

# The 43<sup>rd</sup> Symposium on Computer Technology of Information, Systems and Applications (AIJISA 2020)

<https://aijisa.org/2020/>

Architectural Institute of Japan  
Research Committee on Information Systems Technology

## — Expedited Future Today —

In order to discuss new possibilities of IT in architectural, constructional, urban and environmental fields, AIJISA 2020 is held. The symposium includes keynote lectures and dialogues (Exploring Life Design and Architecture after the Pandemic, BIM Promotion Initiatives and Future Development), a number of research and development, and practical design presentations of full and short papers etc.

Date — December 10 (Thu) and 11 (Fri), 2020

Venue — Online (Zoom and Remo)

Registration fees —

1) with Proceedings DVD

AIJ member: JPY 8,000, Non-member: JPY 9,500,

Student (AIJ member): JPY 5,000,

Student (Non-member): JPY 5,500

2) without Proceedings DVD

AIJ member: JPY 3,000, Non-member: JPY 4,000,

Student: JPY 1,000

※You can attend all the programs for two days by payment.

※The presenters must pay by 1).

※Proceedings DVD will be mailed (Only available within Japan).

※Please attend the award ceremony on Dec 11, 17:30-17:50 if you are eligible for the Young Presentation Award.

Registration / Capacity — Official Web Site (Advance application required) / 250 persons

For presenters: <https://www.aij.or.jp/event/detail.html?productId=637361>

For non-presenters: <https://www.aij.or.jp/event/detail.html?productId=637157>

Application deadline — December 4 (Fri), 2020

※If you would like to receive Proceedings DVD by the day before the symposium, please apply by November 30th. If you apply after December 1st, Proceedings DVD may arrive after the symposium.

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## Program Overview

### 1. Opening Address

WATANABE Shun (Univ. of Tsukuba)

Date — Dec 10 (Thu) 14:40-15:00

### 2. Full & Short Papers /Interactive Presentation

Date — Dec 10 (Thu) and 11 (Fri)

#### ① Organized Session (OS)

① Design Science in Computational Intelligence and Architecture

② Virtual and Mixed Reality for Architectural and Urban Discipline 2020

#### ② General Session

Natural Language Processing, VR, MR, AR, GIS and City planning, Optimization, AI and Machine Learning, Parametric Design, Interactive Presentation, BIM, Digital Fabrication, Construction and Sensing, Environmental Engineering, Architectural Planning

#### ③ Interactive Presentation

Poster presentations (by sharing screen) and questions and answers will be conducted using Remo. This session is open to everyone, with or without payment of the AIJISA 2020 registration fee.

### 3. Keynote & Dialogue

<Sponsors> AppliCraft, A&A, APPLIED TECHNOLOGY, Autodesk, KOZO KEIKAKU ENGINEERING, TSUMIKISEISAKU, FORUM8, Fukui Computer holdings, HoloLab, Unity Technologies Japan

#### ① Exploring Life Design and Architecture after the Pandemic

**[Simultaneous translation: EN - JP]**

Date — Dec 10 (Thu) 15:00-17:30

Coordinator — FUKUDA Tomohiro (Osaka Univ.)

MATSUNAGA Naomi (Lemon Gasui Ltd.)

#### Ⓐ The Coronavirus Pandemic Is Endangering Our Civitas

Peter Cachola Schmal (Deutsches Architekturmuseum)

#### Ⓑ Immersive Social Virtual Realities: The Construction of Meaning in Post-pandemic Architecture

Marc Aurel Schnabel (Victoria University of Wellington)

#### Ⓒ Nothing new? Architectural research for life (before and) after the pandemic

Rudi Stouffs (National University of Singapore)

#### ② BIM Promotion Initiatives and Future Development

Date — Dec 11 (Fri) 15:00-17:30

Coordinator — WATANABE Shun (Univ. of Tsukuba)

KURATA Narito (Tsukuba Univ. of Technology)

#### Ⓐ Progress of discussion at the BIM Promotion Roundtable in Japan

TABUSHI Shoichi (Ministry of Land, Infrastructure, Transport and Tourism)

#### Ⓑ “Information and classification” of BIM objects

SHIDE Kazuya (Shibaura Institute of Technology)

#### Ⓒ BIM and Open Standard

YAMASHITA Junichi (CI Lab)

### 4. Award Ceremony & Closing Address

Date — Dec 11 (Fri) 17:30-17:50

### 5. Networking

#### 【Group Photo Session】

Date — Dec 10 17:30 / Dec 11 14:55

#### 【Social Gathering】

Date — Dec 10 (Thu) 17:40-19:10

FEE — The social gathering is open to everyone, with or without payment of the AIJISA 2020 registration fee.

