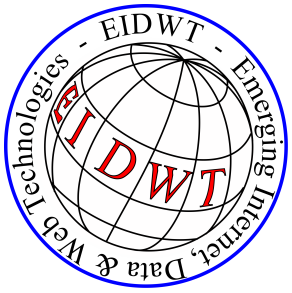
PROGRAM GUIDE

EIDWT-2020

The 8-th International Conference on
Emerging Internet, Data & Web Technologies



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Tateisi Science and Technology Foundation

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Fukuoka Institute of Technology

Kitakyushu International Conference Center, Kitakyushu, Japan

February 24-26, 2020

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Welcome Message of EIDWT-2020 International Conference Organizers

Welcome to the 8-th International Conference on Emerging Internet, Data and Web Technologies (EIDWT-2020), which will be held from February 24 to February 26, 2020 at Kitakyushu International Conference Center, Kitakyushu, Japan.

The EIDWT is dedicated to the dissemination of original contributions that are related to the theories, practices and concepts of emerging Internet and data technologies yet most importantly of their applicability in business and academia towards a collective intelligence approach.

In EIDWT-2020 will be discussed topics related to Information Networking, Data Centres, Data Grids, Clouds, Crowds, Mashups, Social Networks, Security Issues and other Web 2.0 implementations towards a collaborative and collective intelligence approach leading to advancements of virtual organizations and their user communities. This is because, current and future Web and Web 2.0 implementations will store and continuously produce a vast amount of data, which if combined and analyzed through a collective intelligence manner will make a difference in the organizational settings and their user communities. Thus, the scope of EIDWT-2020 includes methods and practices which bring various emerging Internet and data technologies together to capture, integrate, analyze, mine, annotate and visualize data in a meaningful and collaborative manner. Finally, EIDWT-2020 aims to provide a forum for original discussion and prompt future directions in the area. For EIDWT-2020 International Conference, we accepted for presentation 57 papers (about 30% acceptance ratio).

An international conference requires the support and help of many people. A lot of people have helped and worked hard for a successful EIDWT-2020 technical program and conference proceedings. First, we would like to thank all authors for submitting their papers. We are indebted to Program Area chairs, Program Committee members and reviewers who carried out the most difficult work of carefully evaluating the submitted papers. We would like to give our special thanks to Honorary Chair of EIDWT-2020 Prof. Makoto Takizawa, Hosei University, Japan for his guidance and support. We would like to express our appreciation to our keynote speakers for accepting our invitation and delivering very interesting keynotes at the conference.

We would like to thank Tateisi Science and Technology Foundation, City of Kitakyushu and Kitakyushu Convention & Visitors Association for financial support.

We would like as well to thank the Local Arrangements Chairs for making excellent local arrangements for the conference. We hope you will enjoy the conference and have a great time in Kitakyushu, Japan.

EIDWT-2020 International Conference Organizers

EIDWT-2020 Steering Committee Chair
Leonard Barolli, Fukuoka Institute of Technology (FIT), Japan

EIDWT-2020 General Co-Chairs
Yoshihiro Okada, Kyushu University, Japan
Flora Amato, University of Naples "Frederico II", Italy
Wenny Rahayu, La Trobe University, Australia

EIDWT-2020 Program Committee Co-Chairs
Tomoya Enokido, Rissho University, Japan
Zahoor Khan, Higher Colleges of Technology, UAE
Juggapong Natwichai, Chiang Mai University, Thailand

EIDWT 2020 Keynote Talk I

Prof. Hiroyoshi Miwa, Kwansei Gakuin University, Sanda City, Hyogo Prefecture, Japan

Title: Delay Tolerant Networking Technology and Disaster Management - Theoretical and Practical Aspects of DTN Technology

