PROCEEDINGS

IEAS-2023

4th International Conference on Innovative Applications in Engineering Technology and Applied Sciences

Venue: Hotel Mystays Ochanomizu Conference Center

Tokyo, Japan

Date: May 21-22, 2023

CET

Consortium of Engineering & Technology

CONFERENCE BOOK OF ABSTRACT PROCEEDINGS

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4th International Conference on Innovative Applications in Engineering Technology and Applied Sciences

Tokyo, Japan
May 21-22, 2023

Email: info@consortium-et.com
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Proceedings of the th International Conference on Innovative Applications in Engineering Technology and Applied Sciences (IEAS)

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4th International Conference on Innovative Applications in Engineering Technology and Applied Sciences (IEAS)

Venue: Hotel Mystays Ochanomizu Conference Center Tokyo, Japan

Conference Theme: An effective platform to meet other renowned experts in the filed of engineering and technology.

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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

CONFERENCE AGENDA

DATE: May 21-22, 2023
LOCATION: Hotel Mystays Ochanomizu Conference Center
DAY: Sunday
EVENT TITLE: 4th International Conference on Innovative Applications in Engineering
Technology and Applied Sciences IEAS-2023

Start Time

09:00 am - 09:30 am: Registration & Kit Distribution
09:30 am - 09:40 am: Opening Speech - Mr. Ariel
09:40 am - 09:50 am: Introduction of Participants
09:50 am - 10:00 am: Group Photo & Award Ceremony

Tea/Coffee Break (10:00 am -10:30 am)

CONFERENCE AGENDA

DATE: May 21-22, 2023
LOCATION: Hotel Mystays Ochanomizu Conference Center
DAY: Sunday-Monday
EVENT TITLE: 4th International Conference on Innovative Applications in Engineering
Technology and Applied Sciences IEAS-2023

Session: 01

10:30 am 12:30 pm: Presentation Session

Track A: Business, Management Economic, Social Sciences and Humanities

Presenter Name	Manuscript Title	Paper ID
TOK-3523-101B	Factors Affecting the Entrepreneurship of International Return Migrant	Nattawat Auraiampai
TOK-3523-102B	What factors influence the social capital accumulation of Thai migrant workers in their destination?	Prof. Dusadee Ayuwat (Ph.D.)
TOK-3523-103B	Factors that Influence the Relationship of Households in the Origin with Migrant Workers Working Abroad	Dr. Suvimon Khamnoi
TOK-3523-104B	Practices of Civic Probation officers in Buddhist Temple-based Probation Activity in Central Thailand	Dr. Soiboon Saithong
TOK-3523-105B	The history of Nakhon Phanom and Kham Muan relations: beliefs and worship rituals in the sacred relics on both banks of the Mekong	Assist. Prof. Kriangkrai Pasuta (Ph.D.)
TOK-3523-106B	What Are Important for Farmers? Examining Entrepreneurial Competencies among Organic Farmers in Khon Kaen Province, Thailand	Dr. Nattapon Meekaew

Lunch Break (12:30 pm 01:30 pm)

CONFERENCE AGENDA
DATE: May 21-22, 2023
LOCATION: Hotel Mystays Ochanomizu Conference Center
DAY: Sunday-Monday
EVENT TITLE: 4th International Conference on Innovative Applications in Engineering
Technology and Applied Sciences IEAS-2023

Session: 02

01:30 pm 03:30 pm: Presentation Session

Track B: Engineering, Technology and Computer Sciences

Presenter Name	Manuscript Title	Paper ID
IEAS-MAY23-101	The Variations of Synchronous Fluorescent Signature of Influent into and Effluent through Biological Activated Carbon Filter Added with Both Strains in AOC Assay	Lai Wen-Liang
IEAS-MAY23-102	An overview of CNLS and its possible extension for forecasting	William Chung
IEAS-MAY23-103	Developing and Implementing an Elder-Friendly Nutrition Assessment and Health Education Tool (ENGC) in the Community	Han-Chun Huang
IEAS-MAY23-104	Applying Deep Learning Approach Air Quality Prediction on the Internet of Things Framework	Prof.Jui-Le Chen
IEAS-MAY23-105	Development of a Performance Enhancement Method for a Vertical Axis Wind Turbine	Kok-Hoe Wong

Tea Time & Closing Ceremony

CONFERENCE AGENDA

DATE: May 21-22, 2023
LOCATION: Hotel Mystays Ochanomizu Conference Center
DAY: Sunday-Monday
EVENT TITLE: 4th International Conference on Innovative Applications in
Engineering Technology and Applied Sciences IEAS-2023

