For Zoom URLs, proceedings, and presentation videos, please refer to the link below. https://edas.info/p27304

December 5, 2020 (JST / UTC+0900)
10:00-10:30 Opening Ceremony @Room1
Chair: Junji Nishino (The University of Electro-Communications)

10:30-11:30 Plenary Talk 1 @Room1
Chair: Kanta Tachibana (Kogakuin University)
Research, Development, and Social Experiments of New Transportation Methods in Gunma University
Prof. Naoya Ohta

11:30-12:30 Lunch Break

12:30-13:45 Parallel Sessions

[Sa-1] OS: Interactive Systems (1) @Room1
Chair: Makoto Fukumoto (Fukuoka Institute of Technology)
#1570662369, Full paper
Serendipity Recommender System for Academic Disciplines
Satoko Inoue and Masataka Tokumaru

#1570662744, Full paper
A Study on Coordination of Exercise Difficulty in Cognitive Training System for Older Adults
Daisuke Kitakoshi, Kentarou Suzuki, and Masato Suzuki

#1570663125, Full paper
Social Skills Training System in Social Settings Using Multiple Animated Characters
Masahide Yuasa

[Sa-2] OS: Data Science for Human-oriented Systems Design (1) @Room2
Chair: Shinichi Yoshida (Kochi University of Technology)
Design of the Convolution Layer Using SoC FPGA and Evaluation of Latency Using a Camera Signal
Ryoki Kamesaka and Yukinobu Hoshino

Automatic Acquisition of Immune Cells Location Using Deep Learning for Automated Analysis
Shoya Kusunose, Yuki Shinomiya, Yukinobu Hoshino, Takashi Ushiwaka, and Nagamasa Maeda

Directed Graph-Based Researcher Recommendation by Random Walk with Restart and Cosine Similarity
Kanta Nakamura and Kazushi Okamoto

**[Sa-3] GS: Robocup @Room3**
**Chair: Hidehisa Akiyama (Fukuoka University)**

Team Classification with Tactical Analysis Using Fuzzy Inference in RoboCup Soccer
Takuya Fukushima, Tomoharu Nakashima, and Vicenc Torra

An Experience System of Soccer Referee Using Immersive Virtual Reality
Hidehisa Akiyama, Yudai Tanaka, Ryota Saito, and Shigeto Aramaki

**[Sa-4] GS: Decision Making (1) @Room4**
**Chair: Kazushi Okamoto (The University of Electro-Communications)**

Rough Set Logic for Kleene's Three-Valued Logic
Yotaro Nakayama, Seiki Akama, and Tetsuya Murai

Real-Time Collision Risk Assessment System Based on the Fuzzy Theory in Accordance with Collision Avoidance Rules
Ho Namgung, Jung Sik Jeong, and Joo-Sung Kim
Multiobjective Two-Level Simple Recourse Programming Problems with Discrete-Type Fuzzy
Random Variables and Optimistic and Pessimistic Pareto Stackelberg Solutions
Hitoshi Yano

13:45-14:00 Break

14:00-15:40 Parallel Sessions

[Sa-5] OS: Interactive Systems (2) @Room1
Chair: Jun-ichi Imai (Chiba Institute of Technology), Yoshiko Hanada (Kansai University)
#1570664366, Full paper
Acceptability of a Decision Maker to Handle Multi-Objective Optimization on Design Space
Makoto Inoue, Hibiki Matsumoto, and Hideyuki Takagi

#1570665064, Full paper
Verification of Performance of Multi-Parental Real-Valued Crossover in Interactive Genetic
Algorithm
Yusuke Yabuzaki, Yoshiko Hanada, and Makoto Fukumoto

#1570665081, Full paper
Peripheral Notification That Does Not Interfere with User's Concentration by Interactive Projection
Tomoya Ishige and Jun-ichi Imai

#1570665116, Full paper
Optimization of Sound of Autonomous Sensory Meridian Response with Interactive Genetic
Algorithm
Makoto Fukumoto and Koki Hijikuro

[Sa-6] OS: Data Science for Human-oriented Systems Design (2) @Room2
Chair: Shinichi Yoshida (Kochi University of Technology)
# 1570664713, Full paper
Development and Evaluation of Identification Devices for Vermin Capture System
Junsuke Yokoseki and Yukinobu Hoshino

#1570665093, Full paper
A 3D-CNN Classifier for Gender Discrimination from Diffusion Tensor Imaging of Human Brain
Yuichiro Nitta, Yuki Shinomiya, Kaechang Park, and Shinichi Yoshida
Experimental Verification of Control Rules for A Lane-Keeping Controller Using Similarity Fuzzy Reasoning
Yuka Nishiyama, Yuki Shinomiya, Toshimi Yamamoto, and Yukinobu Hoshino