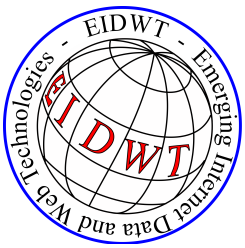
Abstract: Immediately after a large-scale disaster such as the Great East Japan Earthquake in 2011 struck, both wired and wireless communications do not work at all in the affected area. However, in such an environment, keeping communications and sharing information are absolutely imperative. Delay/Disruption/Disconnect Tolerant Networking (DTN) is the technology that establishes communications in an environment characterized by lack of continuous connectivity, high loss rates, and long propagation delays. A routing scheme, store-carry-forward, in which a mobile node first stores a message, carries it while moving, and then forwards it to either an intermediate node or the destination node, is essential for DTN. The store-carry-forward routing scheme makes use of opportunistic communication based on human serendipitous encounters which human mobility patterns causes. Recently, interesting knowledge about human mobility patterns and serendipitous encounters was found. A human mobility model which is consistent with the found properties was proposed. We can design an efficient algorithm for the store-carry-forward routing scheme by considering the mathematical mobility model. This is an example that theoretical knowledge and results can solve a practical problem. The optimization theory and the probability theory are useful also in the disaster management. In this talk, we introduce our theoretical and practical knowledge for the DTN technology.

EIDWT 2020 Keynote Talk II

Prof. Leonard Barolli, Fukuoka Institute of Technology, Japan

Title: IoT Device Selection in Opportunistic Networks: Implementation and Performance Evaluation of Fuzzy-based Intelligent Systems and a Testbed

Abstract: In Opportunistic Networks (OppNets) the contacts of Internet of Things (IoT) devices (nodes) are intermittent and links are highly variable. Upon receiving a message a device will store it in the buffer until another node comes in the transmission range and a forwarding opportunity exists. The IoT network consists of connected physical objects and devices with high mobility. By using the mobility of IoT devices, the OppNets provide a self-organizing network as a communication opportunity. The IoT devices generate and exchange a huge amount of data through heterogeneous networks and OppNets ease the concept of heterogeneity with their independence on decentralized infrastructure. The IoT network consists of different devices with different resource capabilities. When multiple IoT devices are deployed densely, there is a possibility that a node may reside in the coverage area of multiple devices. Thus, when a task requires an IoT device to complete it, it is very important to find the best device for that specific request. The IoT devices should be selected based on different parameters in order to achieve better network connectivity, stability and user coverage. In OppNets an end-to-end path between source and destination may not exist and network partitions occur. Some of the most common issues for OppNets are energy consumption, storage constraint, contact opportunity and finding an optimal and robust topology of the network devices to support connectivity services to events. To deal with these issues many parameters should be considered which make the problem NP-Hard. Thus, the heuristic and intelligent algorithms are good solutions. We consider IoT device selection in OppNets and propose new parameters and implement different intelligent systems based on Fuzzy Logic (FL). The proposed systems can be used in different environments and applications.



Monday, February 24, 2020

10:00-11:00 Registration

11:00-12:00 Single Session: Opening and Keynote Talk I

Keynote Talk I (PLENARY ROOM)

Prof. Hiroyoshi Miwa, Kwansei Gakuin University, Sanda City, Hyogo Prefecture, Japan
Title: Delay Tolerant Networking Technology and Disaster Management - Theoretical and Practical Aspects of DTN Technology

12:00-13:00 Lunch
13:00-15:00 Parallel Sessions

EIDWT-S1: Intelligent Algorithms and Systems

Chair: Shinji Sakamoto, Seikei University, Japan

1. Performance Evaluation of WMNs Using a Hybrid Intelligent System Based on Particle Swarm Optimization and Hill Climbing Considering Different Number of Iterations
   Shinji Sakamoto, Seiji Ohara, Leonard Barolli and Shusuke Okamoto

2. Performance Evaluation of WMNs using WMN-PSOHC-DGA Considering Evolution Steps and Computation Time
   Admir Barolli, Shinji Sakamoto, Seiji Ohara, Leonard Barolli and Makoto Takizawa

3. Performance Evaluation of WMN-PSODGA Hybrid Simulation System for Node Placement Problem Considering Normal Distribution and Different Fitness Functions
   Seiji Ohara, Admir Barolli, Phudit Ampririt, Shinji Sakamoto, Leonard Barolli and Makoto Takizawa

4. Genetic Algorithm Based Bi-directional Generative Adversary Network for LIBOR Prediction
   Xiao Tan

5. A Fuzzy-based Decision System for Sightseeing Spots Considering Natural Scenery and Visiting Cost as New Parameters
   Yi Liu, Phudit Ampririt, Ermioni Qafzezi, Kevin Bylykbashi, Leonard Barolli, Makoto Takizawa

EIDWT-S2: Security and Privacy

Chair: JongWon Kim, Gwangju Institute of Science and Technology, Korea

1. eBPF/XDP Based Network Traffic Visualization and DoS Mitigation for Intelligent Service Protection
   YoungEun Choe, Jun-Sik Shin, Seunghyung Lee, JongWon Kim

