

CAADRIA 2023

DETAILED AGENDA

CEPT UNIVERSITY, INDIA



DAY 1 / TUESDAY, MARCH 21ST, 2023

09:00 Opening Ceremony at B N B Lecture Hall

09:15 **Keynote Speaker 01: Martha Tsigkari** at B N B Lecture Hall

10:15 Tea/Coffee Break

SESSION 1A: Generative, Algorithmic and Evolutionary Deesign at B N B Lecture Hall

Time: 10:30 - 12:00 (90 Minutes)

Chair: *Mohhamed Makki*

10:30 [22] Comparing Design Strategies: A system for optimization-based design exploration

Likai Wang, Patrick Janssen, Tung Do Phuong Bui, Kian Wee Chen

10:45 [40] Painterly Expansion

Marc Gibson

11:00 [121] Research on Plan Generation Design of Parking Lot Based on Integer Programming

Mengting Zhang, Peiwen Li, Gang Yu

11:15 [192] Genetic Algorithm-Based Building Geometric Opening Configurations Optimization for Enhancing Ventilation Performance in the High-Density Urban District

Zhichao Lin, Shi Yin, Wei Liao, Yiqiang Xiao

11:30 [244] An Inverse Modeling Method to Estimate Uncertain Spatial Configurations From 2D Information and Time-Based Visual Discriminations

Pierre Cutellic

11:45 Discussion / Q & A

SESSION 1C: Urban Modelling and Simulation at CEPT Auditorium

Time: 10:30 - 12:00 (90 Minutes)

Chair: *Jeroen van Ameijde*

10:30 [57] Bottom-Up Approach for Creating an Urban Digital Twin Platform and Use Cases

Pradeep Alva, Martin Mosteiro-Romero, Wanyu Pei, Andrea Bartolini, Chao Yuan, Rudi Stouffs

10:45 [63] Assessment of the Visual Impact of a Tall Building on a UNESCO Listed Historic Urban Landscape

Klara Czyńska

11:00 [100] A Data-Driven Approach for Interpreting Human Preference in Urban Public Spaces: A case study in London

Yuxuan Liu, Wenzhao Xu

11:15 [137] Spatial Analytics of Housing Prices With User-Generated POI Data, A Case Study in Shenzhen

Muxin Jia, Taro Narahara

11:30 [234] Thermal Performance Evaluation of Low-Income Housing Units using Numerical Simulation

Faiz Ahmed Chundeli, Tania Berger

11:45 Discussion / Q & A

12:15 Buffer

SESSION 2A: Artificial Intelligence and Machine Learning in Design at B N B Lecture Hall

Time: 12:15 - 13:45 (90 Minutes)

Chair: *Immanuel Koh*

- 12:15 [1] AI-Bewitched Architecture of Hansel and Gretel: Food-to-Architecture in 2D & 3D with GANs and Diffusion Models
Immanuel Koh
- 12:30 [3] Predicting Amenities Distributions for Workers from the Built Environment Based on Machine Learning
Hongyu Wan, Anqi Pan, Yanwen Xue, Hao Zheng
- 12:45 [12] Elemental Sabotage: Diffusing functional morphologies
Dongyun Kim, Lloyd Sukgyo Lee, Hanjun Kim
- 13:00 [24] AI and Typology
Xiang Yin
- 13:15 [50] Communication with Detroit: Machine learning in open source community housing design
Mingrui Jiang, Chenyi Cai
- 13:30 Discussion / Q & A

SESSION 2B: Building Information Modelling at FA-101

12:15 - 13:45 (90 Minutes)

Chair:

- 12:15 [74] Metaverse Expands the Common Data Environment
Tsukasa Ishizawa
- 12:30 [204] Systematic Review of Organizing The Data Flow of Systems Using Building Information Modeling and Distributed Ledger Technology
Tomoya Izumi, Keisuke Toyoda
- 12:45 [289] Staircase Throughput Study With the Use of Agent-Based Modeling
Michał Jarzyna
- 13:00 [299] Conjugated Materiality - Reinstating material circularity via digital twins
Nipun Garg, Sheng-Yang Huang
- 13:15 Discussion / Q & A

SESSION 2C: Climate change and Sustainability at CEPT

Auditorium

12:15 - 13:45 (90 Minutes)

