

# The 16<sup>th</sup> International Workshop on Regional Innovation Studies ( IWRIS2024: October 17-18, 2024)

Workshop Room: Regional Innovation Hall, Building C, Regional Innovation Center, Mie University

(Presenters / 1~19)

Presentation time: total 15 minutes (presentation: 10 minutes + discussion: 5 minutes)

Bell Timing: 8 minutes, 10 minutes, 14 minutes                      \*Switching time: 5 minutes

(Keynote lectures / K-1~K-5)

Presentation time: total 20 minutes (presentation: 15 minutes + discussion: 5 minutes)

Bell Timing: 13 minutes, 15 minutes, 19 minutes                      \*Switching time: 5 minutes

## I. First Day: October 17 (Thursday)

### 10:00-10:05 **Opening**

Keita Suwabe (Dean of Graduate School of Regional Innovation Studies, Mie University)

### **Session 1 Engineering I for Regional Innovation**

(K-1) 10:05-10:30

1D Engine Analysis in Interrelating the Exhaust Manifold's Length-diameter Characteristics and the Brake Torque of SI Engine

Shahriman Abu Bakar<sup>1,2\*</sup>, Rishan Murali<sup>1,2</sup>, Zuradzman Mohamad Razlan<sup>1,2</sup>, Mohammad Afendi Rojan<sup>1,2</sup>, Azizul Aziz Ishak<sup>3</sup>, Muhammad Faiz Hilmi Rani<sup>4,5</sup>, Nur Sabrina Binti Naziz Rafhan<sup>1</sup>, Siti Sharfilyana Binti Yunus<sup>1</sup>

<sup>1</sup>Faculty of Mechanical Engineering Technology, Universiti Malaysia Perlis, Kampus Tetap Pauh Putra, 02600, Arau, Perlis, Malaysia

<sup>2</sup>Motorsport Technology Research Unit (MOTTECH), Universiti Malaysia Perlis, Kampus Tetap Pauh Putra, 02600, Arau, Perlis, Malaysia

<sup>3</sup>Research and Development Division, Motosikal dan Enjin Nasional Sdn.Bhd (MODENAS), Gurun Industrial Area, 08300, Gurun, Kedah, Malaysia

<sup>4</sup>Automotive Development Centre (ADC), Institute for Vehicle Systems and Engineering (IVeSE), Universiti Teknologi Malaysia (UTM), 81310 Johor Bahru, Johor, Malaysia

<sup>5</sup>Air-Conditioning Engineering Research Group (ACER), Faculty of Mechanical Engineering, Universiti Teknologi Malaysia (UTM), 81310 Johor Bahru, Johor, Malaysia

1) 10:30-10:50

Flow Visualization of Compressor Oil Behavior contained in Refrigerant to Enhance Heat Transfer in the Evaporator of CO<sub>2</sub> Refrigerator

Jyoji Keeni<sup>1</sup>, Atsuki Hatano<sup>2</sup>, Thiri Shoon Wai<sup>3</sup>, Naoki Maruyama<sup>1,4</sup> and Masafumi Hirota<sup>5</sup>

<sup>1</sup>Division of Mechanical Engineering, Graduate School of Engineering, Mie University, Tsu, Japan

<sup>2</sup> Mechanical Engineering Program, Department of Engineering, Faculty of Engineering, Mie University, Tsu, Japan

<sup>3</sup>Division of System Engineering, Graduate School of Engineering, Mie University, Tsu, Japan

<sup>4</sup>Engineering Innovation Unit, Graduate School of Regional Innovation Studies, Mie University, Tsu, Japan

<sup>5</sup>Department of Mechanical Engineering, Faculty of Engineering, Aichi Institute of Technology, Toyota, Japan

2) 10:50-11:10

Evaluation of Muscle Fatigue in the Lower Back During Prolonged Posture Maintenance Work when Using a Passive Type Assist Suit

Koki Mitsuiwa<sup>1</sup>, Ryojun Ikeura<sup>1</sup>, Soichiro Hayakawa<sup>1</sup> and Syunichi Yoshida<sup>1</sup>

<sup>1</sup>Department of Graduate School of Engineering, Mie University, Tsu, Japan

3) 11:10-11:30

Effectiveness of a Serpentine Heat Exchanger for Local Area Heating of Crop Cultivation

Thiri Shoon Wai<sup>1</sup>, Takumi Hirose<sup>2</sup>, Naoki Maruyama<sup>2,3</sup>, Nappasawan Wongmongkol<sup>4</sup>, Chatchawan Chaichana<sup>4</sup> and Masafumi Hirota<sup>5</sup>

<sup>1</sup>Division of System Engineering, Graduate School of Engineering, Mie University, Tsu, Japan