Conference Day 02 (May 22,2023)

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

TRACK A

BUSINESS, MANAGEMENT ECONOMIC, SOCIAL SCIENCES AND HUMANITIES

Factors Affecting the Entrepreneurship of International Return Migrant

[1*]Nattawat Auraiampai,[2]Dusadee Ayuwat [3]Aree Jampaklay

[1,2,3]Department of Social Sciences, Division of Sociology and Anthropology Labour and International Migration Service Center Faculty of Humanities and Social Sciences Khon Kaen University, Khon Kaen, Thailand

Keywords: Entrepreneurship, Household Support, International Migration, Return Migration, Production Pattern

This article focuses on the factors affecting the entrepreneurship of international return migrants. The quantitative methodology was used, with the analytical unit at the individual level. The sample included 500 international return migrants in the Northeast of Thailand, for those who had worked abroad for more than 6 months and, at the time of the study, had returned to stay at the place of origin for over 6 months but not over 7 years. Data were collected in Chaiyaphum Province, Northeast Thailand, using the interview schedule validated by experts with a reliability of 0.913. Descriptive statistics and multiple regression analyses were conducted. The results showed that most of the international return migrants were male (60.4%), 38.8% were aged 3544 years, more than half of them completed secondary education, and many had migrated to work abroad more than once. The last migration abroad of the majority was for a period of 4-6 years. Most migrated legally and remit around USD470-780 per month. More than 50.0% of return migrants adhere to high levels of entrepreneurship, both as agricultural entrepreneurs and business entrepreneurs. The factors affecting the entrepreneurship of international return migrants were: number of years of education, number of times they immigrated abroad, legal migration, self-esteem, household support, and transformations in production patterns and community life. All of the independent variables could explain the variation in entrepreneurship at 60.2% ($R^2=0.602$).

What factors influence the social capital accumulation of Thai migrant workers in their destination?

[1*]Dusadee Ayuwat, [2]Aphiradee Wongsiri

[1,2]Labour and International Migration Service Center, Department of Sociology and Anthropology, Faculty of Humanities and Social Sciences, Thailand

This article aims to determine factors influencing the social capital accumulation in the destinations of migrant workers returning from abroad. The quantitative research method was employed. There is an individual analysis unit. The sample group was made up of 420 migrant workers who were returning from abroad in Chaiyaphum Province, Northeastern Thailand. The research tool was an interview form that has been verified for content validity and reliability, with a value of 0.902. The data were analyzed using descriptive statistics and multiple regression statistics. According to the findings, the average age of migrant workers returning from abroad was 40.3 years, and 56.2% of them were men. A secondary school was present for more than half. Ninety percent of them (90.0 percent) traveled to work overseas during the past three to five years through recruitment agencies, mostly in Eastern nations. 46.4 percent of respondents had modest expectations of migration, whereas 61.0 percent had a somewhat optimistic attitude about moving to work abroad. More than half of them accumulated social capital while working abroad at a moderate level, particularly in terms of relations with employers and colleagues. Factors influencing the accumulation of social capital in the destination of returning migrant workers were the duration of study, legal immigration attitudes towards migration, expectations from migration, and household support. All independent variables could explain the variation in social capital accumulation of migrant workers at 42.6% (R-square = 0.426).

Factors that Influence the Relationship of Households in the Origin with Migrant Workers Working Abroad

[1*]Suvimon Khamnoi, [2]Pawadee Pantarak, [3]Monrudee Liuchalermwong, [4]Kriangkrai Pasuta, [5]Athirach Nankhantee

[1,2,3,4,5,6]Division of Social Studies, Faculty of Education Nakhon Phanom University, Thailand

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Keywords: Relationship, migrant working abroad, households in the area of origin, migration pattern

This article investigates the factors that influence the relationship of households in the origin with migrant workers working abroad. The quantitative research method was used with the analytical unit at the household level. The sample included 350 households in Thailand's northeastern region. Data collection was carried out in Nakhon Phanom Province using the interview schedule validated by experts with a reliability of 0.911. Descriptive statistics and multiple regression analysis were utilized. The results showed that most migrant households have 4-5 household members. More than 71.4% of migrant workers have been working abroad for less than three years. Their relationship with migrant workers was moderate (59.7 percent), and about a quarter had a high level of relationship, especially in communicating, advising, and expressing concern for migrant workers on a regular basis. In addition, it was found that the factors influencing the relationship with migrant workers among households were the number of household members, debt, legal migration method, and agricultural work of migrants. All of the independent variables could explain the variation in relationships with migrants working abroad of households in the area of origin at 30.4