Chair: *Dagmar Reinhardt*

- 12:15 [27] Crop-Centric Agricultural Potential of Urban Surfaces: A sunlight-based computational approach for food security
Alba Lombardia, Thomas Schroepfer, Arlindo Silva, Carlos Banon
- 12:30 [44] 3D Printed Soil-based Bioclimatic Envelopes for Tree Seedlings in Drylands
Ofer Asaf, Arnon Bentur, Tamir Klein, Aaron Sprecher

- 12:45 [53] Structure Made of One Tree -Digital Assistance to Put Natural Shape Wood in Practical Use
Megumu Ishiwata, Eri Sumitomo, Yasushi Ikeda
- 13:00 [111] Multi-Objective Optimization of Gymnasium Layout Based on Genetic Algorithm - Balance of energy consumption and indoor thermal comfort
Zhaoxiang Fan, Shuoning Tang, Mengxuan Liu
- 13:15 [132] Variable Aggregate Impact Printing of Cob
Ella Hetherington, Guillem Perutxet Olesti, Ben Lee, Pradeep Devadas
- 13:30 Discussion / Q & A
- 13:45 Lunch Break

SESSION 3A: VR/AR/XR at B N B Lecture Hall

14:30 - 16:00 (90 Minutes)

Chair: Tatjana Crossley

- 14:30 [16] Augmented Robotic Bricklaying
Yang Song, Soomeen Hahm
- 14:45 [41] Holographic Construction in Circular Design: A literature review
Mia Tedjosaputro
- 15:00 [102] Intelligent Packing and Unpacking Navigation of Prefabricated Metal Joint Timber Frame
Yanfeng Wang, Taku Iizumi, Sohei Yoshida, Yasushi Ikeda
- 15:15 [127] Informing User-Centred Approaches to Augmented Custom Manufacturing Practices
Anthony Franze, Glenda Caldwell, Muge Belek, Fialho Teixeira, Markus Rittenbruch
- 15:30 [129] The Re-creation of a Demolished House Based on Collective Memory
Yisi Liu, Nick Webb, Andre Brown
- 15:45 Discussion / Q & A

SESSION 3B: Collective, Collaborative and Interdisciplinary Design at FA-101

14:30 - 16:00 (90 Minutes)

Chair: Tim Schork

- 14:30 [15] A Framework for Predicting the Visual and Non-Visual Effects of Daylighting Based on Multi-Objective Optimization Tool
Wei Wu, Qi Ning Chen
- 14:45 [38] Towards a Decision Framework Integrating Physics-Based Simulation and Machine Learning in Conceptual Design
Qingru Mirah Xu, Jose Luis García del Castillo y López, Holly Wasilowski Samuelson
- 15:00 [43] Remote Sharing System for 3D Real Objects with Point Cloud Reconstruction Using Deep Learning Point Cloud Completion
Ryo Onishi, Tomohiro Fukuda, Nobuyoshi Yabuki
- 15:15 [94] Rectangular Floorplans with Block Symmetry
Shiksha Shiksha, Krishnendra Shekhawat, Sujay Rastogi, Aishwarya Kondaveeti, José P. Duarte
- 15:30 [43] Annotation on Interactive Design Data in Design Analytics Tools

Parastoo Piray, Ahmed M. Abuzurairq, Halil Erhan67

15:45 Discussion / Q & A

14:30 EXCO meeting at CEPT Auditorium

16:00 Buffer

SESSION 4A: Robotics at B N B Lecture Hall

16:30 - 18:00 (90 Minutes)

Chair: Philip Yaun

16:30 [10] Approximate Optimization Method for Complex Shapes Using Displacement Mapping
Toshiki Hirano

16:45 [17] Initiating Additive Manufacturing of Mud Houses in India: Reviving the vernacular cob houses in Kutch
Likhinya Kvs, Avishek Das

17:00 [73] Construction of a Free-Form Pavilion Using on-Site Plywood Bending with the Development of Fabrication Tools
Hiroki Awaji, Sei Hayashi, Tomoyuki Gondo

17:15 [141] Automatic Robotic Construction for Customisable Rammed Earth Walls
Guanqi Zhu, Xinyi Zhou, Jun Zhang, Guogang Liu, Shimeng Hao, Dan Luo

17:30 [157] 3D Knitted Fabric Formwork for Concrete Casting
Paul Loh, Jenny Underwood, David Leggett

17:45 Discussion / Q & A

SESSION 4B: Digital Heritage at FA-101

16:30 - 18:00 (90 Minutes)