<sup>2</sup>Mechanical Engineering Program, Department of Engineering, Faculty of Engineering, Mie University, Tsu, Japan

<sup>3</sup>Engineering Innovation Unit, Graduate School of Regional Innovation Studies, Mie University, Tsu, Japan

<sup>4</sup>Department of Mechanical Engineering, Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand

<sup>5</sup>Department of Mechanical Engineering, Faculty of Engineering, Aichi Institute of Technology, Toyota, Japan

## Invited Lecture I

Presentation time: total 30 minutes (presentation: 20 minutes + discussion: 10 minutes)

(I-1) 11:30-12:00

Simulation Analysis of Human and Automated Dual Arm Robot Systems for Productivity Improvement in the Manufacturing Industry: A Case Study

Zuradzman Mohamad Razlan<sup>1</sup>, W.M.A. Sobri<sup>1</sup>, S. A. Bakar<sup>1</sup>, R. Murali<sup>1</sup>, W. K. Wan<sup>2</sup> and A. H. Adom<sup>2</sup>

<sup>1</sup>Faculty of Mechanical Engineering and Technology, Universiti Malaysia Perlis, Arau, Malaysia

<sup>2</sup>Faculty of Electrical Engineering and Technology, Universiti Malaysia Perlis, Arau, Malaysia

12:00-13:30 Lunch Time

## **Session 2 Social Engineering I for Regional Innovation**

4) 13:30-13:50

Consideration of Issues Arising for Prefectural Officials Engaged in Disaster Response Operations

Tatsuhiko Kishie<sup>1,2</sup>, Kohei Suzuki<sup>1</sup> and Chiharu Mizuki<sup>2</sup>

<sup>1</sup>Department of Disaster Prevention, Mie Prefectural Government, Tsu City, Japan

<sup>2</sup>Graduate School of Regional Innovation Studies, Mie University, Tsu City, Japan

5) 13:50-14:10

The Network Effects of Technological Diffusion: Firm-Level Evidence from Taiwan's Electronics Sector

Chia-Hui Huang<sup>1</sup> and Yu-Chieh-Ou<sup>1</sup>

<sup>1</sup>Department of Economics, Aletheia University, New Taipei City, Taiwan

6) 14:10-14:30

Analysis of Workplace Climate and Employees' Retention Motives

Sayaka KUSAKA<sup>1</sup>, Hisanori YAGAMI<sup>1</sup> and Masao AOKI<sup>1</sup>

<sup>1</sup>Graduate School of Regional Innovation Studies, Mie University, Tsu, Japan

7) 14:30-14:50

The Impact of Innovation on Employment: Firm-Level Evidence from Japan

Chia-Hui Huang<sup>1</sup>, Hsu-Ting Chang and Chen-Ming Lee<sup>1</sup>

Department of Economics, Aletheia University, New Taipei City, Taiwan

## **Invited Lecture II**

Presentation time: total 30 minutes (presentation: 20 minutes + discussion: 10 minutes)

(I-2) 14:50-15:20

A Comprehensive Empirical Analysis of Industrial Innovation in Taiwan

Chia-Hui Huang<sup>1</sup>

<sup>1</sup>Department of Economics, Aletheia University, New Taipei City, Taiwan

15:20-15:35 Break

### **Session 3 Social Engineering II for Regional Innovation**

8) 15:35-15:55

Building And Empowering School Community Members For Quality Education: An Overview Of The Kyokan Support Network.

Cisse Facinet<sup>1</sup>, Norihiro Nishimura Ph.D.<sup>2</sup>

Graduate school of Regional Innovation Studies, Mie University, Tsu city, Mie Japan

9) 15:55-16:15

A Study on the Educational Effects of SBP (Social Business Project) in High School Education

Hitoshi Nakazawa<sup>1</sup>

<sup>1</sup>Graduate School of Regional Innovation Studies, Mie University, Tsu City, Mie Prefecture, Japan

10) 16:15-16:35

Consideration of Career Education Leading to Agency Development

Ayumi Sugimoto<sup>1</sup>

<sup>1</sup>Graduate School of Regional Innovation Studies, Mie University, Tsu-shi Mie, Japan

11) 16:35-16:55

The Influence of Academic Year and Socio-economic Status on Students' Subjectivity of "Effort is Rewarded" on Learning Time

Ryo KONISHI<sup>1</sup>, HyeSooK PARK<sup>1</sup>, Takaya KATO<sup>1</sup> and Norihiro NISHIMURA<sup>1</sup>

<sup>1</sup>Graduate School of Regional Innovation Studies, Mie University

17:45-19:15 **Banquet**

## II. Second Day: October 18 (Friday)

### Session 4 Social Engineering III for Regional Innovation

(K-2) 10:00-10:25

Mangrove Ecosystem Prospect and Challenges on the Regional Development of Indramayu, West Java Indonesia

