elimination from larger entities. In recent years, the situation has been industrial restructuring. Even the chain drugstore system orig- inally in the pharmaceutical industry has been affected by the chain of industrial mergers. In the positioning of the industry, the pharmacy belongs to the retail service industry. It needs to focus on the innovation of products and services. The customers of the retail pharmaceutical industry still need to provide services online and face-to-face communication on medication consultation and daily maintenance health information. There are solutions for these issues. In recent years, the global population has gradually aged, so many industries are targeting the elderly market and invested resources in the pharmaceutical industry. Regardless of how the environment changes, in order to get rid of the price-competitive pharmacy ecology, it is necessary to identify the superior resources that belong to the enterprise itself, and use organizational capabilities to target resources on the strategic focus. Given the four key characteristics of resource-based theory, including value, rarity, imitation, and irreplaceable exploration. (Barney, 1991; Amit and Schoemaker, 1993; Arm- strong and Shimizu, 2007) The purpose of this study was to apply exploratory interviews and key success factors for quantitative methods to enhance the continued competitive advantage of the Pharmacy in the market.

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Convergence among Cities in China

*Shu-hen Chiang
Department of Finance University / Organization Chung-Yuan Christian University,
Taoyuan, Taiwan
Corresponding Email: hshchiang@cycu.edu.tw

Keywords: Convergence, Inequality, Spillovers, Chinas Economic growth, Rolling window approach.

High growth associated with serious inequality in Chinas economy has provoked a great deal of controversy. How to display more efficient spillovers is the key to improving the convergence debate as a prerequisite to maintaining economic growth. In this paper, we apply disaggregated data from cities and industries during the 1952-2015 period to explore convergence and spillovers in China. It is found that convergence exists in cities. Besides, a rolling window approach is used to estimate time-varying spillovers across cities

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Semi-Static Hedging and Pricing American Floating Strike Lookback Options

*Jr-YanWang
Department of International Business University / Organization National Taiwan University, City.Taipei, Taiwan Centre of Excellence in Mathematics, Commission on Higher Education, Thailand
Corresponding Email: jryanwang@ntu.edu.tw

Keywords: American Floating Strike Lookback Option,Semi-Static Hedging, Put-Call Symmetry, Dynamic Hedging.

The floating strike lookback option is one useful type of exotic options in financial markets since it can serve as suitable tools for risk management or trading motivation. Although many methods have been developed to price European-style lookback options, there is no analytical solution available for American floating strike lookback options (AFSLOs) even under the Black- Scholes model. This paper proposes a novel method to extend the static hedging approach of Derman et al. (1995) and Carr et al. (1998) to evaluate and hedge AFSLOs. We first employ a technique of changing the numeraire, as suggested by Schroder (1999) and Babbs (2000), to derive a new partial differential equation (PDE) where the relative price of an AFSLO with respect to the underlying asset price must follow, and we next apply the static hedging approach on this new PDE to replicate the AFSLO with a hypothetic static hedging portfolio (HSHP). This paper is the first article to form a static replication portfolio for exotic options using non-tradable hypothetic options that are not existent in the real world. Nevertheless, the proposed method is numerically efficient because (1) the generated option price has the desirable pattern of monotonic convergence when the number of time points with matched boundary increases; and (2) it is much faster than the tree models for recalculating option values for changes in stock price and/or passage of time. The numerical results indicate that our HSHP is efficient for the valuation of the AFSLO. If one considers to match the boundary at 24 time points, the average absolute (relative) pricing error of the HSHP is only 0.0087 (0.12%), and it costs only 0.1028 seconds to evaluate 36 examined options. Moreover, the hedging performance of our semi-static hedging approach is far less risky than that of the commonly-used dynamic delta hedging approach based on tree models.

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Sustainability in Automotive Interior Comparison of Volume and Premium Brand Manufacturers

*WanjaWellbrock
NaHeilbronn University of Applied Sciences, Schwbisch Hall, Germany
Corresponding Email: wanja.wellbrock@hs-heilbronn.de

Keywords: Sustainability, Automotive Industry, Interior, Innovation.