2. 3-Party Adversarial Cryptography
   Ishak Meraouche, Sabyasachi Dutta and Kouichi Sakurai

3. Classification of Malicious Domains by Their Lifetime
   Daiji Hara, Kouichi Sakurai, Yasuo Musashi

4. Identification of Manual Alphabets Based Gestures Using s-EMG for Realizing User Authentication
   Hisaaki Yamaba, Shotaro Usuzaki, Kayoko Takatsuka, Kentaro Aburada, Tetsuro Katayama, Mirang Park, Naonobu Okazaki

EIDWT-S3: Mobile Communication Systems

Chair: Hiroshi Maeda, Fukuoka Institute of Technology, Japan

1. A Beam Power Allocating Method for Ka-band Multi-beam Broadcasting Satellite Based on Meteorological Data
   Takumi Iwamoto and Kiyotaka Fujisaki

2. Input Amplitude Dependency of Duplexer with Dispersive and Nonlinear Dielectric in 2D Photonic Crystal Waveguide
   Naoki Higashinaka, Hiroshi Maeda

3. Implementations on Static Body Detections by Locational Sensors on Mobile Phone for Disaster Information System
   Noriki Uchida, Misaki Fukumoto, Tomoyuki Ishida, Yoshitaka Shibata

4. Evaluation of End-to-End Performance on N-wavelength V2X Cognitive Wireless System Designed for Exchanging Road State Information
   Akira Sakuraba, Yoshitaka Shibata Goshi Sato, Noriki Uchida

15:00-15:30 Coffee Break

15:30-17:30 Parallel Sessions

EIDWT-S4: Data Processing and Machine Learning

Chair: Makoto Ikeda, Fukuoka Institute of Technology, Japan

1. Performance Evaluation of VegeCare Tool for Insect Pest Classification with Different Life Cycles
   Natwadee Ruedeeniraman, Makoto Ikeda, Leonard Barolli

2. DevOps Portal Design for SmartX AI Cluster Employing Cloud-native Machine Learning Workflows
   GeumSeong Yoon, Jungsu Han, Seunghyung Lee, JongWon Kim

3. Evaluation of Parallel Data Transmission in the Mobile Fog Computing Model
Kosuke Gima, Takumi Saito, Ryuji Oma, Shigenari Nakamura, Tomoya Enokido, Makoto Takizawa

4. Cognitive Approaches for Sensor Data Analysis in Transformative Computing
Marek R. Ogiela and Lidia Ogiela

5. Recognition of Historical Characters by Combination of Method Detecting Character in Photo Image of Document and Method Separating Block to Characters
Liao Sichao and Hiroyoshi Miwa

EIDWT-S5: DTNs and Vehicular Applications

Chair: Naohiro Hyashibara, Kyoto Sangyo University, Japan

1. Effect of Driver's Condition for Driving Risk Measurement in VANETs: A Comparison Study of Simulation and Experimental Results
Kevin Bylykbashi, Ermioni Qafzezi, Makoto Ikeda, Keita Matsuo, Leonard Barolli

2. Resource Management in SDN-VANETs: Coordination of Cloud-Fog-Edge Resources Using Fuzzy Logic
Ermioni Qafzezi, Kevin Bylykbashi, Tomoyuki Ishida, Keita Matsuo, Leonard Barolli, Makoto Takizawa

3. Human Mobility and Message Caching in Opportunistic Networks
Tomoyuki Sueda and Naohiro Hayashibara

4. Development and Evaluation of Road State Information Platform based on Various Environmental Sensors in Snow Countries
Yoshitaka Shibata, Yoshikazu Arai, Yoshiya Saito, Jun Hakura

5. Hybrid Type DTN Routing Protocol Considering Storage Capacity
Kenta Henmi, Akio Koyama

EIDWT-S6: Multimedia and Web Applications

Chair: Yoshihiro Okada, Kyushu University, Japan

1. A Multi-Modal Interface for Control of Omnidirectional Video Playing on Head Mount Display
Yusi Machidori, Ko Takayama and Kaoru Sugita

2. IntelligentBox for Web-based VR Applications (WebIBVR) and Its Collaborative Virtual Environments
Yoshihiro Okada and Taiki Ura