Chair: Bob Martens

16:30 [80] Exploring the Application of the Digital Gamification Mechanisms to the Experience of Physical Architectural Exhibitions
Weiqiong Li, Tiantian Lo, Xiangmin Guo

16:45 [116] Integrating Heritage Preservation And City Development
Yue Ying Zhang, Hao Ran Wang, Ke Zhu

17:00 [179] Interpreting Gender Differentiation in Urban Consumption Places Based on the Preference Level of Spatial Perception
Xiaoyi Zu, Chen Gao, Zhixian Li

17:15 [240] Spatial Adaptation Rules of Extension Building in Traditional Architecture: Case study of Batak Toba houses and their extensions in North Sumatera, Indonesia
Jonathan Yoas, Rizal Muslimin

17:30 [449] El Retablo Digital (the Digital Altarpiece): Restoration of mortuary rituals with deep learning
Giovanna Pillaca, Daniel Escobar

17:45 Discussion / Q & A

16:30 EXCO meeting at CEPT Auditorium

DAY 2 / WEDNESDAY, MARCH 22ND, 2023

09:00 Workshop Presentations at B N B Lecture Hall

09:15 **Keynote Speaker 02: Sigrid Brell-Cokcan** at B N B Lecture Hall

10:15 Tea/Coffee Break

SESSION 5A: Generative, Algorithmic and Evolutionary Design at B N B Lecture Hall

10:30 - 12:00 (90 Minutes)

Chair: Likai Wang

10:30 [246] A Nature-Inspired Experimental Method for Re-Generating Porous Architectural Systems Based on Environmentally Data-Driven Performance

Chenxiao Li, Ding Wen Bao, Xin Yan, Renhu Wu, Chenming He

10:45 [339] Articulating Facade Microbiomes at Human Scale

Christiane M. Herr, Chenxiao Li

11:00 [354] Urbanising Mars: Establishing an urban framework for Martian settlement through sequential evolutionary simulations

Le Anh Giang, Minh Triet Tran, Stefano Balossino, Mohammed Makki

11:15 [390] A Surrogate-Assisted Optimization Approach to Improve Thermal Comfort and Energy Efficiency of Sports Halls in Subtropical Climates

Yu Li, Lingling Li, Naihua Yue

11:30 [398] Stylized Space Synthesis: Exploring the stylized generative design Method of architecture based on wave function collapse algorithm

Wanzhu Jiang, Jiaqi Wang

11:45 Discussion / Q & A

SESSION 5B: Pedagogical shifts in computational design at FA-101

10:30 - 12:00 (90 Minutes)

Chair: Marc Aurel Schnabel

10:30 [178] Creative Impact of an Event-Driven Visual Scripting Tool

Praneet Mathur

10:45 [260] Data-Driven Urban Research Tools within Design Education: New perspectives on complex urban data and processes

Jeroen van Ameijde, Sifan Cheng, Haowen Wang

11:00 [325] Evaluation of Interactive VR Environments for Architecture

Anastasia Globa, Muhammed Yildirim, Kun Lyu, Ozgur Gocer

11:15 Discussion / Q & A

SESSION 5C: Urban Analytics at CEPT Auditorium

10:30 - 12:00 (90 Minutes)

Chair: Nimish Bitoria

- 10:30 [60] Convolutional Neural Network (CNN) Supported Urban Design to Reduce Particle Air Pollutant Concentrations
Zishen Bai, Chengzhi Peng
- 10:45 [65] Separation of Tall Greenery Component in 3D City Models Based on Lidar Data
Paweł Rubinowicz
- 11:00 [84] Analyst Patterns of Influence Between a Commercial Distribution and Neighbourhood Dynamic in a Residential Neighbourhood
Bowen Chen, Pui Kuan Lao, Zhiyi Dou, Wai-Shan Qiu, Dan Luo
- 11:15 [312] Assessing Spatial Accessibility to Public Facilities for Vulnerable People towards 15-Minute City in Hong Kong
Fangning Wu
- 11:30 [358] Digital Application of Typo-morphology in the Conservation and Renewal of Historic Areas
Zhehao Song, Peng Tang, Yacheng Song
- 11:45 Discussion / Q & A
- 12:00 Buffer

SESSION 6A: Artificial Intelligence and Machine Learning in Design at B N B Lecture Hall