[Sa-7] OS: Fusion Technologies of Theory and Science for Data Utilization (1) @Room3
Chair: Takeshi Matsui (Gunma University), Antonio Oliveira Nzinga Rene (Toyama Prefectural University)
#1570659116, Full paper
Adapting the Learning Rate of the Learning Rate in Hypergradient Descent
Kazuma Itakura, Kyohei Atarashi, Satoshi Oyama, and Masahito Kurihara

#1570663789, Full paper
Model Construction Based on Variable Selection of Indicators and Alternative Data in Market Forecasting
Domoto Eri, Junko Shibata, Itaru Aso, and Koji Okuhara

#1570665078, Short paper
A Pervasive Community Detection Method Through Modular Decomposition of Markov Chain for Social Media Analysis
Takeshi Matsui and Antonio Oliveira Nzinga Rene

#1570664738, Full paper
Development of Creative Thinking Support Method Through Text Mining for Inspiration
Koji Okuhara, Takeshi Matsui, and Yuki Yamamoto

[Sa-8] GS: Decision Making (2) @Room4
Chair: Naoki Masuyama (Osaka Prefecture University)
#1570664320, Full paper
Stochastic Unit Commitment Problem in Electricity Market
Ryusei Mikami, Takayuki Shiina, and Ken-ichi Tokoro

#1570664452, Full paper
Solution Algorithm for the Vehicle Routing Problem with Stochastic Demands
Ryota Omori and Takayuki Shiina

#1570664344, Full paper
The Facility Location Problem with Probabilistic Constraints
Atsuya Suzuki, Tomoki Fukuba, and Takayuki Shiina

15:40-16:00 Break

16:00-17:40 Parallel Sessions

[Sa-9] OS: Robot Systems Cooperate with Human @Room1
Chair: Hiroyuki Masuta (Toyama Prefectural University), Takenori Obo (Tokyo Polytechnic University & Faculty of Engineering)
#1570663860, Full paper
Hand Gesture Communication Using Deep Learning Based on Relevance Theory
Wen Bang Dou, Wei Hong Chin, and Naoyuki Kubota

#1570664357, Full paper
Development of Multi-Robot Presentation System for Lecture in Classroom
Hiroyuki Masuta and Ken'ichi Koyanagi

#1570665019, Full paper
Design Considerations for Robot Partner System Based on Modular Structure
Jinseok Woo, Yasuhiro Ohyama, and Naoyuki Kubota

#1570668593, Full paper
Semi-Autonomous Robotic Avatar System for Patients with Motor Disabilities
Takenori Obo, Ryoya Hase, and Duk Shin

[Sa-10] OS: Soft Computing in Urban and Transport Planning @Room2
Chair: Takamasa Akiyama (Kansai University)
#1570664867, Full paper
The Optimal Toll Determination of Urban Expressway with Deep Learning Method
Hiroaki Inokuchi and Takamasa Akiyama

#1570666830, Full paper
Modeling for Residence Preference in Local City Considering Heterogeneous Households
Masashi Okushima, Hideo Yamanaka, and Kojiro Watanabe

#1570691389, Late-breaking paper
Modal Choice Model with Fuzzy Logic to Evaluate the Bicycle Transport Policy
Takamasa Akiyama and Hiroaki Inokuchi
Visualizing the Importance of Floor-Plan Image Features in Rent-Prediction Models
Ryosuke Hattori, Kazushi Okamoto, and Atsushi Shibata

Creation of Intellectual Property Based on Natural Language Generation Model
Antonio Oliveira Nzinga Rene, Takeshi Matsui, Shigeaki Onoda, and Koji Okuhara

Simultaneous Visualization of Documents, Words and Topics by Tensor Self-Organizing Map and Non-Negative Matrix Factorization
Kazuki Noguchi, Takuro Ishida, and Tetsuo Furukawa

Salient Feature Extraction in Japanese Metaphor Generation
Asuka Terai and Masaki Kitano

An Algorithm for the Automatic Precisiation of the Meaning of Adjectives
Moreno Colombo and Edy Portmann

Development of Sightseeing Spot Recommendation System Considering Users' Visit Frequency
Yudai Kato and Kayoko Yamamoto

Agent-Based Approach to Resolve the Conflicting Observations of Online Echo Chamber
Muhammad Al Atiqi, Shuang Chang, and Hiroshi Deguchi

High-Degree Noise Addition Method for the k-Degree Anonymization Algorithm
Jana Medková
17:40-18:00 Break

