Last updated: Sep. 16th, 2024

Program of JSST 2024 and AsiaSim 2024

Tuesday, 17 September

Opening Ceremony
9:00-9:15, room A

Keynote 1
9:15-10:15, room A
Chair: Hiroaki Ohtani (National Institute for Fusion Science)

Relationship between VR sickness, gaze, and autonomic nervous activity in VR
Prof. Kazuhiko Hamamoto (Director General, Chancellor Office Dept. of Information Media Technology School of Information Science and Technology Tokai University)

10:15-10:30 Group Photo

Symposium 1 : Interdisciplinary Simulation and Machine Learning
Session 1a, Invited Talks, 10:30-11:30, room A
Chair: Seiki Saito (Yamagata University)

1. **(Invited)** Development of a neural-network-based and a statistic model for estimating airplane contingency fuel
   Prof. Soemsak Yooyen
2. **(Invited)** How can machine learning contribute to solving real-life social issues?
   Prof. Shutaro Takeda

RS1: Regular Sessions
Session 1b, 10:30-11:30, room B
Chair: Liang Li (Ritsumeikan University)

1. Inference of a multi-server queue using external observations
   Jinsoo Park and Yun Bae Kim
2. DFMM: An Object Tracking Approach Based on Deep Feature Modification
   Kai Chen, Yujie Huang, Xiaodong Zhao, Ziyuan Wang
3. A Multiview Approach for Pedestrian 3D Pose Detection and Reconstruction
   Kai Chen, Xiaodong Zhao, Yujie Huang and Pengfei Wang

OS7: Complex Networks and Complex Systems
Session 1c, 10:30-11:50, room C
Chair: Atsushi Tanaka (Yamagata University)

1. (ONLINE) Perturbation Period for Chaotic and Random Neural Networks
   Hitoaki Yoshida, Takeshi Murakami and Satoshi Kawamura

2. Network robustness assessment via edge criticality evaluation: improvement of bridgness and topological overlap methods by the iterative metrics re-estimation
   Hamza Ejjbiri and Vasily Lubashevskiy
3. Edge Criticality Evaluation in Complex Structures and Networks Using an Iterative Edge Betweenness
   Gao Zihao, Hamza Ejjbiri and Vasily Lubashevskiy
4. Simple Multiagent Simulation for Evacuation in Collective Behavior
   Atsushi Tanaka and Naoya Endo

OLS: Online Sessions
Session 1d, 10:50-11:30, room D
Chair: Satoshi Togo (University of Tsukuba)

1. (ONLINE) Design and Development of a Simulation Tool for FMI Co-simulation
   Lingyun Lu, Zhaoyang Xue and Fei Liu
2. (ONLINE) Simulation of overall performance of jack up platforms under multiple working conditions
   Gao Jie and Shang Yujia , Ding Lu, Feng Xiawei.

11:30-13:00 Lunch Break

Symposium 1 : Interdisciplinary Simulation and Machine Learning
Session 2a, 13:00-14:00, room A
Chair: Satoshi Togo (University of Tsukuba)

1. Simulation of Hydrogen Recycling on Tungsten Wall in Fusion Device
   Seiki Saito, Yuki Kojima, Hiroaki Nakamura, Keiji Sawada, Kazuo Hoshino, Yuki Homma and Shohei Yamoto
2. Temperature and Hydrogen Atom Effects on Vacancy Coalescence in Tungsten using Molecular Dynamics Simulation
   Sotaro Tsuru, Hiroaki Nakamura, Yuki Goto, Miyuki Yajima, Seiki Saito and Shunsuke Usami
3. Diffusion of helium in tungsten under temperature conditions for damage evaluation in plasma-facing materials for nuclear fusion
   Yuki Uchida, Tsuneo Suzuki, Kazumasa Takahashi, Toru Sasaki and Takashi Kikuchi

RS1: Regular Sessions
Session 2b, 13:00-14:00, room B
Chair: Xiao Song (Beihang University)

1. Simulation of space radiation model for multilayer electret based low frequency antennas
   Zhihong Yuan, Yong Cui, Xiao Song, Zhi Cui, Yiming Li and Wenjie Qu
2. RGFormer: Residual Gated Transformer for Image Captioning
   Zehui Jin, Kai Chen, Guoyu Fang and Dunbing Tang
3. Data-driven Dynamic Decision-making Strategy for Gear-Shaft Robotic Assembly Process
   Ruizhang Wang, Wenjun Xu, Jiayi Liu, Ping Lou, Yi Zhong, Quan Liu and Zude Zhou

OS6: Design and Control for Robotics, Mechatronics, and System Integration

Session 2c, 13:00-14:00, room C

Chair: Shunsuke Nansai (Akita University)

1. An elbow joint angle prediction method using a combination of pseudo MUAPT process and Feature-Extraction for sEMG
   Teruyoshi Sadahiro and Naoki Ikeda
2. An LMI Approach for Analysis and Design of Multi Objective Control Systems
   Chihiro Kitahara and Guisheng Zhai
3. Motion simulation of a self-propelled capsule robot using dielectric elastomer actuators
   Daiki Komaba and Norihiro Kamamichi