12:15 - 13:45 (90 Minutes)

Chair: George Guida

- 12:15 [88] Prediction and Optimisation of the Typical Airport Terminal Corridor Façade Shading Using Integrated Machine Learning and Evolutionary Algorithms
Yinyi Shi, Jinhui Chen, Guangzhi Hu, Cunyuan Wang
- 12:30 [106] Research on Architectural Sketch to Scheme Image Based on Context Encoder
Yuqian Li, Weiguo Xu
- 12:45 [143] Text-to-Garden: Generating traditional chinese garden design from text-descriptions at scale with multimodal machine learning
Siyuan Zhang, Yifan Li, Siqi Zhang, Xuexin He, Runjia Tian
- 13:00 [161] Integration of EEG and Deep Learning on Design Decision-Making: A data-driven study of perception in immersive virtual architectural environments
Mingming Zhao, Cao Ding, Tatjana Crossley
- 13:15 [197] Incorporating Physical Experimentation into Creative AI-Driven Design Space Exploration
Shermeen Yousif, Yagmur Akyuz, Luisa Giffoni, Matthew Craven
- 13:30 Discussion / Q & A

SESSION 6B: Interactive Environments at FA-101

12:15 - 13:45 (90 Minutes)

Chair: Tomohiro Fukuda

- 12:15 [31] Designing for the Living Building Challenge: An integrated material environment visibility framework for new zealand designers
Chitrakala Muthuveerappan, Marc Aurel Schnabel, Ryan Simpson
- 12:30 [45] Searchlight Space- A Sentient Space Having Exploratory Behaviour
Pan-Pan Shiung, June-Hao Hou
- 12:45 [177] RemoSharp: Exploring solutions for remote real-time collaboration in computational design
Arastoo Khajehee, Yasushi Ikeda, Jose Luis García del Castillo y López
- 13:00 [182] Implementation of a Human-Centric Interactive Smart Space using EEG and Face Emotion AI
Seung Yeul Ji, Mi Kyoung Kim, Jin Cheol Bae, Se Yeon Kang, Han Jong Jun
- 13:15 [264] (In)visible Cities: What generative algorithms tell us about our collective memory schema
Eduardo Rico Carranza, Sheng-Yang Huang, Julian Besems
- 13:30 Discussion / Q & A

SESSION 6C: Climate change and Sustainability at CEPT

Auditorium

12:15 - 13:45 (90 Minutes)

Chair: Harsh Thapar

- 12:15 [329] Identifying the Effect of Wind Condition on Canopy Urban Heat Island: A case study in Nanjing
Xinyuan Hao, Ziyu Tong
- 12:30 [379] Rethinking Breeze Blocks - A study of form and performance complexity in Hong Kong's building designs
Hiroyuki Shinohara
- 12:45 [381] Multi-species Building Envelopes: Developing a multi-criteria design decision-making methodology for cohabitation
Surayyn Uthaya Selvan, Soultana T. Saroglou, Francesca Mosca, Jakub Tyc, Jens Joschinski, Mariasole Calbi, Verena Vogler, Wolfgang W. Weisser, Yasha J. Grobman, Shany Barath
- 13:30 Discussion / Q & A
- 13:45 Lunch Break

SESSION 7A: VR/AR/XR at B N B Lecture Hall

14:30 - 16:00 (90 Minutes)

Chair: Sky Lo Tian Tian

- 14:30 [134] Of Stones and Words - Computational framework for multifaceted historical narration of wadi salib
Eytan Mann, Jonathan Dorthheimer, Alona Nitzan-Shiftan, Aaron Sprecher
- 14:45 [149] Towards Hyper-Reality - A case study mixed reality art installation
Garvin Goepel, George Guida, Ana Gabriela Loayza Nolasc
- 15:00 [151] Planting Design Scenario Analysis with 3D Vegetation Models Generated from L-system

Algorithm

Wei Zhang, Jiaxue Hao

- 15:15 [187] Augmented Environments: The Architecture for the Augmented Era
Alvaro Lopez Rodriguez, Igor Pantic
- 15:30 [362] Fabrication of Complex Clay Structures Through an Augmented Reality Assisted Platform
Jiaxiang Luo, Efthymia Mastrokalou, Rahaf Aldabous, Sarah Aldaboos, Alvaro Lopez Rodriguez
- 15:45 Discussion / Q & A