【SNS】 Taking photos and uploading them on the official website and SNS

Twitter▶<https://twitter.com/aijisa2016> Hashtag ▶#AIJISA

Facebook▶<https://www.facebook.com/aijrcist/>

■ DAY1: Thursday, 10 Dec 2020 ■

[Organized Session I]

▼ Design Science in Computational Intelligence and Architecture 1

9:15-10:30.....Room 1.....

Chair: Yuki Kobayashi (Osaka City Univ.)

- 1 H03 Development of an Agent for Discrete Cross-Section Design of Planar Steel Frames Using Graph Embedding and Reinforcement Learning  
○Kazuki Hayashi (Kyoto Univ.) and Makoto Ohsaki
- 2 H07 A Kernel Method for Surface Generation from Data Points  
○Yoshihiro Kanno (The Univ. of Tokyo)
- 3 H09 Shape Design of Auxetic Bending-Active Gridshell using Particle Swarm Optimization  
○Yusuke Sakai (Kyoto Univ.) and Makoto Ohsaki
- 4 H11 A Basic Study on Segmentation of Discrete Surface using Geometrical Invariants of Triangular Mesh  
○Kentaro Hayakawa (Kyoto Univ.) and Makoto Ohsaki
- 5 H121 Use, Transformation and Value in Design Activities  
○Ichiro Nagaska (Kobe Univ.)

[Organized Session I]

▼ Design Science in Computational Intelligence and Architecture 2

10:30-12:00.....Room 1.....

Chair: Ichiro Nagasaka (Kobe Univ.)

- 6 R62 An analysis and generation method of Osaka NAGAYA's facade by shape grammar: -A case in Abeno, Osaka -  
○Yuichiro Kawai (Osaka City Univ.) and Yuki Kobayashi
- 7 H64 Substantial Aspect and Conceptual Aspect in Design Cognition  
○Haruyuki Fujii (Tokyo Institute of Technology)
- 8 H67 A study on neighborhood shopping streets in Tennoji, Abeno, and Sumiyoshi  
○Kazuki Aze (Osaka City Univ.) and Yuki Kobayashi
- 9 H79 Verification of Stability and Reaction Value of Class Activation Mapping: - For average visit motivation estimation AI using deep learning  
○Kotaro ONO (Ritsumeikan Univ.), Tatsuya NAKANISHI, Shota NAKAMURA, and Satoshi YAMADA
- 10 H97 Analysis of the Probability of Visibility of Others Using Visibility Distribution of the Space  
○Kei Yasuda (Kyoto Univ.), Ken Miura
- 11 H21 A Study of the Permutation of Design Pattern  
○Shun Watanabe (Univ. of Tsukuba)

▼ Natural Language Processing

13:00-14:00.....Room 1.....

Chair: Haruyuki Fujii (Tokyo Institute of Technology)

- 12 R66 Analysis of R D Activities of Major General Construction Companies Using Natural Language Processing: Observation and visualization of R D trends for use in management strategies  
○Hiroaki Saito (Toda Corporation)
- 13 R63 Factor Analysis of Occupational Accidents at Construction Site by Text Mining  
○Ayane Tsuzuki (Toda Corporation), Hiroaki Saito
- 14 H105 A Study on the Structure of Disaster response issues using the Text Analysis: A Case Study of the Disaster response verification  
○Sotaro Tsuboi (Disaster Reduction and Human Renovation Institution)
- 15 H40 A Fundamental Study on Construction of Architectural Ontology: Extraction of concept hierarchies using embedded representation  
○Hiroshi Tsunekawa (Takenaka Corporation)

[Organized Session II]

▼ Virtual and Mixed Reality for Architectural and Urban Discipline 2020

9:45-12:00.....Room 2.....