Practices of Civic Probation officers in Buddhist Temple-based Probation Activity in Central Thailand

[1*]Soiboon Saithong, [2]PhamahaSuthep Peupuad, [3]Nattapon Meekaew

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Keywords: Practices, Habitus, Capital, Probation, Probation Officer

The objective of this research is to investigate the practices of civic probation officers in Buddhist temple-based probation activity in central Thailand. Pierre Bourdieus concept of practices and capitals was used to conceptualize research findings. Qualitative research methodology, together with a case study approach, was implemented in the study. Key informants consisted of 18 civic probation officers who have been responsible for civic probation activity in a Buddhist temple for at least one year. In-depth interviews, focus group discussion, participatory observation, and non-participatory observation were used to collect data during February March 2023.Additionally, data analysis was carried on through the content analysis. The research findings showed that different probation practices were constructed based on the capital existing in each area. The capital used to construct civic probation practices include cultural capital, social capital, economic capital, and symbolic capital. Moreover, practices are also linked to the probation officers habitus, which differs in power relationship dimensions.

What Are Important for Farmers? Examining Entrepreneurial Competencies among Organic Farmers in Khon Kaen Province, Thailand

[1*]Nattapon Meekaew [1]Faculty of Education, Khon Kaen University, Thailand

Organic farming has been widely recognized among farmers in Thailand, but only a few farmers are prompt to be entrepreneurial farmers. This research examined the level of entrepreneurial competency among organic farmers in Khon Kaen province, Thailand. Quantitative research methodology was implemented in the research. Cluster sampling was applied to determine 169 organic farmer participants who were based in Khon Kaen province. An interview schedule was used to collect data from organic farmers who were settled in five districts around Khon Kaen province. Descriptive statistics, e.g. mean, percentage, standard deviation, were used to analyze the obtained data. The data was collected in January 2023. Research findings revealed a moderate level of overall entrepreneurial competency among organic farmers. A moderate level was also observed for farming experience, government support, and the reference group. However, there was a low level of inquiry learning skill observed. The research's implications highlight the critical importance of entrepreneurship education for organic farmers in order to improve their entrepreneurial skills and compete on a global scale.

TRACK B

ENGINEERING, TECHNOLOGY AND COMPUTER SCIENCES

The Variations of Synchronous Fluorescent Signature of Influent into and Effluent through Biological Activated Carbon Filter Added with Both Strains in AOC Assay

[1]Shang-Cyuan Chen,[2*]Wen Liang Lai,[3]Tang-Yao Hong

[1,2,3]Tajen University, Pingtung 907, Taiwan

Keywords: Synchronous fluorescent Signature, Assimilable Organic Carbon, Biological Activated Carbon, Humus-like, Protein-like Kingdom

In this research, the synchronous fluorescent signature (SFS) tool was used to investigate the variation of peak fluorescent intensity and wavelength location of the influent into and effluent through biological activated carbon(BAC) filter with assimilable organic carbon (AOC) assay. For organic removal by BAC filter, the humus-like substance could be effectively removed; however, the protein-like substance shows ascending trend owing to the release from the attached microorganism. For the influent inoculated only one or mixed strain, the fluorescent intensities of major peaks show an increasing trend except for the protein-substance of 230 nm with NOX strain. Furthermore, the rising amount of fluorescent intensities with the P17 strain exceeds those of the NOX strain. Regarding the SFS diagram of effluent, the fluorescent intensities of humus-like substance at the range of 390-500 nm keep constant in a condition of only one strain inoculated; however, the fluorescent intensities, ranging from 230 nm to 500 nm, show a significant increase in the state of hybrid strains. Overall, the BAC filter could decrease the content of organic matter, especially for humic substance, and then transform the organic characteristic so that the variations of both peak fluorescent intensities and the wavelength movement are produced. At the same time, the influent and effluent were inoculated with only one strain and mixed strains. Also, the 280 nm protein-like substance could be considered a surrogate indicator for AOC assay.