OLS: Online Sessions

Session 2d, 13:00-14:00, room D

Chair: Ryosuke Ueda (Tohoku University)

1. (ONLINE) Knowledge Graph Construction Method of Bridge Design Codes Based on Ontology and Specification Parsing
   Zheng Zhang, Qingsong Ai, Junwei Yan, Jun Yang, Wei Meng, Quan Liu and Zude Zhou
2. (ONLINE) Numerical simulation of the violin structure under string tension preload
   Hitoshi Asada
3. (ONLINE) Deep learning for ultrafiltration membrane prediction in drinking water treatment
   Nur Sakinah Ahmad Yasmin, Norhaliza Abdul Wahab, Mashitah Che Razali and Nurul Adilla Mohd Subha

14:00-14:15 Break

Symposium 1 : Interdisciplinary Simulation and Machine Learning

Session 3a, 14:15-15:15 room A

Chair: Masayuki Yokoyama (National Institute for Fusion Science)

1. Temporal fluid simulation of plasma particle and energy confinement in GAMMA 10/PDX pellet injection experiments
   Akihiro Kunii, Satoshi Togo, Masayuki Yoshikawa, Naomichi Ezumi, Yousuke Nakashima and Mizuki Sakamoto
2. Performance of anisotropic-ion-pressure plasma fluid scheme for the Bohm criterion in a two-ion-species plasma
   Satoshi Togo, Tomonori Takizuka, Hirohiko Tanaka, Ryuya Ikezoe, Takuma Okamoto, Naomichi Ezumi, Keishi Homma, Akihiro Kunii, Kazuma Emoto and Mizuki Sakamoto
3. Impacts of ion kinetic effects in parallel conductive heat fluxes on plasma profiles in anisotropic-ion-pressure plasma fluid scheme
   Keishi Homma, Satoshi Togo, Tomonori Takizuka, Yuki Homma, Kenzo Ibano, Kazuma Emoto and Mizuki Sakamoto

RS1: Regular Sessions
Session 3b, 14:15-15:15 room B
Chair: Gary Tan (National University of Singapore)

1. A Study on the Chaotic Stream Cipher Controlled the Amount of Lost Information in the Event of Transmission Errors
   Kouhei Kajima and Hiroyuki Kamata
2. Faster Authenticated Encryption using Chaotic Stream Cipher
   Masaki Onoue and Hiroyuki Kamata
3. Evaluation of the Chaotic Stream Cipher Based on the Determinism and Recursion
   Tatsuki Kamiya and Hiroyuki Kamata

OS6: Design and Control for Robotics, Mechatronics, and System Integration
Session 3c, 14:15-15:15, room C
Chair: Shunsuke Nansai (Akita University)

1. Study on step motion of inchworm robot for mobile additive manufacturing
   Koki Jimbo
2. Elbow joint angle estimation using sEMG combined with Feature-Extraction and Mixture of Expert
   Ryota Hirano and Teruyoshi Sadahiro
3. Constraint Force Estimation for Two-Wheeled Inverted Pendulum Using Projection Method
   Naoto Sato, Takumi Sakai and Masami Iwase

OS3: Verified Numerical Computations
Session 3d, 14:15-15:15, room D
Chair: Kensuke Aihara (Tokyo City University)

1. Application of Low-Rank Approximation for interval matrix multiplication
   Takeshi Terao and Katsuhisa Ozaki
2. Fast Generation of Real-Symmetric Matrices for Eigenproblems with Explicit Elements
   Yuki Uchino, Katsuhisa Ozaki and Toshiyuki Imamura
3. Application of Unnormalized Pseudo-High Precision Computations to LU and Cholesky Decomposition
   Seri Yazaki and Katsuhisa Ozaki

15:15-15:30 Break

Symposium 1 : Interdisciplinary Simulation and Machine Learning
Session 4a, 15:30-16:30 room A
Chair: Seiki Saito (Yamagata University)

1. (ONLINE) Prediction of Spatial Distribution of X-Rays by Deep Learning for Medical Applications
   Shingo Sato, Seiki Saito, Toshioh Fujibuchi, Hiroyuki Arakawa, Yoshihisa Fujita and Chako Takahashi

2. (ONLINE) Simulation of Cesium layer Thickness on Plasma Grid in Negative Ion Source with Amount of Cesium seeding
   Masafumi Yoshida, Shunsuke Hayashi and Tomoya Sakida
3. (ONLINE) Relativistic Particle Scattering: Theoretical Formulas and Practical Applications
   Rohta Takahashi

RS1: Regular Sessions
Session 4b, 15:30-16:30 room B
Chair: Hideki Kawaguchi (Muroran Institute of Technology)

1. Enhancing Accelaration in Caotic Stream Cipher including Rabin Cipher
   Kentaro Yamada and Hiroyuki Kamata
2. Numerical and experimental studies for defect topology identification analysis based on the level-set-based topology optimization
   Takahiko Kurahashi, Towa Koike, Akihiro Takemori and Masayuki Kishida
3. Collaborative Safety Based Obstacle Avoidance Navigation of Mobile Robots by Deep Reinforcement Learning
   Kei Soutome, Yusei Tsuboi and Kazuyuki Morioka