Chair: Narito Kurata (Tsukuba Univ. of Technology)

- 16 H37 A Social Experiment on Large Outdoor Display Installation Considering Safety and Landscape Impact: A Case Study at Shibuya Scramble Square, Tokyo  
○Tomohiro Fukuda (Osaka Univ.), Tarō Fukuda, Katsuro Kubota, China Yamada, Takaharu Akimoto, Yoichiro Sumi and Kazumichi Hoshino
- 17 H51 A Motion Vector Visualization Method on Virtual Reality: A Pilot Project in Civic center complex, Sakaiminato  
○Tomohiro Fukuda (Osaka Univ.), Hideki Nada, Hiroyuki Fujii and Yoann Pencreach
- 18 H119 Visualization of Behavior of Expansion Joints in Seismic Isolated Buildings by Using VR Technology: The potential of VR technology as an assistive device to make people aware of real problems  
○Eisuke Mitsuda (Kyoto Institute of Technology), Yui Nakanishi
- 19 H38 Proposal of 4D Campus Master Plan Using VR  
○Yuno Muraki (Kumamoto Univ.), Yasunobu Onishi
- 20 H14 A Sharing Method of 3D Physical Objects with Interactive Manipulations in Real time over the Internet by Web Real time Communication  
○Daichi ISHIKAWA (Osaka Univ.), Tomohiro FUKUDA and Nobuyoshi YABUKI
- 21 H47 Influence of the Presentation of Small-Scale Spatial Information Using MR on the User's Perception of Design  
○Hideyuki Akagawa (Univ. of Tokyo), Kohei Ishida, Yuki Kadowaki and Tomonari Yashiro
- 22 H13 A Landscape Simulation Method with One by one Dynamic Occlusion Using Instance Segmentation in Mixed Reality: Image Generation Method Focusing on the Grounding for Occlusion  
○Mizuki Nakabayashi (Osaka Univ.), Tomohiro Fukuda and Nobuyoshi Yabuki
- 23 H27 Augmented reality landscape simulation system with occlusion handling that allows free movement by a small drone Improved hardware dependency  
○Naoki Kikuchi (Osaka Univ.), Tomohiro Fukuda and Nobuyoshi Yabuki
- 24 H24 Study on the display method of facility operations and maintenance information using MR focusing on behavioral characteristics  
○Hiroki Moriyama (Kumamoto Univ.) and Yasunobu Onishi

▼ Virtual, Mixed and Augmented Reality 1

13:15-14:30.....Room 2.....

Chair: Yasunobu Onishi (Kumamoto Univ.)

- 25 R23 Proposal of gesture based spatial interface associated with design modeling  
○Norihiro Kawasumi (Wakayama Univ.), Shunsuke Nakao, Yushi Inada Jin Kitagawa and Junya Wadama
- 26 H25 Study on how the scent of wood influences the spatial recognition  
○Miki YOSHIKAWA (Tokyo Denki Univ.), Masatoyo OGASAWARA
- 27 R110 The effect of audio guide in architectural VR materials for design education  
○Yoshihiko Ushiyama (Kanazawa Institute of Technology), Yuichi Shimokawa
- 28 H08 Development of Wearable AR Learning Materials for Clean Center Equipment  
○Kazuto Noda (Kanazawa Institute of Technology) and Yuichi Shimokawa
- 29 H04 Accuracy of Landmark based Self Position Detection and Fixation Characteristics of Each Subject  
○Mayu Kikuchi (Chiba Univ.), Yohsuke Yoshioka

▼ Geographic Information System and City planning 1

9:30-10:45.....Room 3.....

Chair: Yuka Himeno (Oita Univ.)

- 30 H10 Verification of New Going to Elementary School Style by Utilizing Mobility Technology  
○Tomoyuki Inaba (Univ. of Tsukuba) and Shun Watanabe
- 31 R52 Introduction of ICT System to Festival Space and It's Effect Through demonstration experiments at TOYOHASHI ONIMATSURI  
○Akihiro Mizutani (Toyohashi Univ. of Technology), Ryoto Tokuhara, Naoto Muramatsu and Naoki Nakagawa

## ● Full and Short Papers / Interactive Presentation

- 32** H16 A Study on The Method for Estimating True Position of Pedestrian by Use of Point-Based GPS Data  
 ○Naoya Takagi (Osaka City Univ.) and Atsushi Takizawa
- 33** R102 A Study on the flood disaster damage and evacuation by using GIS: A case study of the Typhoon 19 Hagibis in Utsunomiya city TOCHIGI Prefecture  
 ○Sotaro Tsuboi (Disaster Reduction and Human Renovation Institution)
- 34** R128 Automatic Generation of 3 D Terrain Models for Debris Flow Simulation  
 ○Takahiro Murase (ChukyoGakuin Univ.), Kenichi Sugihara and Zhenjiang Shen