SESSION 7B: Collective, Collaborative and Interdisciplinary Design at FA-101

14:30 - 16:00 (90 Minutes)

Chair: Anastasia Globa

- 14:30 [170] Real-time Gaze-sharing for Enhancing Student-instructor Communication: Technology-facilitated critique in architectural design studios
Weiheng Hu, Yuval Kahlon, Momoko Nakatani, Haruyuki Fujii
- 14:45 [172] A Multiplayer Game for Participatory Planning
Naomi Marcelle Bachtar, F. Peter Ortner
- 15:00 [238] Indispensable Effects of Surrounding Avatars in VR-based Wayfinding Experiments
Shuyang Li, Chengyu Sun, Mingyan Zou
- 15:15 [334] Dynamic Calculations of Thermal Bridges in Curtain Wall and Its Effects on Cooling Loads and Thermal Delay
Muhammad Rafif Cahyadi, Miktha Farid Alkadri, Francesco De Luca
- 15:30 [376] Quantifying the Impact of Pedestrian-level Greening on the Perception of Walking
Haowen Wang, Jeroen van Ameijde
- 15:45 Discussion / Q & A

SESSION 7C: Digital Representation and Visualisation at CEPT Auditorium

14:30 - 16:00 (90 Minutes)

Chair: Paul Loh

- 14:30 [87] Fractal-Based Computational Approach and Visual Complexity Analysis of Indian Traditional Stepwell Chand Baori
Iasef Md Rian, Mansi Bapna
- 14:45 [114] Behaviour Simulation Optimization Based on The Influence of Microclimate on Crowd Perception - A case study of urban waterfront public space
Mengxuan Liu, Chunxia Yang, Zhaoxiang Fan
- 15:00 [133] Feature Space Exploration as an Alternative for Design Space Exploration Beyond the Parametric Space
Tomas Cabezon Pedroso, Jinmo Rhee, Daragh Byrne
- 15:15 [298] Virtual Reality Applications in Housing Insecurity Research
Duane McLemore, Kateryna Malaia, Silvina Lopez-Barrera
- 15:30 [320] Exploring Creative AI Thinking in the Design Process: The design intelligence strategy

Angelica Paiva Ponzio, Sara Regiane Chornobai, Cristian Vinicius Machado Fagundes, Ricardo Cesar Rodrigues, Gustavo Cunha Hafez José

15:45 Discussion / Q & A

16:00 Buffer

SESSION 8A: Robotics at B N B Lecture Hall

16:30 - 18:00 (90 Minutes)

Chair: Johannes Braumann

16:30 [267] Structural Performance of Bio-Clay Cobot Printed Blocks

Maryam Shafiei, Fred Fialho Teixeira, Guanqi Zhu

16:45 [311] Extrusion-to-Masonry: Robotic 3D concrete printing of concrete shells as building floor system

Hao Wu, Sijia Gu, Xiaofan Gao, Jiexiang Luo, Philip F. Yuan

17:00 [343] Biomanufacturing of Architectural Prototypes With Cyanobacteria

Perla Armaly, Shay Kirzner, Yechezkel Kashi, Shany Barath

17:15 [353] Kigumi Shelf By Data-Driven Circular Saw: Integrated development of design construction and tool for digital handcraft

Taisei Yabe, Arastoo Khajehee, Shun Kimura, Sota Tanaka, Kentaro Iwamoto, Koki Ito, Rena Yamanaka, Eri Sumitomo, Yasushi Ikeda

17:30 [365] Imprinting Concrete Graded Transparency in 3D Concrete Printing Walls

Wei-Ting Chen, Liya Sunny Anthraper, Eleni Skevaki, Lex Reiter, Ana Anton

17:45 [380] Integrating Large-Scale Additive Manufacturing and Bioplastic Compounds for Architectural Acoustic Performance

Avraham Cohen, Shany Barath

18:00 Discussion / Q & A

SESSION 8B: Innovative material systems and manufacturing methods at FA-101

16:30 - 18:00 (90 Minutes)

Chair: Urvi Sheth

16:30 [136] Robotic Crocheting: From handcraft to digital fabrication

Tamar Nix, Aaron Sprecher

16:45 [191] Bending-Active Metal Panel Deformation - Control through computational simulation and pattern development

Chia-Hsuan Chao, Kane Yanagawa

17:00 [210] Designed to Grow: 3D printing of seeds

Gitit Linker, Elisheva Gillis, Danny Freedman, Adi Segal, Noa Zermati, Or Naim, Rebecca Hila Partook, Nof Nathansohn