Sustainability is regarded as the keyword of the 21st century. The topic of resource conserva- tion is now more relevant than ever. Above all, the automotive industry, which is the most important industry in terms of turnover and the growth engine for Germany, has to deal more intensively with sustainable development and the associated effects and challenges. Automotive manufacturers are under pressure to comply with both political guidelines and internal specifications, as well as with constantly changing individual customer wishes. For the automotive industry, topics such as electric motors, lightweight construction and CO2 emission reduction are key issues. Nevertheless, the cars interior cannot be ignored. After all, the interior is the part of a car most frequently seen by the driver and must therefore be practical, aesthetically pleasing and at the same time weight saving. The use of natural fibres as alternative materials in the interior plays an important role and is a further step towards greater sustainability. Consequently, the following research question arises: How do the three pillars of sustainability (economical, ecological and social issues) in- fluence automotive interior development at volume brand and premium brand manufacturers and how do customers accept sustainable solutions? The contribution focuses on premium and volume brand manufacturers and identifies significant differences between both customer groups. Based on a literature review on sustainability in the automotive industry, previous efforts to increase sus- tainability in the automotive interior are highlighted. Subsequently, an empirical study is used to determine the expectations on the customer side regarding more sustainability in the automotive industry in general and in the interior sector in particular and to derive corresponding challenges and potentials for original equipment manufacturers and suppliers. The empirical study is based on an online survey with randomly selected persons via social media. The survey was conducted via Survey monkey. All persons with a minimum age of 18 years were considered. Almost 400 participants fulfilled the desired characteristics.

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Study of the Http 404 and Reincarnation Phenomenon Under the Internet Governance in Mainland China

*Yu-LiWang
Department of Mass Communication, Chinese Culture University, Taipei, Taiwan
Corresponding Email: ylwang1022@gmail.com

Keywords: http 404, Freedom of Speech in Mainland China, Reincarnation, Resistance Strategy cial media.

As of the end of June 2018, the number of Internet users in China reached 802 million and the penetration reached 57.7%. On the one hand, China dedicated to develop the information in-frastructure, but on the other hand, it has not lossened the regulation of Internet governance on the freedom of speech aspect. This study meant to explore the intellectuals information receiving habits and the special environment of Chinese Internet realm in the new era. The secondary data analysis and in-depth interviews methods were employed, eight reincarnated people and six schol- ars and experts were interviewed during Nov. 11 2017 to Nov. 27, 2017. The results showed that the intellectuals information sources shifted mainly from the traditional news media to online me- dia and social media such as news outlet of traditional media,Weibo, andWechat. Http 404 and ID sealed phenomenon are the Internet governance with Chinese characteristics. The sensitive texts were hidden by showing Http 404 or Not Found from the website administrators. Furthermore, people who were labeled as tending to post the sensitive or forbidden texts would be implemented with all kinds of different control techniques. Those control techniques included block a single text, block partial function inWeibo orWechat friend circle, post a text only exclusive to yourself, ban the ID for few days, and terminated ID either by AI robot or the administrators. Therefore, there are many intellectuals who had experienced several times of being terminated their Weibo or Wechat IDs, and they came through reincarnation. This study also found they used several re- sistance strategies which include shift time and space strategy, reporting the facts, metaphorical writings, substitute the sensitive words, video strategy, changing digital code strategy, and multi- platform strategy as resistance strategies to fight for freedom of speech.

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TRACK B

MEDICAL, MEDICINES & HEALTH SCIENCES

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The Research on Adolescent Anti-smoking Media Literacy in Taiwan

*An-Chi Hsu
Dept. of PR & AD, Shih Hsin University, Taiwan
Corresponding Email: anchi@mail.shu.edu.tw

Keywords: Adolescent Anti-smoking Media Literacy, Third Hand Smoking, E-Cigarette, Tobacco, Industry Skills. 25

The contents of anti-smoking media information limited by government rules which ap- peared on TVs, newspaper, magazine traditional media changed widely and variously, and at the same time new media (internets) exists in everywhere. As a result, the study on anti-smoking me- dia literacy should be turned into an important topic for us. According to the relative researches on tobacco hazards prevention, the third hand smoking and e-cigarette would be become a new trend, especially e-cigarette had triggered globally emerging health hazards because of inadequate cogni- tion and mis-takes toward e-cigarette resulted in tremendous health damage problems on smoking and drugs altogether. Based on the investigation of Health Promotion Administration has showed that e-cigarette smokings ratio in junior and high school students increased double than before and illustrated that anti-smoking media literacy education should be focused on teenagers cor- rect knowledge and judgement on anti-smoking informa-tion from e-cigarette and tobacco products which could be a major task for prevention smoking addiction in the future.