### ▼ Geographic Information System and City planning 2

**10:45-12:00**.....**Room 3**.....  
**Chair: Sotaro Tsuboi** (Disaster Reduction and Human Renovation Institution)

- 35** H44 Study on withdrawal plan of infrastructure using GIS: - Quantification of the impact of bridge withdrawal on residents' lives -  
 ○Nozomi ARAKI (Ritsumeikan Univ), Satoshi YAMADA
- 36** H46 Research on recognition of local landscape by Information technology  
 ○Tatsuya Miyahara (Nihon Univ.), Kiminori Nakazawa and Shunsuke Miyahara
- 37** R99 A Study on the Incentive Rule of Lot Consolidation and Open Space Creation for Dynamic Simulations in Downtown Area: Using the Sakae area in Nagoya City as a case study  
 ○Kakeru Niwa (Nagoya Institute of Technology), Toshiyuki Kaneda
- 38** H112 A Study on 3D Landscape Evaluation of a Castel-Town using GIS and BIM: The reconsidering of a method for landscape design of the Matsumoto castle-town  
 ○Miharu Yudasaka (Nihon Univ.), Kiminori Nakazawa and Haruki Endo
- 39** R118 A Study on the Migration Influencing Factors of Pedestrian Traffic Volume in City Center  
 ○Nguyen Thi Huong Giang (Oita Univ.), Himeno Yuka, Furumi Yumiko and Jaehoon Chung

### ▼ Optimization (Planning and Environment)

**13:15-14:30**.....**Room 3**.....  
**Chair: Atsushi Takizawa** (Osaka City Univ.)

- 40** H54 Consideration on Lighting Planning Using Genetic Algorithms  
 ○Mizuki Nakamura (Hiroshima Institute of Technology), So Sugita
- 41** R114 A Study on Congestion Mitigation during Moving in a Departmentalized Classroom System  
 ○Hiroki Fujikawa (Kobe Univ.), Yuichiro Yamabe and Akinori Tani
- 42** R20 Study on Arrangement Optimization for the Applied Genetic Algorithm of Emergency Provisional Housing Based on BIM  
 ○Kosuke Hara (Kumamoto Univ.), Yasunobu Onishi
- 43** R77 A Study of Building a Circulation Society by Reusing Construction Materials Using MAS  
 ○Yuko Tokukatsu (Kobe Univ.), Yuichiro Yamabe and Akinori Tani
- 44** R107 Optimization of road, stores and dwelling space around a railroad station using GA  
 ○Yoshifumi Kanayama (Kobe Univ.), Yuichiro Yamabe and Akinori Tani

### ▼ Artificial Intelligence and Machine Learning 1

**10:00-12:00**.....**Room 4**.....  
**Chair: Michio Matsubayashi** (National Institute of Technology, Kushiro College)

- 45** H22 Automatic Generation Method of Horizontal Building Mask Images by Using a 3D Model with Aerial Photographs for Deep Learning: Improvement of training accuracy by removing thin clouds in aerial photographs using Generative Adversarial Network  
 ○Kazunosuke Ikeno (Osaka Univ.), Tomohiro Fukuda and Nobuyoshi Yabuki
- 46** H61 Deep Learning Model to Reconstruct 3D Cityscapes by Generating Depth Maps from Omnidirectional Images and Its Application to Visual Preference Prediction  
 ○Hina Kinugawa (Osaka City Univ.) and Atsushi Takizawa
- 47** R116 Study on a Dataset for Detecting Persons with Infrared Camera Supposing to rescue in Mountainous Area  
 ○Yusei Shiozaki (Nihon Univ.), Toshihiro Irie, Nobuaki Kobayashi and Kiyoshi Shingu

- 48** H124 Research on recognition of person, position and movement for improving on site safety and productivity by deep learning and computer vision  
 ○Kohei Ueda (Chiba Univ.), Yuki Honda, Keita Kado and Gakuto Hirasawa

- 49** H71 Design Generation AI based on Psychological Evaluation using Deep Learning  
 ○Tatsuya NAKANISHI (Ritsumeikan Univ.), Kotaro ONO, Syota NAKAMURA, Satoshi YAMADA

- 50** H31 Stress prediction of the structure with integrated steel pipe piles and columns by machine learning  
 ○Yoshiya Morimoto (The Univ. of Kitakyushu), Shinnosuke Fujita