18:00-19:00 Plenary Talk 2 @ Room1
Chair: Yusuke Nojima (Osaka Prefecture University)
Interactive Natural Language Technology for Human-Centric Explainable Artificial Intelligence
Dr. Jose M. Alonso
December 6, 2020 (JST / UTC+0900)
10:30-11:30 Plenary Talk 3 @Room1
Chair: Kaori Yoshida (Kyushu Institute of Technology)
Harmony Search Algorithm and its Applications in Japan and Korea
Prof. Zong Woo Geem

11:30-12:30 Lunch Break

12:30-14:10 Parallel Sessions

[Su-1] OS: Human Symbiotic Systems (1) @Room1
Chair: Tsuyoshi Nakamura (Nagoya Institute of Technology)
# 1570654596, Full paper
Human-Robot Interaction Based on Facial Expression Recognition Using Deep Learning
Yoichiro Maeda, Tensei Sakai, Katsuari Kamei, and Eric Cooper

#1570658956, Full paper
Deep Learning Method for Estimating Perplexion in Learners by Educational Support Robots
Ryo Yoshizawa, Felix Jimenez, and Kazuhito Murakami

#1570662087, Full paper
Reward Function Using Inverse Reinforcement Learning and Fuzzy Reasoning
Yuta Kato, Masayoshi Kanoh, and Tsuyoshi Nakamura

#1570666974, Full paper
Effect of Humanoid Robot's Reaction on Human Touch to Robot
Mariko Okuda, Yasutake Takahashi, and Satoki Tsuichihara

[Su-2] OS: Recent Trends of Clustering Methodologies @Room2
Chair: Yukihiro Hamasuna (Kindai University)
#1570655400, Full paper
On Fuzzy Clustering Algorithms for Nominal Data
Yuchi Kanzawa

#1570664051, Full paper
Basic Consideration of Rough C-Medoids Clustering with Minkowski Distance
Seiki Ubukata, Atsushi Sugimoto, Akira Notsu, and Katsuhiro Honda
Controlled-Sized Clustering for Time-Series Data
Nobuhiko Tsuda and Yukihiro Hamasuna

Basic Consideration of Collaborative Filtering Based on Rough C-Means Clustering
Seiki Ubukata, Shu Takahashi, Akira Notsu, and Katsuhiro Honda

Adaptive Directional Mutation for an Adaptive Differential Evolution Algorithm
Tetsuyuki Takahama and Setsuko Sakai

Parametric Genetic Programming
Adam Kotaro Pindur, Takahiro Horiba, and Hitoshi Iba

Accelerating Fireworks Algorithm with Dynamic Population Size Strategy
Jun Yu and Hideyuki Takagi

Integrative Meta-Analysis of Transcriptome Data for Unmasking Biological Mechanism of Idiopathic Pulmonary Fibrosis
Sungmin Park, Junghyun Jung, and Jong Wha Joanne Joo

Lightweight Real-Time Fall Detection Using Bidirectional Recurrent Neural Network
Sangyeon Kim, Gawon Lee, and Jihie Kim

A Study on the Evaluation System Through Software Weakness Analysis
Kyung-won Kim, Seokmin Chang, and Yunsik Son
Real-Time Motion Feedback System Based on Smart Mirror Vision
Seoungtak Kim, Dasol Seo, Sangyong Lee, Yeonjun Kim, Hyun Wook Kang, Yong-Sik Choi, and Jin-Woo Jung

14:10-14:30 Break

14:30-16:10 Parallel Sessions

[Su-5] OS: Human Symbiotic Systems (2) / GS: Speech Recognition @Room1
Chair: Masayoshi Kanoh (Chukyo University), Atsushi Shibata (Advanced Institute of Industrial Technology)
#1570662219, Full paper
Impression Investigation of a Robot's Learning by Observing the Learner
Chihiro Arai, Felix Jimenez, and Kazuhito Murakami

#1570664861, Full paper
A Verification of Visualization Ability of Onomatopoeia Thesaurus Map for Sound-Symbolism on Japanese Vowels
Takaki Kaneiwa, Tsuyoshi Nakamura, Masayoshi Kanoh, and Koji Yamada

#1570665092, Full paper
Rescoring Teacher Outputs with Decoded Utterances for Knowledge Distillation in Automatic Speech Recognition
Henning M Holen and Jee-Hyong Lee

#1570655520, Short paper
A Study on Feature Values as a Speaker Identification Method
Etsuro Nakamura, Yoichi Kageyama, and Motonari Shirasu