OS6: Design and Control for Robotics, Mechatronics, and System Integration
Session 4c, 15:30-16:30 room C
Chair: Koki Jimbo (Tokyo Denki University)

1. Improved Priority-based Hindsight Experience Replay in Reinforcement Learning
   Han Hongwei, Gong Guanghong and Li Ni
2. CFD analysis of lift on the wings of different butterfly species
   Taichi Minemura and Taro Fujikawa
3. Computational Fluid Dynamics Analysis of Effect of Asymmetrical Shape of Flying Snakes on Gliding
   Keisuke Hayakawa, Reika Yamaguchi, Taro Fujikawa, Motoyasu Tanaka and Ryusuke Fujisawa

OS3: Verified Numerical Computations
Session 4d, 15:30-16:30 room D
Chair: Atsushi Minamihata (Kansai University of International Studies)

1. PSTV: An Incremental Validator for 2D Delaunay Triangulation
   Sora Sawai, Kazuaki Tanaka, Katsuhisa Ozaki and Shin'Ichi Oishi
2. Numerical verification for multiple positive even solutions for the Hénon-type equation
   Taisei Asai, Kazuaki Tanaka and Shin'Ichi Oishi
3. Accuracy of Low-precision Standard Functions Monitored by Verified Numerical Computations
   Katsuhisa Ozaki

16:30-16:45 Break

Symposium 1 : Interdisciplinary Simulation and Machine Learning

Session 5a, 16:45-17:45 room A

Chair: Hiroaki Nakamura (National Institute for Fusion Science)

1. Three-dimensional simulation of string-wall composites in an axionlike model
   Minoru Eto, Takashi Hiramatsu, Izumi Saito and Yuki Sakakihara
2. Numerical investigation of millimeter-wave vortex propagation in magnetized plasma
   Chenxu Wang, Hideki Kawaguchi, Hiroaki Nakamura and Shin Kubo
3. Benchmark tests of the efficient electrostatic particle-in-cell simulation code on various high-performance computing systems
   Hiroki Hasegawa and Seiji Ishiguro

RS1: Regular Sessions

Session 5b, 16:45-17:45 room B

Chair: Seiki Saito (Yamagata University)

1. Enhancing Point Cloud Registration Using 2D-3D Hybrid Down-Sampling Method for Real Applications
   Shintaro Furukawa, Yusei Tsuboi, Osamu Ono and Yukihiro Iguchi
2. Constructing Collaborative Safety Space by Person Tracking System Using Multi-Camera Network
   Shunsuke Iwasaki, Yusei Tsuboi and Kazuyuki Morioka
3. Implementation of fractional PID controller using Mittag-Leffler functions - performance comparison with CRONE controller in transient response
   Atsuto Echizen and Masami Iwase

OS6: Design and Control for Robotics, Mechatronics, and System Integration

Session 5c, 16:45-17:45 room C

Chair: Koki Jimbo (Tokyo Denki University)

1. Development of an Ultrasonic Motor Incorporating a Displacement Expansion Mechanism
   Ryo Narita, Shunsuke Nansai, Midori Hoshizaki, Takeshi Seki and Akihiro Naganawa
2. Trajectory Tracking Control of Lizard-Inspired Single-Actuated Robot --- Tracking on Circular Trajectory ---
   Shunsuke Nansai and Norihiro Kamamichi
3. A Digital Twin-Based Obstacle Avoidance System for Quadcopter UAV
   Ziwen Zhan, Ke Fang and Ju Huo

OS3: Verified Numerical Computations

Session 5d, 16:45-17:25 room D

Chair: Takeshi Terao (Kyushu University)

1. A Note on Preconditioner for Ill-conditioned Tall and Skinny Matrices
   Atsushi Minamihata, Katsuhisa Ozaki, Takeshi Ogita and Shin'Ichi Oishi
2. Convergence of block CG method with variable preconditioning for linear systems with multiple right-hand sides
   Mio Yamamoto and Kensuke Aihara

Wednesday, 18 September

Keynote 2

9:15-10:15, room A

Chair: Takahiro Kenmotsu (Doshisha University)

Molecular Dynamics Study on Structure Formation in Soft Matter and Biomolecules

Prof. Susumu Fujiwara (Faculty of Materials Science and Engineering, Kyoto Institute of Technology)

10:15-10:30 Break

Symposium 2 : Visualization and/or XR for data analysis

Session 6a, Invited Talks, 10:30-11:30, room A

Chair: Nobuaki Ohno (University of Hyogo)

1. **(Invited)** Smart In-situ Visualization using Autonomous Mobile Cameras for Large-scale Numerical Simulations
   Prof. Naohisa Sakamoto
2. **(Invited)** Bridging the Gap: A Collaborative Model for Data Visualization Design
   Prof. Masaki Yamabe

OS3: Verified Numerical Computations

Session 6b, 10:30-11:30, room B

Chair: Kazuaki Tanaka (Waseda University)