- 51** R65 A Research on Automatization of Emergency Risk Assessment for Earthquake Damage of Wooden Buildings: Image Judgment for 'wall damage'  
 ○Shuhei Yokoi (Kobe Univ.), Akinori Tani and Yuichiro Yamabe

- 52** H41 Research on airflow prediction of building ventilation using deep learning: Library Building of Tokyo Denki University as an example  
 ○Kai IKEDA (Tokyo Denki Univ.), Masatoyo OGASAWARA

### ▼ Artificial Intelligence and Machine Learning 2

**13:15-14:30**.....**Room 4**.....  
**Chair: Eisuke Mitsuda** (Kyoto Institute of Technology)

- 53** H45 Detection drilling parts for machining based on deep learning  
 ○Kento Fukumoto (Chiba Univ.), Genki Furusho, Keita Kado and Gakuhiro Hirasawa

- 54** H125 Using Open Data Validation of Building Construction Forecasting Model by Gradient Boosting Method  
 ○Masanori Nakagawa (TAKENAKA CORPORATION), Hideo Kitahara, Mari Katou, Motonobu Sekoguchi

- 55** H43 Prediction of the action using the deep learning: -targeting residential population and congestion population-  
 ○Shota NAKAMURA (Ritsumeikan Univ.), Kotaro ONO, Tatsuya NAKANISHI, Satoshi YAMADA

- 56** R115 Discovering Design Change Pattern Through Versioning  
 ○Verina Cristie (Singapore Univ. of Technology and Design), Jason Lim and Sam C. Joyce

- 57** R117 Application of lasso to water-content estimation modeling of cement paste  
 ○Satoshi Fujimoto (Utsunomiya Univ.) and Ryohei Koguchi

## ■ DAY2: Friday, 11 Dec 2020 ■

### ▼ Parametric Design

**9:30-10:45**.....**Room 1**.....  
**Chair: Yuichi Shimokawa** (Kanazawa Institute of Technology)

- 58** H06 Interactive Design of Interior Space  
 ○Xia Yu (Meiji Univ.)

- 59** H42 Generative Design Approach for Modeling a Rhythmic Façade: (Case Study: Colonial Building in Kota Lama, Semarang)  
 Deni W SETIAWAN, ○Mustika K. WARDHANI (Ritsumeikan Univ.)

- 60** H69 Construction of Design Support Platform in Visual Programming Environment: -Part 3- Extension and usage status on computational design tools  
 ○Hiroyoshi Satake (Shimizu Corporation), Mitsuhiro Kuroki

- 61** H127 Automatic Generation of 3 D Building Models by Polygon Partitioning and Rectification for Clarifying Window Available Wall  
 ○Kenichi Sugihara (Gifu Kyoritsu Univ.), Zhenjiang Shen and Takahiro Murase

- 62** H113 A Study on Generation of Framework with projection figure of polyhedron based on Group Theory  
 ○Toshifumi Mae (National Institute of Tech., Oita College), Manaka Tabuchi, Ryuichi Kobayashi, Yukihiro Fujimoto and Yuji Matsumoto

### ▼ Interactive Presentation

**11:00-12:00 (Setup: 10:40)**.....**Room 1**.....  
**Chair: Akihiro Mizutani** (Toyoohashi Univ. of Technology)

- 63** Z57 Wooden Partition Utilizing Digital Fabrication  
 ○Kota okugawa (Hiroshima Institute of Technology), So Sugita and Mizuki Nakamura

- 64** Z126 Interactive Traffic Simulation with LEGO Blocks: Toward a new mobility system on the University of Tsukuba Campus  
 Shiori Nishimura, Yuichiro Yamamura, Keita Koyama, Kazushi Ohta, Taiga Okamoto, Natsumi Kako, ○Daisuke Shimotsu (Univ. of Tsukuba), Thorsteinsson Satoru Gunnar, Chihiro Hashimura, Takahiro Noguchi, Hiroyasu Ando and Yoshiaki Ohsawa

## ● Full and Short Papers / Interactive Presentation

- 65** Z131 Development of Space Illumination System of Projection Images Fitted onto Spatial Form  
 ○Kazuto Yoshida (Kanazawa Institute of Technology) and Ritsuko Izuhara
- 66** Z132 Relationship between Unrealistic Design of Natural Environment in Virtual Reality Space and Experience Time, Physiological Response, and Satisfaction: -VR zone out-  
 ○Itsuki KOIKEDA (Ritsumeikan Univ.), Humiko YOKOTA, Masaya MURAKAMI, Jincho NOBUYUKI, Satoshi YAMADA

### ▼ Virtual, Mixed and Augmented Reality 2

9:30-10:45.....Room 2.....