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Assessing Border Community Readiness for Health Management Prior to the Special Border Economic Zone in Thailand: A Case Study of Sadao District Songkhla Province, Thailand

*Sawpheeyah Nima
Heath System Management Institute. Prince of Songkla University, Hat Yai, Songkhla, Thailand
Corresponding Email: sophienima@gmail.com

Keywords: Community Readiness, Health Management, Special Border Economic Zone, Songkhla, Thailand

Community readiness (CR) refers to the degree to which a community is ready to take an ac- tion to address a health issue. Since 2015, the establishment of Special Economic Zones (SEZ) has already carried on in Thai-Malay border. The present study was conducted by using a 2-phased- mixed-methods, aiming to assess the level of CR and preparation and to develop community health management model prior to SEZ in Sadao district, Songkhla province. Data were collected by questionnaires in 450 local people by simple random sampling. An in-depth interview followed by a focus groups discussion was then performed in purposive selected 150 participants, during December 2017-April 2018. The data was finally analyzed by descriptive statistics and content analysis. Overall community readiness scores ranged from 5.85 to 7.01 on a 10-point scale. The mean readiness score, 6.28 (SD = 0.44) corresponds with an initiation level of readiness which referred to an action plan is established and early steps are being taken by leadership to address the issue. Main features of the health management model for SEZ was established by community stakeholders as following: (1) community participation (2) network strengthening (3) knowledge and management (4) communication and (5) healthy public policy approach. These findings in- dicated that they display a slightly high of CR level. In the next step, targeted capacity building activities will be promoted to archive the health model to SEZ for sustainability.

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TRACK C

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Using the Numerical Wave Tank to Study on the Non-linear Long Wave Propagation over a Submerged Breakwater

*Jen-Yi Chang
Tainan University of Technology, 529 jhongjheng Rd., Youngkang, Tainan, Taiwan
Corresponding Email: jychang.lenny@gmail.com

Keywords: Bragg resonance; Nonlinear Long Waves, Quadtree-Adaption, Numerical Wave Tank

A quadtree-adaptive viscous numerical wave tank implemented third-order cnoidal waves with the free surface resolved by the VOF (volume of fluid) method is established for solving nonlinear long waves in this study. Also, the numerical grid in the model area can be automat- ically coarsen under a prescribed low resolution such that the time matching is stable without a too small time step by using numerical damping zone. The intense vorticity, boundary layers and free surfaces of the calculating area are automatically refined to prescribed high resolutions. The model is shown to be stable even when multiple adaption criteria are implemented in each case. Furthermore, the results of the simulation of Bragg resonance caused by long waves, velocity in the boundary layers as well as velocity and vorticity fields are compared with other researches. Main large vortices significantly occur near the lee side wall of breakwaters and cause large scours around submerged breakwaters. In addition, the numerical computing is shown to be of similar accuracy but much higher efficiency when compared with the results obtained by conventional nu- merical methods. For present cases, the computing time of the model with an adaptive mesh is at least 7 times smaller than that with a uniform mesh.

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Automatic Venipuncture Insertion Point Recognition Based on Machine Vision

[1]Cheng-Ho, Chen,[2]Yun-Sheng Ye
[3]Wen-Tung Hsu
[1,2]National Chin-Yi University of Technology, Taichung, Taiwan
[3]Taichung Armed Forces General Hospital, Taichung, Taiwan
Corresponding Email: chench@ncut.edu.tw

Keywords: Machine Vision, Automatic Venipuncture, Image Processing.

Venipuncture is a common practice performed in medical institutions. It now relies on well-trained medical staff. The work is inherently risky, requiring skills, experience, and a high degree of focus to avoid discomfort or even danger to the staff themselves or to the patients. The proper insertion point for venipuncture is sometimes difficult to recognize. In recent years, many applications of machine vision and image processing technologies have been used to help physicians, nurses and other medical practitioners in determining the physical conditions of the patients, make the appropriate diagnosis, and reduce the fatigue or other human factors causing misdiagnosis. In this paper, the implement machine vision technologies to assist the recognition of venipuncture insertion point is studied. Two industrial CMOS cameras are used with an infrared light source. The two cameras are placed apart and tilted in a certain angle relative to each other in order to achieve stereo vision of the arm. Light filters are also installed on the lens of the two cameras. The cameras are calibrated beforehand to eliminate distortion. Two images of the arm, one by each camera are captured. The images are then processed through image binarization and morphological algorithms. After image processing, the best needle insertion position, puncture depth and angle are determined. The developed system can improve the efficiency of venipuncture, and reduce the risk of medical staff and patients.

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Passive Filtration System with Embedded Shape Memory AlloysWires for Unfiltered Splash Lubricated Gearboxes

[1*]Chi Yang, [2]Sylvester Abanteribab
[3]Neng Zhangc, [4]Andrew Beckerb
[1,2,3,4]School of Engineering - RMIT University Melbourne, Victoria.
Corresponding Email: chi.yang@student.rmit.edu.au

Keywords: Filtration system, Shape memory alloy, Splash lubricated gearbox, Finite Element Analysis, Lubrication

In this paper, a new passive filtration system that utilises gravitational force for unfiltered splash lubricated gearbox is presented and analyzed. This filtration system is based on the combination of different types of shape memory alloy (SMA) for the controlling of filtration layers deflection under different conditions. The primary SMA wires are biased by a bending force created by another type of SMA wires that exhibit super-elastic behavior. These wires are embedded in a silicone rubber film. The phase transformation of SMA wires is induced by the change of lubricant temperature. Finite element model based on ABAQUS with a user material subroutine is developed to simulate the thermo-mechanical behaviors of the filtration layers. A prototype passive filtration system is made. The experimental observations on the thermo-mechanical behaviors of the prototype are shown to be in a good agreement with the numerical simulation results. This shows the capability of the numerical model for estimating the mechanical behavior of filtration layers with embedded SMA wires at different temperatures.

