## IUKM2022 Program (Final: 9 March, 2022)

### 18 March, 2022 (Friday)

<table>
<thead>
<tr>
<th>Time</th>
<th>Japan (GMT+9)</th>
<th>Thailand (GMT+7)</th>
<th>Central European (GMT+1)</th>
<th>Session</th>
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<tbody>
<tr>
<td>12:40 - 13:05</td>
<td>10:40 - 11:05</td>
<td>4:40 - 5:05</td>
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<td>Opening</td>
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<tr>
<td>13:05 - 14:20</td>
<td>11:05 - 12:20</td>
<td>5:05 - 6:20</td>
<td><strong>Uncertainty Management and Decision Making I</strong> (3 papers)</td>
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<td>14:20 - 14:35</td>
<td>12:20 - 12:35</td>
<td>6:20 - 6:35</td>
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<td><strong>Pattern Classification and Data Analysis I</strong> (3 papers)</td>
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<tr>
<td>15:50 - 16:05</td>
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<td><strong>Pattern Classification and Data Analysis II</strong> (3 papers)</td>
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<tr>
<td>16:05 - 17:45</td>
<td>14:05 - 15:45</td>
<td>8:05 - 9:45</td>
<td><strong>Machine Learning II</strong> (4 papers)</td>
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<tr>
<td>17:45 - 18:00</td>
<td>15:45 - 16:00</td>
<td>9:45 - 10:00</td>
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<td><strong>Economic Applications I</strong> (4 papers)</td>
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<tr>
<td>18:00 - 19:00</td>
<td>16:00 - 17:00</td>
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<td><strong>Keynote Lecture 1 (Dr. Rudolf Felix)</strong></td>
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<td>19 March, 2022</td>
<td>11:00 - 12:00</td>
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<td><strong>Keynote Lecture 2 (Prof. Motohide Umano)</strong></td>
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<td>15:55 - 16:10</td>
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<td><strong>Optimization and Statistical Methods I</strong> (4 papers)</td>
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<td>16:10 - 17:50</td>
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**Regular presentation:** 20 min. talk + 5 min. discussion  
**Short presentation:** 15 min. talk + 5 min. discussion  
**Keynote Lecture 1:** Dr. Rudolf Felix  
**Keynote Lecture 2:** Prof. Motohide Umano  
**Keynote Lecture 3:** Prof. Salvatore Greco  
**Opening:**  
**Closing:**

### 19 March, 2022 (Saturday)

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<td>14:00 - 14:15</td>
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<td><strong>Break (15 min.)</strong></td>
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Keynote Lecture 2: Prof. Motohide Umano  
Keynote Lecture 3: Prof. Salvatore Greco  
Opening  
Closing
Friday 18 March 2022

12:40 - 13:05 Opening

13:05 - 14:20 General Session Room A: Uncertainty Management and Decision Making I
(Chair: Prof. Van-Nam Huynh)
1. The Lattice Structure of Coverings in an Incomplete Information Table with Value Similarity
   [ID 32] (Michinori Nakata, Norio Saito, Hiroshi Sakai, and Takeshi Fujiwara)
2. Group Formation Models Based on Inner Evaluations of Members
   [ID 19] (Tomoe Entani)
3. A Data-driven Weighting Method Based on DEA Model for Evaluating Innovation
   [ID 31] (Nu Dieu Khue Ngo and Van Nam Huynh)

General Session Room B: Pattern Classification and Data Analysis I
(Chair: Dr. Seiki Ubukata)
1. On Some Fuzzy Clustering Algorithms for Time-Series Data
   [ID 7] (Mizuki Fujita and Yuchi Kanzawa)
2. On an Multi-directional Searching Algorithm for Two Fuzzy Clustering Methods for Categorical Multivariate Data
   [ID 8] (Kazune Suzuki and Yuchi Kanzawa)
3. Hybrid Rule-Based Classification by Integrating Expert Knowledge and Data
   [ID 11] (Lianmeng Jiao, Haonan Ma, and Quan Pan)