**Chair: Takeshi Fujii** (Ritsumeikan Univ.)

- 67** H83 Verification of the hypothesis for VR sickness reduction based on the characteristics of height perception in virtual reality space: -A research on space design for virtual reality architectural theory-  
 ○Masaya Murakami (Ritsumeikan Univ.), Itsuki Koikeda, Fumiko Yokota, Nobuyuki Jintyo and Satoshi Yamada
- 68** H93 Linking Patterns between VR and Reality which Affects Impression of VR Space: Taking a bath with VR  
 ○Fumiko Yokota (Ritsumeikan Univ.), Itsuki Koikeda, Masaya Murakami, Nobuyuki Jintyo and Satoshi Yamada
- 69** H85 MOST VISIBLE DISPLAY HEIGHT OF AUGMENTED REALITY ROUTE GUIDANCE FOR THE NATURE OF ROUTE CONGESTION  
 ○Mayu Yoshihara (Chiba Univ.), Yohsuke Yoshioka
- 70** H17 Study on the impact of LOD in the VR space  
 ○Mamoru Okamoto (Tokyo Denki Univ.) and Masatoyo Ogasawara
- 71** H12 Effects of path width on human distance perception and position during path walking  
 ○Kenta Yonezawa (Chiba Univ.), Yohsuke Yoshioka

### ▼ Building Information Modeling

13:00-14:45.....Room 2.....

**Chair: Toshifumi Mae** (National Institute of Tech., Oita College)

- 72** H05 Use of a BIM to Display Element's Location for Considering Possibility of Water Leakage  
 ○Michio Matsubayashi (National Institute of Technology, Kushi College)
- 73** R19 Development of an Automatic Creation Program of Quantity Estimation and Design Development Document Creation for Emergency Provisional Housing Focusing on Building Components Using BIM  
 ○Aono Tamaki (Kumamoto Univ.), Yasunobu Onishi
- 74** H55 A Study on cleaning system by cooperation of robot and BIM  
 ○Naoto Hasegawa (Hiroshima Institute of Technology), Kaito Sawa and So Sugita
- 75** H29 A Study on Landscape Information Modeling using BIM part2: -An Examination of landscape elements considering time flows-  
 ○Daisuke Hosoi (Nihon Univ.), Kiminori Nakazawa Shin Kobayashi and Yuki Torigata
- 76** R94 Study on Utilization of BIM in Office Planning: Through the planning experiments of individual work and group work  
 ○Yuji Matsumoto (Kyoto Institute of Technology) and Raiki Tanikawa
- 77** H15 The Current Implementation Status on BIM Mandates and BIM Execution Plans Research on BIM practices at higher education facilities in the Northwest Region of the United States of America  
 ○Yasuyuki Yanagisawa (Tokushima Univ.)
- 78** H104 BIM collaboration by Small and Medium Sized Enterprises: Hiroshima BIM Project Phase 1  
 ○So Sugita (Hiroshima Institute of Technology) Yasuhiro Tahara , Munekazu Hasegawa , Shinnosuke Fujita , Kousou Hiraga , Mizuki Nakamura , Naoto Hasegawa , Shota Kawaguchi

### ▼ Digital Fabrication, Construction and Sensing

9:15-10:45.....Room 3.....

**Chair: So Sugita** (Hiroshima Institute of Technology)

- 79** H48 Study on Tile Peeling Detection and Seismic Damage Monitoring using Optical Fiber Sensors in Earthquake Shaking Table Experiment  
 ○Mariko Sekine (TAIHEIYO CEMENT CORPORATION), Masatoshi Kudo, Hiroyuki Hayano, Atsushi Teramoto, Taka-aki Ohkubo and Koichi Kusunoki

- 80** H70 Preservation and visualization of carpenter's technical tacit knowledge: -Succession of traditional techniques with Human Computer Interaction-  
 ○Naoyuki KOJIMA (Ritsumeikan Univ.), Shoutarou TAKASAKI, Mai HARADA, Chiaki TANIGUCHI, Satoshi YAMADA