1. Verified Singular Value Computation Related to Approximate Inverses of Infinite-Dimensional Linear Operators
   Sora Matsuoka, Yoshitaka Watanabe and Takeshi Terao
2. Improvement of numerical verification method for solutions to systems of elliptic partial differential equations
   Yuuta Sakai and Kouta Sekine
3. Improvement of numerical proof algorithm for the non-existence of solutions to elliptic boundary value problems
   Satoshi Shimizu, Kouta Sekine and Mitsuhiro T. Nakao

OS1: Numerical Simulation and Visual Analytics of Nonlinear Problems

Session 6c, 10:30-11:30, room C

Chair: Yoshihisa Fujita (Nihon University)

1. Numerical Evaluation of PINNs for 2D Lid-driven Cavity Flow using Importance Sampling
   Kosuke Terakawa, Nobuyuki Hirooka and Soichiro Ikuno
2. Electromagnetic Simulation using Maxwell's Equation-Based PINNs
   Tatsuya Hirano, Nobuyuki Hirooka and Soichiro Ikuno
3. An experiment on training data for PDE discovery based on machine learning

Shuhei Kamioka, Koji Koyamada, Jihong Liu and Hiroaki Natsukawa

OS9: Advanced Numerical Analysis and Software in Multiphysics
Session 6d, 10:30-11:50, room D
Chair: Amane Takei (University of Miyazaki)

1. Empirical Cubature Method Based on Gappy-POD
   Shigeki Kaneko
2. Computational study on vibration characteristics of fluid-structure-piezoelectric-circuit interaction in piezoelectric energy harvesters in fluid
   Koki Hiura, Yukihiro Mitoma and Daisuke Ishihara
3. Computational FSI Modeling of Insect Flapping Wings
   Daisuke Ishihara
4. GPU-aware direct linear equation solver for distributed mesh of finite element structural analysis
   Kanato Kono, Masae Hayashi, Takuya Matsunaga and Hiroshi Okuda

11:30-13:00 Lunch Break

Symposium 2 : Visualization and/or XR for data analysis
Session 7a, 13:00-14:00, room A
Chair: Hiroya Suno (Hosei University)

1. Estimating horizontal stiffness of seismic isolation layer using small seismic ground motion records
   Tomoka Miyauchi, Takashi Hirai and Yasuyuki Nagano
2. Comparison of Seismic Response Analysis of the Steel Structures Considering Surface Ground in the Earthquakes
   Rinya Mita and Yasuyuki Nagano
3. Performance Evaluation of Volume Rendering Method on Head-Mounted Display
   Yuya Sayama, Yuma Kawachi and Nobuaki Ohno

Symposium 1 : Interdisciplinary Simulation and Machine Learning
Session 7b, 13:00-14:00, room B
Chair: Chako Takahashi (Yamagata University)

1. Study on improving the accuracy of lunar crater detection using SSD model
   Ryu Nakabayashi and Hiroyuki Kamata
2. Study on Lunar Crater Detection Using CNN for SNN Implementation
   Yosuke Noda and Hiroyuki Kamata
3. Research on High-accuracy Homograpy Matrix Estimation with Lunar Surface Images
   Yoshiya Gojo and Hiroyuki Kamata

OS1: Numerical Simulation and Visual Analytics of Nonlinear Problems
Session 7c, 13:00-14:00, room C

Chair: Ayumu Saitoh (Yamagata University)

1. Noise Transparentization Approach for High-precision Visualization of 3D Scanned Point Clouds
   Qingyu Mao, Tomomasa Uchida, Kyoko Hasegawa, Satoshi Takatori, Liang Li and Satoshi Tanaka
2. Enhanced Transparency Visualization of 3D Point Clouds Based on Color and Opacity Gradations
   Yuri Yamada, Kyoko Hasegawa, Satoshi Takatori, Li Lang and Satoshi Tanaka
3. Processing and Evaluation of Point Cloud Data Using SDF
   Hikaru Yamaguchi, Sota Ushiro and Koji Koyamada

OS9: Advanced Numerical Analysis and Software in Multiphysics
Session 7d, 13:00-14:00, room D
Chair: Hiroshi Kawai (Toyo University)

1. Study on Convergence Stability of Iterative Method Applied to High-Frequency-Electromagnetic Field Analysis
   Takuto Dogome and Amane Takei
2. Study of Environment Analysis Method In Live Music Club: ADVENTURE_Sound
   Daichi Uchiyama and Amane Takei
3. Evaluation of ITDs in a loudspeaker-snowman model based on non-stationary sound field analysis using ADVENTURE_Sound
   Akihiro Kudo, Shun Kubota and Amane Takei

14:00-14:15 Break

OS4: Computational electromagnetics and its applications
Session 8a, 14:15-15:15, room A
Chair: Kota Watanabe (Muroran Institute of Technology)

1. Analysis of Structural Coloration by Nacre Crystal Multilayers
   Hideaki Wakabayashi, Masamitsu Asai and Jiro Yamakita
2. On the triplet layout of helices as the structure for a quasi-isotropic chiral particle
   Masamitsu Asai, Hideaki Wakabayashi and Jiro Yamakita
3. Analysis of electrostatically induced current through a live-line worker ascending a 275 kV lattice or solid transmission tower model
   Shoji Hamada