3. A Framework for Automatically Generating IoT Security Quizzes in 360VR Images/Videos Based on Linked Data
Wei Shi, Tianhao Gao, Srishti Kulshrestha, Ranjan Bose, Akira Haga, Yoshihiro Okada

4. An Approach of Usability Testing for Web User Interface through Interaction Flow Modeling Language (IFML) Models
Muhammad Talha Riaz, Farooque Azam, Nazish Yousaf, Muhammad Waseem Anwar and Adil Aziz

5. Proposal of an Interactive Brainstorming Environment for Various Content Sharing and Meeting Progress
Ryo Nakai, Tomoyuki Ishida

18:00-20:00 Welcome Reception Party

- Location of Reception Party: Event Hall (1st Floor) "Kitakyushu International Conference Center, Kitakyushu, Japan "
- Address: "3 Chome-9-30 Asano, Kokurakita Ward, Kitakyushu, Fukuoka 802-0001"

Tuesday, February 25, 2020

10:00 Registration

11:00-12:00 Single Session: Keynote Talk II

Keynote Talk II (PLENARY ROOM)

Prof. Leonard Barolli, Fukuoka Institute of Technology, Japan
Title: IoT Device Selection in Opportunistic Networks: Implementation and Performance Evaluation of Fuzzy-based Intelligent Systems and a Testbed

12:00-13:00 Lunch

13:00-15:00 Parallel Sessions

EIDWT-S7: IoT Applications

Chair: Keita Matsuo, Fukuoka Institute of Technology, Japan

1. A Dynamic Tree-based Fog Computing (DTBFC) Model for the Energy-efficient IoT
   Ryuji Oma, Shigenari Nakamura, Tomoya Enokido, and Makoto Takizawa
2. IoT Node Selection in Opportunistic Networks: A Fuzzy-based Approach Considering Node's Successful Delivery Ratio (NSDR) as a New Parameter
   Miralda Cuka, Donald Elmazi, Makoto Ikeda, Keita Matsuo, Leonard Barolli
3. A Management System for Electric Wheelchair Considering Agile-Kanban Using IoT Sensors and Scikit-learn
   Takeru Kurita, Keita Matsuo and Leonard Barolli
4. PACKUARIUM: Network Packet Visualization Using Mixed Reality for Detecting Bot IoT Device of DDoS Attack
   Kosuke Kaneko, Yusuke Tsutsumi, Subodh Sharma, Yoshihiro Okada
5. Blockchain for IoT-Based Digital Supply Chain: A Survey
   Haibo Zhang and Kouichi Sakurai

EIDWT-S8: Network Protocols and Algorithms

Chair: Tomoya Enokido, Rissho University, Japan

1. Topic-Based Subgroups for Reducing Messages Exchanged Among Subgroups
   Takumi Saito, Shigenari Nakamura, Tomoya Enokido, and Makoto Takizawa

2. Evaluation of a TBOI (Time-Based Operation Interruption) Protocol to Prevent Late Information Flow in the IoT

   Shigenari Nakamura, Tomoya Enokido, and Makoto Takizawa

3. The Improved Redundant Energy Consumption Laxity-Based Algorithm with Differentiating Starting Time of Process Replicas

   Tomoya Enokido and Makoto Takizawa

4. Optimization Problem for Network Design by Link Protection and Link Augmentation

   Hiroki Yano and Hiroyoshi Miwa

5. Classification and Regression Based Methods for Short Term Load and Price Forecasting: A Survey

   Hira Gul, Arooj Arif, Sahiba Fareed, Mubbashra Anwar, Afrah Naeem, Nadeem Javaid

EIDWT-S9: E-Learning Systems and Data Analytics

Chair: Juggapong Natwichai, Chiang Mai University, Thailand

1. Judging Students' Learning Style from Big Video Data Using Neural Network

   Noriyasu Yamamoto

2. Automatic Generation of E-Learning Contents Based on Deep Learning and Natural Language Processing Techniques

   Yiyi Wang, Koji Okamura

3. A Handover Challenge of Data Analytics: Multi-user Issues in Sustainable Data Analytics

   Toshihiko Yamakami

4. A Study for Semi-supervised Learning with Random Erasing

   Yuuhi Okahana and Yusuke Gotoh

5. Electricity Price and Load Forecasting using Data Analytics in Smart Grid: A Survey

   Mubbashra Anwar, Afrah Naeem, Hira Gul, Arooj Arif, Sahiba Fareed, and Nadeem Javaid