- 81** H122 An Autonomous Time Synchronized Digital Sensor Module with Chip Scale Atomic Clock  
 ○Narito Kurata (Tsukuba Univ. of Technology)

- 82** H84 A Study on Automatic Generation of Detour Operation of 5-axis Machine by Deep Reinforcement Learning  
 ○Ryouji Fujioka (Chiba Univ.), Genki Furusho , Keita Kado and Hirasawa Gakuhiro

- 83** H58 Analysis of design decision making timing in actual project  
 ○Satoru Furukawa (Mihama Stelle Logistics), Tomohiro Yoshida, Naiyuan Chi, Hiroyuki Okamoto, and Shuzo Furusaka

- 84** H89 A Survey on Management of Construction Drawings in Steel work  
 ○Tomohiro Yoshida (Kajima Technical Reseach Institute), Satoru Furukawa , Chi Naiyuan, Hiroyuki Okamoto and Syuzou Furusaka

### ▼ Environmental Engineering

13:00-14:45.....Room 3.....

**Chair: Yukiko Yoshida** (Research Institute of Architecture)

- 85** R76 Estimation of lighting energy consumption by using daylight analysis and lighting analysis considering with the working hours of users  
 ○Yoshiki Inagaki (Kanazawa Univ.), Zhenjiang Shen, Kenichi Sugihara and Tatsuya Sekiguchi

- 86** R108 Research on Air Conditioner Control as an Index of Predicted Mean Vote Air Conditioner Operation Settings and Measurement of Predicted Mean Vote and Power Consumption  
 ○Reiji Sawai (Kobe Univ.), Akinori Tani and Yuichiro Yamabe

- 87** H81 Creation of the 3D Digital Environmental Chart for Architectural Design Support  
 ○Yushi Saito (Kanazawa Institute of Technology), Motofumi Marui and Hiromi Otoshi

- 88** H36 A Study on Boundary Setting of CFD for Ventilation in Urban Environment: Comparison between CFD simulation and the actual survey  
 ○Reiko SAMBU (Tokyo Denki Univ.), and Masatoyo OGASAWARA

- 89** R02 A Study on Probability Precipitation in Kobe local meteorological office: Calculation method of the precipitation of return period 100 years affected by the Yodogawa-channel rainstorm  
 ○Yoshitami Nonomura (National Institute of Technology, Fukui College) and Yuuri Shimawaki

- 90** H95 A Study on Probability Precipitation in Fukui prefecture (Part 1): Correlation of hourly precipitation data in plural weather stations  
 ○Takumi Kishimoto (National Institute of Technology, Fukui College), Yoshitami Nonomura , Yuuri Shimawaki and Michiki Tatsukawa

- 91** H96 A Study on Probability Precipitation in Fukui prefecture (Part 2): Calculation method the frequency of occurrence of dairy maximum hourly amount of precipitation  
 ○Michiki Tatsukawa (National Institute of Technology, Fukui College), Yoshitami Nonomura , Yuuri Shimawaki and Takumi Kishimoto

### ▼ Optimization (Structure)

9:15-10:45.....Room 4.....

**Chair: Yuichiro Yamabe** (Kobe Univ.)

- 92** H26 Discrete surface control using isoparametric quadrilateral elements  
 ○Shinnosuke Fujita (The Univ. of Kitakyushu)

- 93** H30 Simultaneous optimization of shell shape and thickness distribution using sigmoid function: -Consideration of convergence due to difference in slope of sigmoid function-  
 ○Teppei Watanabe (The Univ. of Kitakyushu), Shinnosuke Fujita

- 94** H32 Optimization of column arrangement for shell roofs considering slanted columns  
 ○Shuichiro Kominami (The Univ. of Kitakyushu), Shinnosuke Fujita

- 95** H33 Parametric study in CLT folded-plate structure by Opensees for Gresshopper and Wallacei  
 ○Kairi Saito (The Univ. of Kitakyushu), Shinnosuke Fujita

- 96** H34 Cross-section optimization of steel structure as a continuous optimization problem  
 ○Keita Takeshita (The Univ. of Kitakyushu), Shinnosuke Fujita

- 97** H49 Structural optimization of steel structures considering stiffness and collapse load factor  
○Taisei Nishie (The Univ. of Kitakyushu), Shinnosuke Fujita