14:20 - 14:35 Break

14:35 - 15:50 General Session Room A: Machine Learning I
(Chair: Dr. Warut Pannakkong)
1. Toward Latent Cognizance on Open-set Recognition
   [ID 5] (Pisit Nakjai and Tatpong Katanyukul)
2. A Genetic Algorithm Based Artificial Neural Network for Production Rescheduling Problem
   [ID 26] (Pakkaporn Saophan and Warut Pannakkong)
3. Backtracking Approaches to k-anonymous Rule Induction Method for Binary Classified Data Tables (Short Presentation)
   [ID 45] (Taichi Chujo and Masahiro Inuiguchi)

General Session Room B: Pattern Classification and Data Analysis II
(Chair: Dr. Yoshifumi Kusunoki)
1. A Comparative Study on Utilization of Semantic Information in Fuzzy Co-clustering
   [ID 15] (Yusuke Takahata, Katsuhiro Honda, and Seiki Ubukata)
2. On Some Fuzzy Clustering Algorithms with Cluster-wise Covariance
   [ID 10] (Toshiki Ishii and Yuchi Kanzawa)
3. On Fuzzy Clustering Algorithms for Categorical Data Based on k-Partitions (Short Presentation)
   [ID 9] (Yunkai Yan and Yuchi Kanzawa)

15:50 - 16:05 Break
General Session Room A: Machine Learning II  
(Chair: Prof. Katsuhiro Honda)
1. Noise Fuzzy Clustering-based Robust Non-negative Matrix Factorization with  
   1-divergence Criterion  
   ID 14 (Akira Okabe, Katsuhiro Honda, and Seiki Ubukata)
2. Topic Modeling of Political Dynamics with Shifted Cosine Similarity  
   ID 23 (Yifan Luo, Tao Wan, and Zengchang Qin)
3. Transductive Learning Based on Low-Rank Representation with Convex  
   Constraints  
   ID 38 (Roengchai Tansuchat and Pichayakone Rakpho)
4. A Robustification Improvement of ANFIS Classifier (Short Presentation)  
   ID 40 (Koki Kitamori, Katsuhiro Honda, and Seiki Ubukata)

General Session Room B: Economic Applications I  
(Chair: Dr. Woraphon Yamaka)
1. Hedging Agriculture Commodities Futures with Histogram data Based on  
   Conditional Copula-GJR-GARCH  
   ID 3 (Roengchai Tansuchat and Pichayakone Rakpho)
2. Predicting Energy Price Volatility using Hybrid Artificial Neural Networks with  
   GARCH-type Models  
   ID 12 (Pichayakone Rakpho, Woraphon Yamaka, and Rungrapee Phadkantha)
3. Estimating Wind Speed by using Confidence Intervals for the Median in a Three-  
   Parameter Lognormal Model  
   ID 13 (Patcharee Maneerat, Sa-Aat Niwitpong, and Pisit Nakjai)
   Augmented Feedback (Short Presentation)  
   ID 43 (Raveekiat Singhaphandu, Van-Nam Huynh, and Warut Pannakkong)

17:45 - 18:00 Break
18:00 - 19:00 Keynote 1 (Room A): Decision Making and Optimization in Context of Inconsistently  
Interacting Goals and its Relation to Machine Learning
Dr. Rudolf Felix (Chair: Prof. Van-Nam Huynh)
Saturday 19 March 2022