Symposium 1 : Interdisciplinary Simulation and Machine Learning
Session 8b, 14:15-15:15, room B
Chair: Chenxu Wang (National Institute for Fusion Science)

1. Molecular Dynamics Simulation on Amino Acid Precursor Formation in Extraterrestrial Space to Elucidate the Cooling Mechanism Dependence
   Hiroaki Nakamura, Masayuki Murai, Kensei Kobayashi, Masahiro Kobayashi, Shunsuke Usami, Yuki Goto and Seiki Saito
2. Crashworthiness prediction of hexagonal crash box using convolutional neural networks

Sittha Tongthong, Pattaramon Jongpradist and Suphanut Kongwat

3. Exploring the turbulence transition condition using exhaustive search SVM
   Toshiki Kinoshita, Kenji Tanaka, Tatsuya Yokoyama and Hikona Sakai

OS1: Numerical Simulation and Visual Analytics of Nonlinear Problems
Session 8c, 14:15-15:15, room C
Chair: Kyoko Hasegawa (Tokai University)

1. Generalization of High-Performance Solver for Asymmetric EFG-Type Saddle-Point Problem
   Atsushi Kamitani and Teruou Takayama
2. Parallelization of Improved Variable-Reduction Method using GPU
   Yuya Sato, Soichiro Ikuno and Atsushi Kamitani
3. Performance evaluation of a hierarchical parallel solver with iterative refinement for saddle point problems in a parallel computing environment
   Hiroto Tadano

OS9: Advanced Numerical Analysis and Software in Multiphysics
Session 8d, 14:15-15:15, room D
Chair: Daisuke Ishihara (Kyushu Institute of Technology)

1. Study of High-frequency Electromagnetic Field Analysis of Electronic Circuit Boards Based on the Parallel Finite Element Method
   Taiga Yamada and Amane Takei
2. Information Extraction Technique from Japanese Texts using Text Mining for the Multi-Agent Simulation of Japanese Music Market
   Yuuki Uchida and Hiroshi Kawai
3. Implementation of 3-D Advancing Front Method for Larege Scale Microwave Analysis
   Hiroshi Kawai and Amane Takei

15:15-15:30 Break

OS4: Computational electromagnetics and its applications
Session 9a, 15:30-16:30, room A
Chair: Hideki Kawaguchi (Muroran Institute of Technology)

1. Prediction of Power Transfer Efficiency in Contactless Power Transfer Device in the Tens of kHz Band using Vinyl-Insulated Wire Coil
   Ryuta Ganaha and Daigo Yonetsu
2. Numerical Analysis of Miter Bend with Spiral Phase Mirror
   Yoshihisa Fujita, Yuki Goto, Hiroaki Nakamura and Shin Kubo
3. Simulation of beam-wall interactions using a physics-informed neural network method based on the scattered-field formulation
   Kazuhiro Fujita

Symposium 1 : Interdisciplinary Simulation and Machine Learning
Session 9b, 15:30-16:10, room B
Chair: Hiroyuki Kamata (Meiji University)

1. Pool-based active classification based on expected error reduction with uncertainty subsampling
   Chako Takahashi and Toki Sato
2. An Intelligent Simulation Result Validation Method Based on Variational Autoencoder
   Fan Yang, Ping Ma, Wei Li, Ming Yang, Jianchao Zhang and Huichuan Cheng

OS1: Numerical Simulation and Visual Analytics of Nonlinear Problems
Session 9c, 15:30-16:30, room C
Chair: Ayumu Saitoh (Yamagata University)

1. A point cloud-based VR visualization system with feature-integrated navigation for the Western Pagoda of Taimadera Temple
   Takahito Koshiba, Kyoko Hasegawa, Liang Li and Satoshi Tanaka
2. VR Comparative Visualization Learning Support System for Japanese Traditional Dance Beginners Using Skilled Practitioner Motion Data
   Daiki Yokoyama, Liang Li, Satoshi Takatori, Kyouko Hasegawa, Nao Shikanai and Satoshi Tanaka
3. VR System for 3D-Scanned Japanese Armor Point Clouds with Transparent Feature-Highlighting Visualization
   Taku Hirakawa, Liang Li, Kyoko Hasegawa, Akihiro Tsukamoto and Satoshi Tanaka

OS8: Multi-Dimensional Communication Networks
Session 9d, 15:30-16:30, room C
Chair: Kazuyuki Miyakita (Niigata University)

1. Simulation method for Halo antenna for fabrication and bandwidth enhancement
   Hiroshi Hashiguchi and Naobumi Michishita
2. Relationship between generalized distance coloring and previously proposed colorings
   Hiroshi Tamura and Keisuke Nakano
3. Magnetic field method human body communication signal loss simulation in various coupling methods
   Kein Ozaki and Kenichi Ito

16:30-16:45 Break

OS4: Computational electromagnetics and its applications
Session 10a, 16:45-17:45, room A
Chair: Yoshihisa Fujita (Nihon University)