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A Low-Power Variable-Gain LNA

[1*]Prof. Jian-Yu Hsieh, [2]Prof. Jian-Yu HsiehKuei-Yu Lin, [3]Hsueh-Chien Kuo
[1,2,3]Department of Electronic Engneering-National Ilan University , Taiwan
Corresponding Email: jyhsieh@niu.edu.twm

Keywords: Low-Power, Variable-Gain LNA.

A 0.6-V 2.8-GHz low-power variable-gain low-noise amplifier (LNA) by using 0.18m CMOS process has been proposed. Recently, low-power circuit design has become an important topic because of the energy-hungry components of the advanced portable devices. The radio-frequency (RF) circuits generally cost major power consumption of the portable devices, especially low-noise amplifiers (LNAs). LNAs require efficient power consumption for executing signal amplifying and noise suppressing. Hence, there exists a trade-off between power consumption and power gain (S21). The design parameters of LNAs include low noise figure (NF), high linearity (IIP3), high S21 and low power consumption. By using a tunable negative-feedback capacitor technology, vari- able gain can be achieved. Depending on different amplitude of the input RF signal, variable gain can improve linearity correspondingly and avoid signal distortion and poor bit error rate (BER). Moreover, forward body biasing, input feedback capacitor, current-reuse and multiple-gate topolo- gies are utilized for realizing low power consumption, small chip area, and high linearity. The LNA chip area occupies 0.9 mm x 1 mm, including pads, and bypass capacitors. The measured power gain ranges from 4 dB to 10 dB under gain control voltage is from 0 V to 0.6 V. The measured IIP3 is 0 dBm. The power consumption is 0.6 mW.

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SA Low-Power VCO

[1*]Prof. Jian-Yu Hsieh, [2]Jen-Ting Lee
[1,2,3]Department of Mass Communication, Chinese Culture University, Taipei, Taiwan
Corresponding Email: ylwang1022@gmail.com

Keywords: VCO, Equation.

A 0.43-V low-power voltage-controlled oscillator (VCO) by using 0.18m CMOS process has been proposed. Generally, low-power circuit design is a popular topic for extending the battery life of the portable devices. The radio-frequency circuits generally cost major power consumption of the portable devices. VCOs should achieve low phase noise, low power consumption, and low cost. However, there exists a trade-off between these design parameters. Because lowering power consumption will result in output voltage swing and phase noise degrade. The VCO chip area oc- cupies 1.66 mm x 1.63 mm, including input impedance matching, pads, and bypass capacitors. By using the forward body biasing, noise filtering and switched biasing techniques, the phase noise and power consumption have been reduced. The forward biasing technique can reduce the thresh- old voltage of the transistors in the VCO. The noise filtering techniques can reduce the thermal noise contribution of the tail current source. The switched biasing technique can increase the out- put swing and reduce the flicker noise of the tail current sources. The measured output power is -15 dBm. The measured frequency tuning range is from 2.59 to 2.67 GHz. The measured power consumption is 0.3 mW. The performance of VCOs can be estimated by using an equation called figure of merit which is 193 dBc/Hz.

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A Model for Identification of Potential Experts and Leaders Based on Online Discussions

[1*]Jiang Liang Hou, [2] Zhen Yu Lin
[1,2]Department of Industrial Engineering and Engineering Management, National Tsing Hua University, Taiwan
Corresponding Email: adamhou@ie.nthu.edu.tw

Keywords: Collective Intelligence, Experts Recommendation, Opinion Leaders Recommendation.

nformation on various social networks over the Internet in order to acquire advices from the users with expertise. People depend highly on these users to provide some solutions or references for decision based on their own professional knowledge. On the other hand, manufacturers, adver- tiser or agencies always try to find the representative opinions of replies from the discussions in the online social networks, then they could identify the users who have leadership to endorse their products or service for increasing sales or visibility. However, people and vendors have to spend a lot of time sifting the useful information from the users replies. In order to solve the problems, this study develops a model for identification of potential domain experts or leaders based on user replies in online forums. It can be used to recommend potential experts and leaders to users for decision making. By applying the proposed model, people and advertisers can accurately identify the potential experts or leaders and consult them for more effective decisions.

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