15:00-15:30 Coffee Break

15:30-17:30 Parallel Sessions

EIDWT-S10: Wireless and Mobile Networking

Chair: Makoto Takizawa, Hosei University, Japan

1. A Software-oriented Approach to Energy-efficiently Unicasting Messages in Wireless Ad-hoc Networks

   Ryota Sakai, Takumi Saito, Ryuji Oma, Shigenari Nakamura, Tomoya Enokido, Makoto Takizawa

2. A DQN Based Mobile Actor Node Control in WSAN: Simulation Results of Different Distributions of Events Considering Three-dimensional Environment

   Kyohei Toyoshima, Tetsuya Oda, Masaharu Hirota, Kengo Katayama, Leonard Barolli

3. A Fuzzy-Based System for Admission Control in 5G Wireless Networks Considering Software-Defined Network Approach
   Phudit Ampririt, Seiji Ohara, Yi Liu, Makoto Ikeda, Hiroshi Maeda, Leonard Barolli

4. A Fuzzy-based System for Actor Node Selection in WSANs Considering Task Accomplishment Time as a New Parameter
   Donald Elmazi, Miralda Cuka, Makoto Ikeda, Keita Matsuo, Leonard Barolli, Makoto Takizawa

EIDWT-S11: Distributed and Parallel Processing

Chair: Fang-Yie Leu, Tunghai University, Taiwan

1. The Study on AUSF Fault Tolerance
   Wei-Sheng Chen, Fang-Yie Leu

2. Design of a DSL for Converting Rust Programming Language into RTL
   Keisuke Takano, Tetsuya Oda, Masaki Kohata

3. A Knapsack Problem Based Algorithm for Local Level Management in Smart Grid
   Usman Ali, Usman Qamar, Kanwal Wahab, Khawaja Sarmad Arif

4. Transformative Computing in Knowledge Extraction and Service Management Processes
   Lidia Ogiela, Makoto Takizawa, Urszula Ogiela

5. A Privacy Threat Model in XR Applications
   Toshihiko Yamakami

EIDWT-S12: Cloud and Edge Computing

Chair: Kangbin Yim, Soonchunhyang University, Korea

1. Workflow Improvement for KubeFlow DL Performance over Cloud-native SmartX AI Cluster
   Yujin Hong and JongWon Kim

2. A Study on Access Control Scheme Based on ABE Using Searchable Encryption in Cloud Environment
   Yong-Woon Hwang, Im-Yeong Lee, Kangbin Yim

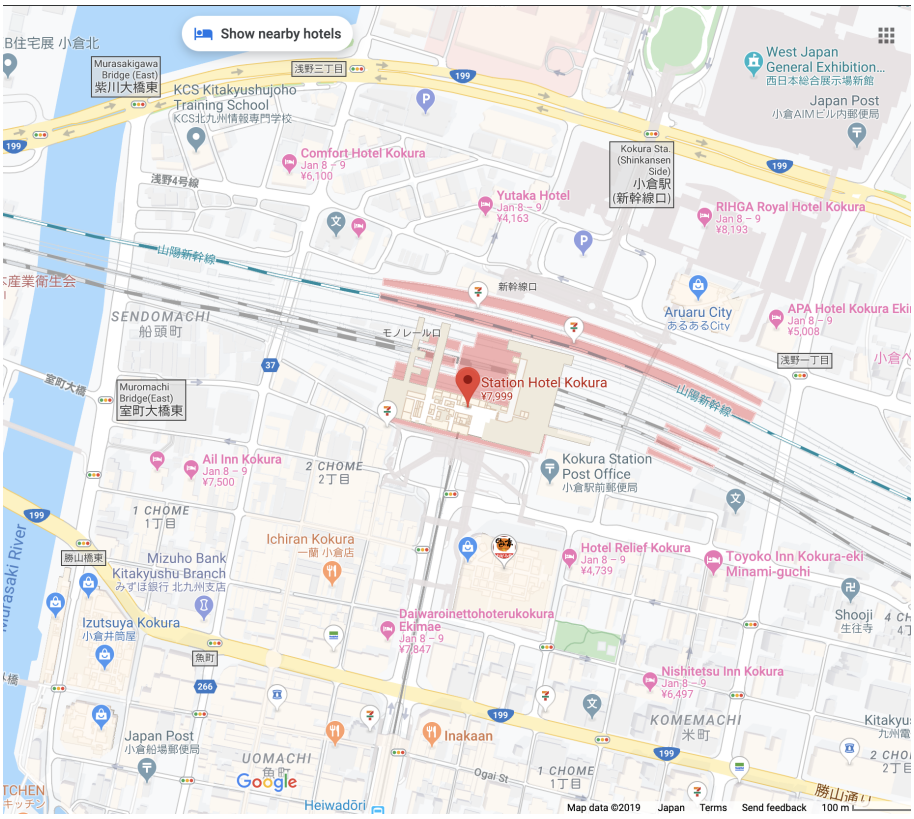
3. Secure Public Cloud Storage Auditing with Deduplication: More Efficient and Secure
   Jiasen Liu, Xu An Wang, Kaiyang Zhao, Han Wang