Mochamad Candra Wirawan Arief<sup>1,2</sup>, Isni Nurruhwati<sup>1</sup>, Heti Herawati<sup>1</sup>, Asep Sahidin<sup>1</sup>, Lantun Paraditha Dewanti<sup>1</sup>, Izza Mahdiana Apriliani<sup>1</sup> and Zahidah<sup>1</sup>

<sup>1</sup>Department of Fisheries, Faculty of Fisheries and Marine Science, Universitas Padjadjaran, Bandung, Indonesia

<sup>2</sup>Center for Environment and Sustainability Science, Universitas Padjadjaran, Bandung, Indonesia

12) 10:25-10:45

Problem Situation and Solution of Fruit Export by Agricultural Co-operatives:  
A Case Study of JA Mie 's Export of Nanki Mikan to Thailand

Tongxin GUO<sup>1</sup>

<sup>1</sup>Graduate School of Regional Innovation Studies, Mie University, Tsu, Japan

13) 10:45-11:05

Enhancing Regional Innovation System through Fisheries-Based Ecotourism Management  
Recommendations: Case Study of Jatigede Reservoir, Indonesia

Sulastri Prihandini<sup>1</sup>, Zahidah<sup>2</sup>, M. Candra Wirawan Arief<sup>2</sup>, and Heti Herawati<sup>2</sup>

<sup>1</sup>Fisheries Study Program, Faculty of Fisheries and Marine Science, Universitas Padjadjaran, Jalan Raya Bandung - Sumedang KM. 21, Sumedang, West Java Province 45363, Indonesia

<sup>2</sup>Department of Fisheries, Faculty of Fisheries and Marine Science, Universitas Padjadjaran, Jalan Raya Bandung - Sumedang KM. 21, Sumedang, West Java Province 45363, Indonesia

14) 11:05-11:25

Distribution Processes and Issues In The Export of Regional Agricultural Products

~A Case Study of Mie Prefecture~

Shinya GURITA<sup>1,2</sup>

<sup>1</sup>Graduate School of Regional Innovation Studies, Mie University, Tsu City, Japan

<sup>2</sup>TOYODENSO CO., LTD/ Kameyama Plant/ Administration Section, Kameyama City, Japan

15) 11:25-11:45

Institutional Innovation for a Youth Appealing Farming in Japan:

An Overview of How European Countries Attract Youth to Agriculture

Rival VALCIN<sup>1\*</sup>, Tomohiro UCHIYAMA<sup>2</sup>, Bénédictique PAUL<sup>3</sup>

<sup>1</sup>Graduate School of International Food and Agricultural Studies, Tokyo University of Agriculture, Japan

<sup>2</sup>Faculty of International Agriculture and Food Studies, Tokyo University of Agriculture, Japan

<sup>3</sup>Faculty of Agriculture and Environmental Sciences, Quisqueya University, Haiti

### **Invited Lecture III**

Presentation time: total 30 minutes (presentation: 20 minutes + discussion: 10 minutes)

(I-3) 11:45-12:15

Heritage Based Approach on Urban Agriculture Innovation of Bandung City

Gemilang Lara Utama<sup>1,2,5,7\*</sup>, Oekan S. Abdoellah<sup>1,3,5,7</sup>, R. Candra Wirawan Arief<sup>1,4,5</sup>, Mega Nurul Aini<sup>7</sup>, Mahardika Puspa Arum Suraloka<sup>7</sup>, Rosalina Ilmi Amalia<sup>6,7</sup>

<sup>1</sup>Master and Doctoral Program on Environmental Science, Graduate School, Universitas Padjadjaran, Indonesia

<sup>2</sup>Department of Food Technology, Faculty of Agro-Industrial Technology, Universitas Padjadjaran, Indonesia

<sup>3</sup>Department of Anthropology, Faculty of Social and Political Science, Universitas Padjadjaran, Indonesia

<sup>4</sup>Department of Fisheries, Faculty of Fisheries and Marine Science, Universitas Padjadjaran, Indonesia

<sup>5</sup>Center for Environment and Sustainability Science, Universitas Padjadjaran, Indonesia

<sup>6</sup>Faculty of Science and Technology, Universitas Muhammadiyah Bandung, Indonesia

<sup>7</sup>Bandung Urban Agriculture Heritage the Living Lab, Indonesia

12:15-13:45 Lunch Time

### **Invited Lecture IV**

Presentation time: total 30 minutes (presentation: 20 minutes + discussion: 10 minutes)

(I-4) 13:45-14:15

Computerized-Assisted Cognitive Rehabilitation Shows Greater Efficacy Than Traditional in Visuospatial Skills and Cognition in Neglect Patients