[Su-6] OS: Advanced Human Sensing and Intelligent Support Systems @Room2
Chair: Hironobu Takano (Toyama Prefectural University)
#1570664782, Full paper
Effectiveness of Feature-Selected LBP-TOP for Emotional Estimation by Micro-Expression
Koki Kato, Hironobu Takano, Masahiro Saiko, Ryuichi Hiraike, and Hitoshi Imaoka
Method for Generating Captions for Clothing Images to Support Visually Impaired People
Kiri Tateno, Noboru Takagi, Kei Sawai, Hiroyuki Masuta, and Tatsuo Motoyoshi

A Pattern Recognition Method for Scene Sketch Images Using Deep Learning and Its Evaluation
Kengo Oshima, Noboru Takagi, Kei Sawai, Hiroyuki Masuta, and Tatsuo Motoyoshi

[Su-7] GS: Evolutionary Computing (2) @Room3
Chair: Tetsuyuki Takahama (Hiroshima City University)
Inverse Model Optimization by Differential Evolution to Improve Neural Predictive Control
Edgar Ademir Morales-Perez and Hitoshi Iba

Genetic Algorithms Using Neural Network Regression and Group Lasso for Dynamic Selection of Crossover Operators
Masaya Kato, Miho Ohsaki, and Kei Ohnishi

An Evolutionary Algorithm Inspired by Evolution of Birdsong Grammars to Quickly Obtain Practical Solutions to Large-Scaled Problems
Naomichi Tabata and Kei Ohnishi

Randomness Selection in Differential Evolution Using Thompson Sampling
Akira Notsu, Junya Tsubamoto, Yuichi Miyahira, Seiki Ubukata, and Katsuhiro Honda

[Su-8] GS: Medical Informatics @Room4
Chair: Yukinobu Hoshino (Kochi University of Technology)
Hand Frame Extraction in Surgical Video Images Using Convolutional Neural Network
Shadman Sakib, Belayat Hossain, Takafumi Hiranaka, and Syoji Kobashi

Automatic Teeth Recognition Method from Dental Panoramic Images Using Faster R-CNN and Prior Knowledge Model
Kota Motoki
Analysis of Local Cerebral Blood Flow During Exposure to Bone Conduction Sound
Yuki Mukumoto, Fumiya Kinoshita, and Hideaki Touyama

16:10-16:30 Break

16:30-18:10 Parallel Sessions

[Su-9] OS: Intelligent Media and New-Generation Software @Room1
Chair: Satoshi Oyama (Hokkaido University)
#1570658732, Full paper
Unsupervised Feature Learning for Output Control of Generative Models
Kazuki Toda, Kyohei Atarashi, Satoshi Oyama, and Masahito Kurihara

#1570663343, Full paper
Discovering Conditional Properties of Recursive Functions in a Proof Assistant
Haruhiko Sato and Natsuo Ishii

#1570663556, Full paper
Monocular Depth Estimation with a Multi-Task and Multiple-Input Architecture Using Depth Gradient
Michiru Takamine and Satoshi Endo

#1570664788, Full paper
Optimization Model of Takeout-Delivery Process Based on Concept of Crowdsourcing
Jiacheng Li, Masato Noto, and Yang Zhang

[Su-10] GS: Neural Network @Room4
Chair: Kazuhiko Kawamoto (Chiba University)
#1570665001, Full paper
Column-Based Decoder of Internal Prediction Representation in Cortical Learning Algorithms
Takeru Aoki, Keiki Takadama, and Hiroyuki Sato

#1570664633, Full paper
Three-Stream Graph Convolutional Networks for Zero-Shot Action Recognition
Wu Nan and Kazuhiko Kawamoto
A Two-Stage Deep Learning-Based Approach for Automatic Reading of Analog Meters
Shohei Ueda, Kaito Suzuki, Jumpei Kanno and Zhao Qiangfu
[Mo-1] OS: Affective/Kansei Information Processing and its Interactive Approach (1) @Room1
Chair: Muneyuki Unehara (Nagaoka University of Technology), Shigeru Kato (Niigama College, National Institute of Technology)
#1570665687, Full paper
Interactive Apparel Coordination Recommendation System Reflecting Situation and Preference
Muneyuki Unehara, Yui Hasegawa, Koichi Yamada, and Izumi Suzuki

#1570664731, Short paper
Classification of Worries and Consultations with School Refusal Students Using Machine Learning
Rikuto Ishikura, Masahiro Takeda, and Shino Iwashita

#1570664754, Short paper
A Study on Reinforcement-Learning Agents with Personality Through the Implementation of Character Parameters
Daichi Ando and Shino Iwashita