An overview of CNLS and its possible extension for forecasting

[*]William Chung

Department of Management Sciences, City University of Hong Kong, Hong Kong

Nonparametric least squares (NLS) is a statistical technique that aims to estimate the relationship between a response variable and one or more predictor variables, without assuming a predefined functional form. Unlike conventional parametric regression models, NLS allows for greater flexibility and adaptability in the relationships between variables, without imposing assumptions about the underlying distribution of the data. NLS achieves this by minimizing the sum of squared residuals between the observed data and a smooth curve that represents the estimated relationship between the response and predictor variables. Different techniques, such as spline functions, kernel regression, and local regression, can be utilized to represent the smooth curve. The objective is to identify the curve that provides the best fit to the data without assuming a particular distribution or predefining a functional form for the relationship between the variables.Convex Nonparametric Least Squares (CNLS) was introduced in 2008 for analyzing productive efficiency and has since proven to be a valuable tool in applied studies related to computability and traceability. As an alternative to stochastic frontier analysis, CNLS does not rely on functional form assumptions and instead utilizes the same axioms as Data Envelopment Analysis while also accounting for noise. This paper explores the use of CNLS and its variants for constructing regression models and performing forecasting. Because CNLS regression models are composed of a set of hyperplanes, which form a nonparametric piecewise linear regression, the paper also discusses potential advancements in CNLS for forecasting applications.

Developing and Implementing an Elder-Friendly Nutrition Assessment and Health Education Tool (ENGC) in the Community

[1*]Han-Chun Huang,[2] Hsiao-Wen Chuang, [3]Chiu-Ying Chen

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[2] Institute of Public Health, China Medical University, Taiwan

Keywords: Nutrition Assessment, gamification, Chabot, elder, ENGC

The purpose of implementing community care centers is to encourage the community to take on a role in public health by providing primary preventive care services, thereby delaying population aging, and referring those in need of formal care for assistance. This study developed the "Elder Nutrition gamification Chatbot (ENGC)" to assist elderly people in the community to learn about nutrition knowledge using a line chatbot and to screen for elderly people with nutritional risk through the "Mini Nutritional Assessment-Short Form (MNA-SF)" in the ENGC platform for referral and care. Experimental design and methods: The ENGC system was developed using a line chatbot that incorporated the MNA-SF questionnaire and AI semantic recognition technology and provided health education courses to help the elderly learn about nutrition knowledge easily

Applying Deep Learning Approach in Air Quality Prediction on the Internet of Things Framework

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[2]Graduate Institute of Environmental Management, Tajen University, Pingtung 907, Taiwan

This paper presents an air quality monitoring system based on the Internet of Things framework, which is used to monitor the pollutant concentrations of PM2.5, NO2, O3, and CO in the campus environment. The proposed system addressing the issue of predicting time series data with four types of pollutants values, various machine learning models were utilized, including deep learning models of long short-term memory (LSTM) and Gated Recurrent Unit (GRU). Presently. It is possible to anticipate the pattern of variations in the average pollutant concentration values for multiple weeks in advance. In addition, this study also explores the interrelationships between various feature data, helping the learning models to select feature data with Spearmans correlation coefficient(rs) that greater than or equal to 0.8, meaning the relationship is very strong, in order to understand the strength of the relationships between data values and whether they are positively correlated with prediction accuracy. Examining the prediction results obtained by the relevant learning models shows that they can provide the most stable and accurate prediction values

Development of a Performance Enhancement Method for a Vertical Axis Wind Turbine

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In recent years, research has shown a growing interest in vertical axis wind turbines (VAWTs) because of their numerous advantages, particularly their omni-directional nature. Nevertheless, straight-bladed VAWTs exhibit lower efficiency and are hard to self-start. This study proposes an omni-direction deflector (ODD) to improve their performance. With an oncoming wind speed at 6 m/s, a five-bladed VAWT was tested in the laboratory for its performance with the integration of ODD. With the ODD in place, the wind is accelerated and directed towards the VAWT, which significantly improves the CP of the VAWT. From the lab test results, when the ODD was oriented at 0 and 30 to the oncoming wind, the maximum CP obtained was 0.0510 and 0.0489 at TSR 0.9, which is an increase of 23.49% and 18.40% respectively compared to the bare turbine of 0.041 occur at TSR 0.8. In addition, with the employment of the ODD, the rotational speed, TSR range, and self-start ability were improved remarkably. The application of the ODD is wide, where it can be easily retrofitted to the existing VAWT system with simple construction, hence enhancing the VAWT performance

UP COMING EVENTS

You can find the details regarding our upcoming events by following below:

http://consortium-et.com/upcoming-events/

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MISSION

To disseminate knowledge and help scholars, practitioners and administrators to promote the high quality research.