4. Subtree-based Fog Computing in the TWTBFC Model
   Yinzhe Guo, Takumi Saito, Ryuji Oma, Shigenari Nakamura, Tomoya Enokido, Makoto Takizawa

5. Usage-Oriented Resource Allocation Strategy in Edge Computing Environments
   Tsu-Hao Hsieh, Kuan-Yu Ho, Meng-Yo Tsai, and Kuan-Chou Lai

18:00-20:00 Banquet Party

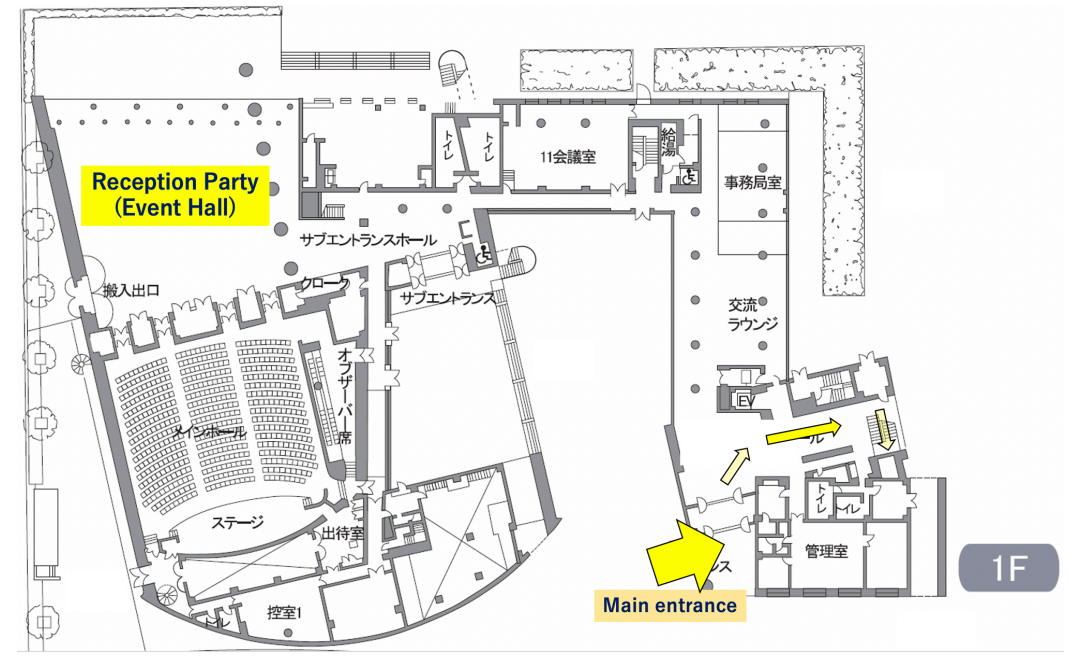
- Location of Banquet Party: JR Kyushu Station Hotel Kokura
- Address: 1-1-1, Asano, Kokura-kita-ku, Kitakyushu City, 802-0001, Japan