1. A Basic Study on Automatic Design of Electrical Circuit Using Monte Carlo Tree Search
   Shuli Yin, Hayaho Sato, Teki Imai and Hajime Igarashi
2. A comparison of genetic algorithms for topology optimization of motors
   Kota Watanabe, Yuta Uenishi and Takahiro Sato

3. Analysis of scattering of UV vortex from nano-ribbon chiral materials by FDTD method
   Hideki Kawaguchi, Masahiro Katoh and Koichi Matsuo

Symposium 1 ： Interdisciplinary Simulation and Machine Learning
Session 10b, 16:45-17:45, room B
Chair: Susumu Fujiwara (Kyoto Institute of Technology)

1. (ONLINE) Research on Digital Twin Technology for Converter Steelmaking
   Xianghui Meng, Tan Li, Jin Guo, Jingyu Zhu, Weining Song, Yalan Xing, Wu Lv, Mu Gu, Meng Chen, Nanjiang Chen, Gang Wu, Haonan Bu
2. FedLGN: Federated lightweight graph neural network for recommendation
   Yuchun Tu, Xiao Song, Songsong Liu, Yong Li and Kaiqi Gong
3. Time-dependent Vehicle Routing Problem with Time Windows Considering Traffic Speed Prediction
   Zikang Zhou, Ping Lou, Quan Liu, Zude Zhou, Wenjun Xu, Yiling Fang and Jiwei Hu

OS1: Numerical Simulation and Visual Analytics of Nonlinear Problems
Session 10c, 16:45-17:25, room C
Chair: Hiroto Tadano (University of Tsukuba)

1. Parametric Study of Combined Mechanisms in Energy-Absorbing Tube for Rail Coupler
   Supphakrit Paisingkorn, Pattaramon Jongpradist, Sutee Olarnrithinun and Suphanut Kongwat
2. High-Speed Solver for Shielding Current Analysis in Crack-Free HTS Film: Performance Investigation of Modified ICCGH Method
   Ayumu Saitoh

OS8: Multi-Dimensional Communication Networks
Session 10d, 16:45-17:45, room D
Chair: Naobumi Michishita (National Defense Academy)

1. Risks of Supply Chain Disruption and Market Concentration: Constructing Conceptual Models of Transaction Structures in Supply Chain Networks
   Toko Sasaki and Akira Nagamatsu
2. A Study on Epidemic Communication and Self-Driving Car Sharing in Disaster Situations
   Ryo Shimozawa, Kazuyuki Miyakita and Keisuke Nakano
3. A Consideration on Information Floating to Accumulate and Share Available Routes Information in Disasters
   Masao Niwa, Kazuyuki Miyakita, Hiroshi Tamura and Keisuke Nakano

Thursday, 19 September

Keynote 3

9:15-10:15, Lecture Hall

Chair: Hiroaki Ohtani (National Institute for Fusion Science)

Applications and Challenges of High-Performance Computing Accelerated by GPU Clusters in Engineering Simulation

Dr. Yuan Bo (Innovation Research Institute at Aerospace Legione Technology Co., Ltd.)

10:15-10:30 Break

Keynote 4

10:30-11:30, Lecture Hall

Chair: Hiroaki Nakamura (National Institute for Fusion Science)

Metal enrichment and star formation in the early Universe

Prof. Gen Chiaki (National Institute of Technology, Kochi College)

11:30-13:00 Lunch Break

Keynote 5

13:00-14:00, Lecture Hall

Chair: Satoshi Tanaka (Ritsumeikan University)

A Learnable Behavioural Model for Crisis Management Simulation

Prof. Gary Tan (Department of Computer Science at the School of Computing, National University of Singapore)

14:00-14:15 Break

Student Session: Shotgun Presentation, 14:15-15:00, Lecture Hall

Chair: Seiki Saito (Yamagata University), Takashi Hara (National Institute of Technology, Kagoshima College), Chako Takahashi (Yamagata University)

15:00-15:15 Break

Student Session: Poster Presentation, 15:15-17:45, The space in front of the Lecture Hall

P01. The Impact of Quantum Computing and Automatic Electric Vehicles on the Mobility Industry Ecosystem
Eunju Cha and Byeong-Yun Chang

P02. The Simulation of Forecasting the COVID-19 Diffusion with MCEM
Youngah Chun, Eunju Cha and Byeong-Yun Chang

P03. Acoustic-to-Articulatory Inversion by Generative Artificial Intelligence and Fine-Tuning Techniques Using Generative Adversarial Networks
Mingyu Lu and Tatsuya Kitamura

P04. Development of a General-purpose School Scheduling System for the National Institute of Technology Using a Mathematical Optimization Package
Hideki Ikeda, Yoko Nakajima and Hirotoshi Honma

P05. Analyzing the Effectiveness of Multi-label Classification in terms of Detecting Implicit Anger
Takatoshi Abe, Yoko Nakajima, Hirotoshi Honma and Takashi Yukawa

P06. Optimizing Keyframe Extraction for Automatic Video Caption Generation Efficiency
Yosuke Uchida, Yoko Nakajima, Hirotoshi Honma and Takashi Yukawa