#1570664884, Full paper
Investigation of Factors Related to the Impression of Clips Used for Automatic Generation of Accompaniment Intended by the User
Kaito Terachi and Mio Suzuki

[Mo-2] OS: Modern Applications of Clifford Algebra (1) @Room2
Chair: Eckhard Hitzer (International Christian University)
The session will begin with a geometric algebra tutorial by Stephane Breuils (Paris & NII Tokyo)

#1570655307, Full paper
Experiments with Clifford Geometric Algebra Applied to Cryptography
David William Honorio Araujo da Silva, Marcelo Araujo Xavier, C. Edward Chow, and Carlos Paz de Araujo

#1570659855, Short paper
Fundamental Structure of Orthogonal Variable Commutative Quaternion Neurons
Tohru Nitta and Hui Hu Gan
[Mo-3] GS: Intelligent Control @Room3
Chair: Hugang Han (Prefectural University of Hiroshima)
#1570657537, Full paper
Dead Zone Compensation in Direct Current Motors: A Review
Leonardo Pires de Souza
#1570664281, Full paper
Control System Based on Affine T-S Fuzzy Model with Uncertainty
Hugang Han
#1570664432, Full paper
Reinforcement Learning with Randomized Physical Parameters for Fault-Tolerant Robots
Wataru Okamoto and Kazuhiko Kawamoto

[Mo-4] GS: Machine Learning Application @Room4
Chair: Seiki Ubukata (Osaka Prefecture University)
#1570664119, Full paper
Utilizing Timed Petri Nets to Guide Data-Driven Fault Diagnosis of PLC-Timed Event Systems
Joseph Cohen, Baoyang Jiang, and Jun Ni
#1570659632, Full paper
Frost Prediction for Vineyard Using Machine Learning
Yosuke Tamura, Liya Ding, Kosuke Noborio, and Kazuki Shibuya
#1570664696, Full paper
Variable Importance Measures Based on Ensemble Learning Methods for Convective Storm Tracking
Hansoo Lee, Jonggeun Kim, Seunghwan Jung, Minseok Kim, Baekcheon Kim, and Sungshin Kim

11:40-12:30 Lunch Break

12:30-13:45 Parallel Sessions

[Mo-5] OS: Affective/Kansei Information Processing and its Interactive Approach (2) @Room1
Chair: Shino Iwashita (Tokyo University of Technology)
#1570664588, Short paper
Proposal of a Computer-Reproducible Model of Consciousness
Toshiki Watanabe and Hiroyuki Kameda
Response Generation Reflecting the Personality of a Chat Dialogue System
Toru Sugimoto and Yusuke Temmanya

Automatic Detection of Beginner's Welding Joint
Shigeru Kato, Takanori Hino, Hironori Kumeno, Tomomichi Kagawa, and Hajime Nobuhara

[Mo-6] OS: Modern Applications of Clifford Algebra (2) @Room2
Chair: Kanta Tachibana (Kogakuin University)

Strip Adjustment of Airborne Laserscanning Data with Conformal Geometric Algebra
Eckhard Hitzer, Werner Benger, Manfred Niederwieser, Ramona Baran, and Frank Steinbacher

Somewhat Homomorphic Key Update Protocol Based on Clifford Geometric Algebra for Distributed Ledger Technology
David William Honorio Araujo da Silva, Hanes Barbosa Marques de Oliveira, Marcelo Araujo Xavier, C. Edward Chow, and Carlos Paz de Araujo

[Mo-7] GS: Computer Vision @Room3
Chair: Yuki Shinomiya (Kochi University of Technology)

Learning Data Conditions for Resolution Improvement Using UAV Data
Kai Matsui, Hikaru Shirai, Yoichi Kageyama and Hiroshi Yokoyama

Design and Development of Banana Ripeness Classification Using Depthwise Separable Convolution
Edho Fernando and Nabila Shabrina

LSTM for Human Activity Recognition Based on Feature Extraction Using Conformal Geometric Algebra
Nguyen Nang Hung Van
[Mo-8] GS: Decision Making (3) @Room4
Chair: Tomoe Entani (University of Hyogo)
#1570655898, Full paper
Individual Decision Support Reflecting Relations to Others
Tomoe Entani

#1570653171, Full paper
Aggregations of Subjective Probabilities Based on Logical Information Source Model and of
Possibilistic CFs Using Dempster's Rule
Koichi Yamada

#1570659254, Short paper
Two Confirmation Bias Models for Analyzing Biased Pattern Classification Processes
Kazunori Fujimoto

13:45-14:00 Break

14:00-14:30 Closing Ceremony @Room1
Chair: Mitsuru Iwata (Tokyo Metropolitan College of Industrial Technology)