▼ **Architectural Planning**

**13:00-14:30**.....**Room 4**.....

**Chair: Keita Kado** (Chiba Univ.)

- 98** R50 Facilities' Congestion Reducing Effect by Providing Information of Wait Time: Case Study on Cafeterias in a College and Public Toilets Around a Concert Hall  
○Kinoshita Yoshiro (Nippon Institute of Technology)
- 99** R80 Estimation of Pedestrians' Walking Speed and the Distribution of Architectural Façade Elements in Their Focus Field by Video Image Analysis: Analysis of Façades' Effect on Change in the Walking Speed  
○Tatsuya Sekiguchi (Kanazawa Univ.), Shunsuke Tsukagoshi and Zhenjiang Shen
- 100** R92 Classification of geometric appearance feature on each location using self organizing map: -Proposal of Cross sectional analysis method for multiple buildings by apparent size -  
○Takuya Shimizu (Graduate Student, Kanazawa Institute of Technology.), Yuichi Shimokawa, Hiroki Hirose
- 101** H68 An Opinion Survey of Sharing Each Other's Living Conditions within the Remote Community Using Information Technology  
○Chiaki Taniguchi (Ritsumeikan Univ.), Mai Harada, Naoyuki Kojima and Satoshi Yamada
- 102** H82 Development of Geometric Appearance Analysis Tool for Feature to Architectural Space: Proposal of method analyzing geometric appearance feature of views from openings  
○Hiroki Hirose (BIM LABO Corporation), Yuichi Shimokawa
- 103** H130 Research On Intelligent Infill Supporting Communication And Health For the Elderly  
○Akiko Watanabe (Toyo Univ.), Naoki Matsumoto, Spiga Fabrizio Daniele, Sung eun CHO

R: Full Paper / H: Short Paper / Z: Interactive Presentation

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**Program and Venue**

Venue Date	#1 (ZOOM)	#2 (ZOOM)	#3 (ZOOM)	#4 (ZOOM)
Dec <b>10</b> Thu	<b>A M</b> 9:15-10:30 ▼OS-I Design Science in Computational Intelligence and Architecture 1 10:30-12:00 ▼OS-I Design Science in Computational Intelligence and Architecture 2	9:45-12:00 ▼OS-II Virtual and Mixed Reality for Architectural and Urban Discipline 2020	9:30-10:45 ▼Geographic Information System and City planning 1 10:45-12:00 ▼Geographic Information System and City planning 2	10:00-12:00 ▼Artificial Intelligence and Machine Learning 1
	13:00-14:00 ▼Natural Language Processing	13:15-14:30 ▼Virtual, Mixed and Augmented Reality 1	13:15-14:30 ▼Optimization (Planning and Environment)	13:15-14:30 ▼Artificial Intelligence and Machine Learning 2
	14:40-15:00 Opening Address WATANABE Shun 15:00-17:30 Keynote & Dialogue "Exploring Life Design and Architecture after the Pandemic" - The Coronavirus Pandemic Is Endangering Our Civitas: Peter Cachola Schmal - Blmmerive Social Virtual Realities: The Construction of Meaning in Post-pandemic Architecture: Marc Aurel Schnabel - Nothing new? Architectural research for life (before and) after the pandemic: Rudi Stouffs - Coordinator: FUKUDA Tomohiro and MATSUNAGA Naomi 17:30 Group Photo 17:40-19:10 Social Gathering			
Dec <b>11</b> Fri	<b>A M</b> 9:30-10:45 ▼Parametric Design 11:00-12:00 (Setup: 10:40) Interactive Presentation	9:30-10:45 ▼Virtual, Mixed and Augmented Reality 2	9:15-10:45 ▼Digital Fabrication, Construction and Sensing	9:15-10:45 ▼Optimization (Structure)
		13:00-14:45 ▼Building Information Modeling	13:00-14:45 ▼Environmental Engineering	13:00-14:30 ▼Architectural Planning
	14:55 Group Photo 15:00-17:30 Keynote & Dialogue "BIM Promotion initiatives and Future Development" - Progress of discussion at the BIM Promotion Roundtable in Japan: TABUSHI Shoichi - "Information and classification" of BIM objects: SHIDE Kazuya - BIM and Open Standard: YAMASHITA Junichi - Coordinator: WATANABE Shun and KURATA Narito 17:30-17:50 Award Ceremony & Closing Address - FUKUDA Tomohiro and NAKAZAWA Kiminori			

▼: 103 full & short papers presentations [15 min. (12 min. presentation and 3 min. discussion)] which include organized sessions. 4 interactive presentations.