P07. Study on Classifier for Child Abuse in Newborns
Ryota Imai, Hirotoshi Honma and Yoko Nakajima

P08. Orientation factor analysis of gapped DNA labeled with fluorescent dye molecules
Takumi Timothy Hashi, Susumu Fujiwara, Tomoko Mizuguchi, Yoshiteru Yonetani, Naoya Shikazono, Ken Akamatu and Hiroaki Nakamura

P09. Display Assistance of Breakwater and Tolerance Area in Wave-Dissipating Block Installation Simulation
Hao Min Chuah, Tatsuya Yamazaki, Ryosui Iwasawa and Tatsumi Suto

P10. Wall Installation of Intelligent Reflecting Surface Using Set Covering Problem and Its Effects
Ryusuke Akaishi and Hiroshi Tamura

P11. Proposal of an Optimal Placement Method for UAV Aerial Base Stations
Huimei Cao and Hiroshi Tamura

P12. Application of GIN and Seq2Seq Models Incorporating Weather Factors in Long-term Traffic Flow Prediction
Liu Yang and Yamada Tomonori

P13. Molecular dynamics simulation on hydration structure of zwitterionic molecules
Takuya Harada, Susumu Fujiwara and Takashi Aoki

P14. Molecular orbital calculation of hydrogen abstraction reaction from DNA by OH radicals
Takumi Iida, Susumu Fujiwara, Yoshiteru Yonetani, Tsukasa Aso, Nakamura Hiroaki, Yoshiyuki Hirano and Takao Otsuka

P15. Molecular dynamics simulation of fluorescent dye-labeled DNA with apurinic/apyrimidinic sites
Kotaro Masumoto, Susumu Fujiwara, Tomoko Mizuguchi, Yoshiteru Yonetani, Naoya Shikazono, Ken Akamatu and Hiroaki Nakamura

P16. Molecular dynamics simulation of OH-radical scavenging mechanism by tea catechins
Reon Kuriyama, Susumu Fujiwara, Yoshiteru Yonetani, Hiroaki Nakamura, Tsukasa Aso, Takao Otsuka and Yasuhisa Oya

P17. Development and Evaluation of a Real-Time Radiation Simulation Using pix2pix
Kazuki Fujii, Yoshihisa Fujita, Seiki Saito, Toshioh Fujibuchi and Hiroyuki Arakawa

P18. Real-time heand and helmet detection and tracking
Zishun Qi and Akinori Kimura

P19. Size Perception of Text Objects without Depth Cues in Head-Mounted Displays

Tianyu Zhang, Eiki Shima, Nobuaki Ohno and Yuichi Tamura

P20. Molecular Dynamics Study for Binding of Perfluoroalkyl Compounds to Human Serum Albumin
Haruki Tsujiwaki, Tomoko Mizuguchi and Hiraku Oshima

P21. Phase classification machine learning model using image data from molecular dynamics simulations
Mashashi Takayashi, Shugo Yasuda, Kotaro Oda, Mashashi Iwayama and Tomohide Ina

P22. Behavior of Beam Ion with Different Charge State in Reactor for Final Focusing in Heavy-ion Inertial Fusion
Shuai Fu, Kazumasa Takahashi, Toru Sasaki and Takashi Kikuchi

P23. Prediction of radiative collapse by image analysis of plasmas using Convolutional Neural Network in LHD
Yuya Suzuki, Mamoru Shoji, Naoki Kenmochi and Masayuki Yokoyama

P24. Magnetic simulation of iron-based structural material with Lattice defects
Yuto Ohta, Masaharu Matsumoto and Katsuhiko Yamaguchi

P25. Simulation of radiation fields by Physics-Informed-Neural-Networks
Genki Honma, Masaharu Matsumoto and Kazuhiko Yamaguchi

19:00 Banquet

The banquet venue is Ruri (瑠璃) at Ravimana Kobe.

https://jsst-conf.jp/2024/banquet/

Friday, 20 September

Symposium 1 : Interdisciplinary Simulation and Machine Learning
Session 11a, 9:15-10:15, room A
Chair: Yuki Uchida (National Institute of Technology, Nagaoka College)

1. Development of Numerical Simulation Method for Analyzing the Refreezing Process of Ice Dust Irradiated by Cosmic Rays
   Seiki Saito, Hiroaki Nakamura, Gen Chiaki, Kensei Kobayashai and Haruto Miura
2. Deconvolution of X-ray Twin Phase Image using Diffusion Probabilistic Model
   Ryosuke Ueda
3. Autonomous Navigation with Feature Points Map for Self-Position Estimation for High-Accuracy Landing on Unknown Celestial Bodies
   Hiroaki Miura and Hiroyuki Kamata

Symposium 2 : Visualization and/or XR for data analysis
Session 11b, 9:15-10:15, room B
Chair: Hiroaki Ohtani (National Institute for Fusion Science)