Won-Cheol Kim<sup>1</sup>, Yeon-Jae Jeong<sup>1</sup>, Yeon-Gyu Jeong<sup>2</sup> and Kyu-Hoon Lee<sup>1</sup>

<sup>1</sup>Department of Physical Medicine and Rehabilitation, Hanyang University Medical Center,

Seoul, Republic of Korea

<sup>2</sup>Department of Physical Therapy, Yeosu Institute of Technology, Yeosu-si, Gyeonggi-do, Republic of Korea

### **Session 5 Engineering II for Regional Innovation**

(K-3) 14:15-14:40

Energy-Efficient Mechanisms for Wireless Sensor Networks

Li-Ling Hung

Department of Computer Science and Information Engineering, Aletheia University, New Taipei City, Taiwan

16) 14:40-15:00

Feasibility Study for the AI-Assisted Diagnosis of Medication-Related Osteonecrosis of the Jaw

Manami Inoue<sup>1</sup>, Kento Morita<sup>2</sup>, Yasuaki Sadakane<sup>3</sup>, Takumi Hasegawa<sup>3</sup>, Masaya Akashi<sup>3</sup> and Tetsushi Wakabayashi<sup>2</sup>

<sup>1</sup>Graduate School of Regional Innovation, Mie University, Tsu, Japan

<sup>2</sup>Graduate School of Engineering, Mie University, Tsu, Japan

<sup>3</sup>Dental and Oral Surgery, Kobe University Hospital, Kobe, Japan

17) 15:00-15:20

A Study on Generation of Retinal Optical Coherence Tomography Images Using Diffusion Models for Medical Image Classification

Koki Imai<sup>1</sup>, Takumi Kitajima<sup>1</sup>, Hiroharu Kawanaka<sup>1</sup>, Yoshitsugu Matsui<sup>2</sup>, Yoko Mase<sup>2</sup>, Mineo Kondo<sup>2</sup>

<sup>1</sup>Division of Electrical and Electronic Engineering, Graduate School of Engineering, Mie University, Japan

<sup>2</sup>Department of Ophthalmology, Mie University Graduate School of Medicine, Japan

15:20-15:35 Break

(K-4) 15:35-16:00

The Significance of Validation of Emotions during EEG Data Recording

Abdul Hamid Adom<sup>1,2</sup>, Sangeetha Thangaraj, Wan Khairunizam Wan Ahmad<sup>1,2</sup> and Mohd Shuhanaz Zonar Azalan<sup>1,2</sup>

<sup>1</sup>BMI Group, Univesiti Malaysia Perlis

<sup>2</sup>Faculty of Electrical Engineering & Technology, Univesiti Malaysia Perlis

(K-5) 16:00-16:25

Analysis the Effect of Music Reflexology on the Human Brain from EEG Features

Wan Khairunizam<sup>1</sup>, A.R. S. Harsono<sup>1</sup>, Abdul Hamid Adom<sup>1</sup>, Zuradzman M. Razlan<sup>2</sup> and Shahrman AB<sup>2</sup>

<sup>1</sup>Universiti Malaysia Perlis, Faculty of Electrical Engineering & Technology, 02600 Arau, Malaysia

<sup>2</sup>Universiti Malaysia Perlis, Faculty of Mechanical Engineering & Technology, 02600 Arau, Malaysia

18) 16:25-16:45

Growth of AlGa<sub>N</sub> Using Combined HVPE and MOVPE Techniques

Toshiki Goto<sup>1</sup>, Hiroki Yasunaga<sup>2,3,4</sup>, Ryota Akaike<sup>3,4</sup>, Takao Nakamura<sup>2,3,4</sup>, and Hideto Miyake<sup>3,4</sup>

<sup>1</sup>Graduate School of Regional Innovation Studies

<sup>2</sup>Office for Promoting Research and Innovation

<sup>3</sup>Innovation Center of Semiconductor Digital Future

<sup>4</sup>Graduate School of Engineering

19) 16:45-17:05

Achieving Low Contact Resistance In High-Al-Composition AlGa<sub>N</sub>

Shozaburo Tanaka<sup>1</sup>, Kenjiro Uesugi<sup>1,2</sup>, Hiroki Yasunaga<sup>2,3,4</sup>, Ryota Akaike<sup>3,4</sup>, Takao Nakamura<sup>2,3,4</sup> and Hideto Miyake<sup>3,4</sup>

<sup>1</sup>Graduate School of Regional Innovation Studies

<sup>2</sup>Office for Promoting Research and Innovation

<sup>3</sup>Innovation Center of Semiconductor Digital Future

<sup>4</sup>Graduate School of Engineering

17:05-17:10 **Closing**

Masao Aoki (Vice Dean of Graduate School of Regional Innovation Studies, Mie University)