13:00 - 14:00  **Keynote 2 (Room A):** Partition of Time Series Using Hierarchical Clustering
                **Prof. Motohide Umano** (Chair: Prof. Katsuhiro Honda)
14:00 - 14:15  Break
14:15 - 15:55  **General Session Room A:** Economic Applications II
                (Chair: Prof. Roengchai Tansuchat)
                1. Trust Uncertainty Modeling in Agri-food Logistic Decision Making
                   **ID 24** (Rindra Yusianto, Suprihatin Suprihatin, Hartrisari Hardjomidjojo, and Marimin Marimin)
                2. Investigating the Predictive Power of Google Trend and Real Price Indexes in Forecasting the Inflation Volatility
                   **ID 34** (Kittawit Autchariyapanitkul, Terdthiti Chitkasame, Namchok Chimprang, and Chaiwat Klinlampu)
                3. Price Volatility Dependence Structure Change among Agricultural Commodity Futures due to Extreme Event: an Analysis with the Vine Copula
                   **ID 35** (Konnika Palason, Tanapol Rattanasamakarn, and Roengchai Tansuchat)
                4. Daily Electricity Peak Demand Forecasting using Hybrid Model based on Similar Day Selection Technique  (**Short Presentation**)
                   **ID 44** (Lalitpat Aswanuwath, Van-Nam Huynh, and Warut Pannakkong)

**General Session Room B: Optimization and Statistical Methods I**
                (Chair: Prof. Masahiro Inuiguchi)
                1. Coyote Optimization Algorithm with Linear Convergence for Global Numerical Optimization
                   **ID 16** (Hsin-Jui Lin and Sheng-Ta Hsieh)
                2. Additional Out-group Search for JADE
                   **ID 22** (Yuichi Miyahira and Akira Notsu)
                3. Confidence Intervals for Mean of Delta Two-parameter Exponential Distribution
                   **ID 18** (Wansiri Khooriphan, Sa-Aat Niwitpong, and Suparat Niwitpong)
                4. An Analysis to Treat the Degeneracy of a Basic Feasible Solution in Interval Linear Programming
                   **ID 28** (Zhenzhong Gao and Masahiro Inuiguchi)

15:55 - 16:10  Break
16:10 - 17:50  **General Session Room A:** Uncertainty Management and Decision Making II
                (Chair: Prof. Tomoe Entani)
                1. Measuring Quality of Belief Function Approximations
                   **ID 20** (Radim Jiroušek and Václav Kratochvíl)
                2. Preference-based Assessment of Organizational Risk in Complex Environments
                   **ID 21** (Silvia Carpitella and Joaquín Izquierdo)
                3. Decision Analysis with the Set of Normalized Triangular Fuzzy Weight Vectors in Fuzzy AHP
                   **ID 36** (Shigeaki Innan and Masahiro Inuiguchi)
                4. Three-point Accuracy Comparison of Various Interval Weight Estimation Methods under a Given Pairwise Comparison Matrix  (**Short Presentation**)
                   **ID 46** (Akiko Hayashi, Shigeaki Innan, and Masahiro Inuiguchi)
**General Session Room B: Optimization and Statistical Methods II**  
(Chair: Prof. Katsushige Fujimoto)

1. Accounting for Gaussian Process Imprecision in Bayesian Optimization  
   ID 17 (Julian Rodemann and Thomas Augustin)

2. Job-satisfaction Enhancement in Nurse Scheduling: A Case of Hospital Emergency  
   Department in Thailand  
   ID 30 (Pavinee Rerkjirattikal, Raveekiat Singhaphandu, Van-Nam Huynh, and Sun Olapiriyakul)

3. Analysis of Medical Data Using Interval Estimators for Common Mean of Gaussian  
   Distributions with Unknown Coefficients of Variation  
   ID 41 (Warisa Thangjai, Sa-Aat Niwitpong and Suparat Niwitpong)

4. On the Effects of Data Protection on Multi-database Data-driven Models  
   ID 33 (Lili Jiang and Vicenç Torra)

17:50 - 18:05  Break

18:05 - 19:05  **Keynote 3 (Room A): The Robust Ordinal Regression: Basic Ideas, Principal Models,  
               Recent Developments**  
               Prof. Salvatore Greco (Chair: Prof. Masahiro Inuiguchi)

19:05 - 19:20  Closing