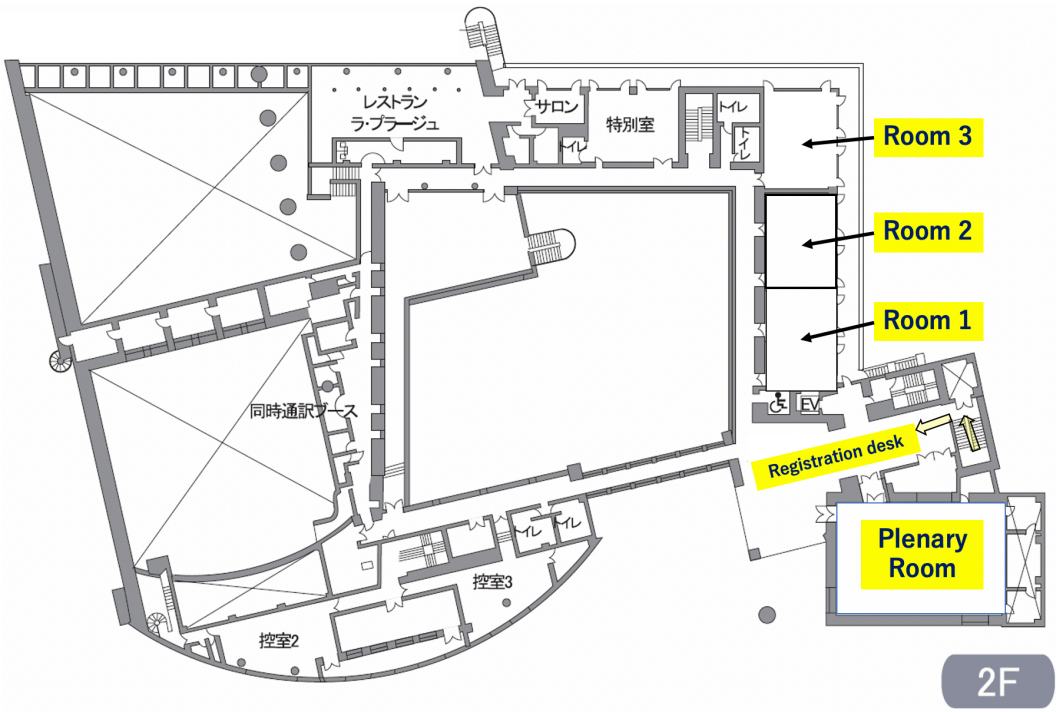


Wednesday, February 26, 2020

EIDWT-2020 Organizing Committee Meeting and Discussion

Floor Plan


Reception Party
(Event Hall)
11会議室
事務局室
サブエントランスホール
搬入出口
クローク
サブエントランス
交流
ラウンジ
メインホール
ステージ
出待室
控室1
管理室
Main entrance
1F


レストラン
ラ・プラージュ
サロン
特別室
Room 3
Room 2
Room 1
同時通訳ブース
Registration desk
Plenary
Room
控室3
控室2
2F

EIDWT-2020 Session Schedule
February 24-26, 2020
Kitakyushu International Convention Center, Kitakyushu, Japan

Monday (Feb. 24, 2020)		**ROOM 1**	**ROOM 2**	**ROOM 3**
Slot	**Time**			
	10:00 – 11:00	Registration		
Keynote Talk	**11:00 – 12:00**	Opening Ceremony EIDWT-2019 Keynote I (Plenary Room)		
Lunch	12:00 – 13:00	Lunch		
Session 1	**13:00 – 15:00**	EIDWT S1	EIDWT S2	EIDWT S3
Coffee Break	15:00 – 15:30	Coffee Break		
Session 2	15:30 – 17:30	EIDWT S4	EIDWT S5	EIDWT S6
Event	18:00 – 20:00	Reception Party		

Tuesday (Feb. 25, 2020)		**ROOM 1**	**ROOM 2**	**ROOM 3**
Slot	**Time**			
	10:00 – 11:00	Registration		
Keynote Talk	**11:00 – 12:00**	EIDWT-2019 Keynote II (Plenary Room)		
Lunch	12:00 – 13:00	Lunch		
Session 1	**13:00 – 15:00**	EIDWT S7	EIDWT S8	EIDWT S9
Coffee Break	15:00 – 15:30	Coffee Break		
Session 2	**15:30 – 17:30**	EIDWT S10	EIDWT S11	EIDWT S12
Event	18:00 – 20:00	Banquet Party		

Wednesday (Feb. 26, 2020)		**ROOM 1**	**ROOM 2**	**ROOM 3**
Slot	**Time**			
		EIDWT-2020 Steering Committee Meeting and Discussion		