1. IR4AAS: An Identification Resolution-enhanced AAS for Digital Twins Modeling
   Mu Gu, Fangfang Gao, Lin Lin, Chunhui Su, Zhe Han, Hua Zhang, Yandong Li, Quanbo Lu and Jiehan Zhou
2. Visualization of characteristic plasma radiation structure in radiative collapse on Large Helical Device
   Kiyofumi Mukai, Byron J. Peterson and Koyo Munechika
3. (ONLINE) Research on Worker Action Recognition and Evaluation in Intelligent Manufacturing Training Based on Industrial Metaverse
   Gang Wu, Tan Li, Yuqi Zhou, Jin Guo, Jingyu Zhu, Nanjiang Chen, Weining Song, Yalan Xing, Xianghui Meng, Yanwen Lin, Qi Wang, Runqiang Li

OS5: Numerical Harmonic Analysis and Signal Processing
Session 11c, 9:15-10:15, room C
Chair: Toshio Suzuki (Kanagawa University)

1. A computationally efficient method to improve the quality of JPEG images based on linear modelling
   Masayoshi Nakagawa, Yoshiki Takasan, Keita Ashizawa and Katsu Yamatani
2. Feature Extraction for Sewer Pipe Joint Defects Using Curvelet Transform Techniques in a Sewer Pipe Image
   Amon Ogushi, Hajime Omura and Teruya Minamoto
3. Reduction of Knocking Sound Annoyance Through Engine Sound Order Simulation
   Tomoyuki Hakozaki, Shunsuke Ishimitsu, Ryuhei Suzuki, Kiyoaki Iwata, Satoshi Fujikawa, Mitsunori Matsumoto, Masakazu Kikuchi and Naoki Kishikawa

RS2: Regular Sessions
Session 11d, 9:15-10:15 room D

Chair: Satoshi Tanaka (Ritsumeikan University)

1. Research and implementation of digital twin modeling and simulation platform
   Yang Lingyun, Zhang Junfan, Song Xiao, Zhao Qianchuan, Han Zhe, Tu Yuchun, Xie Yongxuan, Hu Yuanyuan
2. Study on Damping Performance of Curved Stroke Type Origami Hydraulic Damper
   Jingchao Guan, Yalan Li and Xilu Zhao
3. Swirling flows in origami-inspired deployable tube with spiral configuration
   Sachiko Ishida and Ryoma Matsuda

10:15-10:30 Break

Symposium 1 : Interdisciplinary Simulation and Machine Learning
Session 12a, 10:30-11:50, room A
Chair: Ryosuke Ueda (Tohoku University)

1. Model Calibration for Agent-based Simulation Using A Pattern Clustering Network
   Yuanjun Laili, Jiabei Gong, Ke Hu, Lin Zhang, and Fei Wang
2. A Study on Improvement of Correspondence Point Search and Image Matching Accuracy for Disturbanced Images Using TD(0) Method
   Haruki Omori and Hiroyuki Kamata
3. Prediction of migration barrier by deep learning
   Keisuke Takeuchi, Shingo Sato, Hiroaki Nakamura, Yasuhiro Oda and Seiki Saito
4. Development of Automated System for Generating Predictive Model of Plasma-Material Interaction
   Ayumi Kudo, Seiki Saito, Hiroaki Nakamura and Sotaro Tsuru

Symposium 2 : Visualization and/or XR for data analysis
Session 12b, 10:30-11:30, room B
Chair: Nobuaki Ohno (University of Hyogo)

1. Proposal of generating algorithm of optimal starting points for magnetic field line tracing
   Kunqi Hu, Koji Koyamada and Hiroaki Ohtani
2. Relationship between Convergence Distance and Size Perception in CAVE Type Display
   Yuichi Tamura and Nobuaki Ohno
3. Virtual Hydrogen, virtual reality visualization of the atomic orbitals of the hydrogen atom
   Hiroya Suno and Nobuaki Ohno

OS5: Numerical Harmonic Analysis and Signal Processing
Session 12c, 10:30-11:50, room C
Chair: Kensuke Fujinoki (Kanagawa University)

1. Mathematical and Numerical Analysis for Some Nonlinear Second-Order Ordinary Differential Equations of Duffing Type
   Yusuke Kunimoto and Ikki Fukuda
2. Higher-order Asymptotic Expansions for Laplace’s Integral and Their Error Estimates

Ikki Fukuda and Yoshiki Kagaya

3. Analysis of Vocal Harmonics Using Modified Stockwell Transform Focused on Compatibility in Multi-Person Singing with Same Pitch
   Hidehiko Komine, Takahiro Kambara, Toshio Suzuki and Emiko Ishiwata
4. Denoising of Ring Artifacts using Shearlet Transform in CT Image Reconstruction
   Toshio Suzuki, Kensuke Fujinoki and Katsuya Fujii

RS2: Regular Sessions
Session 12d, 10:30-11:10 room D
Chair: Liang Li (Ritsumeikan University)

1. Semi-physical modeling and simulation for industrial product design based on X language
   Kunyu Xie, Lin Zhang, Zhen Chen and Pengfei Gu
2. Research on remote operation and maintenance of heat treatment factory integrated with 5G and digital twin
   Ying Cui, Lin Qin, Xiao Song, Junfan Zhang

Closing Ceremony
11:50-12:20, room A

13:30 Fugaku Tour