17:15 [373] A Large Scale 3D Printing Method for Skeletonized Surfaces Based on Graph Theory

Xinjie Zhou, Lei Gong, Philip F. Yuan

17:30 [395] Research on the Exploration of Sprayed Clay Material and Modeling System

Jiexiang Luo, Efthymia Mastrokalou, Sarah Aldaboos, Rahaf Aldabous

17:45 [434] Cobotic Matters - Collaborative robots and discrete assembly design: from stacking to self-interlocking of reciprocal components
Sina Mostafavi, Benjamin N. Kemper, Manuel Kretzer, Ali Etemadi, Hosam A. Mahmoud, Alia Yaseen, Mehrnoush Nabizadeh, Tannaz Balazadeh, Sayan Chatterjee

18:00 Discussion / Q & A

SESSION 8C: Theory, Philosophy & Methodology of Computational Design Research at CEPT Auditorium

16:30 - 18:00 (90 Minutes)

Chair: Mollie Claypool

16:30 [55] A Human-centric Approach To a Design-to-fabrication Process: A case of homeless housing design in Melbourne, Australia
Nadia Anam, Linus Tan

16:45 [70] Campusim: An integrated parametric BIM for campus design simulation and optimization
Firas Al-Douri, Wei Yan, Edin Jahic

17:00 [150] Exploring Relationships Between Locations of Daily Activities and Permeability of Spaces Using Visibility Graph Analysis
Kenichi Shinozaki, Haruyuki Fujii

17:15 [217] Automating the Architectural Design of Apartment Point Block
Igor Jansen, Łukasz Piątek, Marta Cygan, Jakub Hlebowicz, Bartosz Krajewski, Agata Miszewicz, Agnieszka Nowacka, Bartłomiej Roguski, Marta Szabelewska

17:30 [243] Can Architecture Be Cybernetic Machine: From cedric price's fun palace to the pompidou centre
Yuming Hou

17:45 [423] Decoding the Evolution of Digital Design and Manufacturing through Data Scrapping and Digital Bibliometrics
Claudio Fredes, Felix Raspall

18:00 Discussion / Q & A

DAY 3 / THURSDAY, MARCH 23RD, 2023

SESSION 9A: Bio-Designs at B N B Lecture Hall

09:00 - 10:30 (90 Minutes)

Chair Claudia Pasquero

- 09:00 [4] HELIOBOTS
Harpreet Sareen, Yasuaki Kakehi, Pattie Maes, Joseph Jacobson
- 09:15 [62] Improving the Overhang of 3D-printed Concrete Shells by Wrinkle Structures
Shuyi Huang, Weiguoxu Xu, Yudong Yin
- 09:30 [213] Programmed Growth: A living mycelium and clay composite
Kunaljit Chadha, Natalia Ramos Montilla, Ingrid Maria Paoletti, Olga Beatrice Carcassi
- 09:45 [257] Hybrid Bio-Based Architectural Systems: Living organisms and upcycled waste materials for 3D printing and robotic deposition
Nancy Diniz, Frank Melendez
- 10:00 Discussion / Q & A

SESSION 9B: Creativity, Design thinking and Human Computer Interaction at FA-101

09:00 - 10:30 (90 Minutes)

Chair: Christiane M Herr

- 09:00 [26] Desk Mate: A collaborative drawing platform
Zain Karsan
- 09:15 [250] Metaverse Magnifique: Making meaningful metaverses
Surapong Lertsithichai
- 09:30 [304] Design of Bistable Deployable Scissor Structures Consisting of Translational Units Based on Flat Retraction Logic
Bing-Xuan Lin, June-Hao Hou
- 09:45 [319] BridgeSlicer: A creative slicer for 3D printing perforated shells
Yoav Serman, Shahar Asor, Yuval Gur, Ezri Tarazi
- 10:00 [446] Multimodal Architecture: Applications of language in a machine learning aided design process
George Guida
- 10:15 Discussion / Q & A

SESSION 9C: Urban Analytics at CEPT Auditorium

09:00 - 10:30 (90 Minutes)

Chair: Nicole Gardner

- 09:00 [167] The Many Faces Of The Metropolis: Unsupervised clustering of urban environments in Mumbai based on visual features as captured in city-wide street-view imagery
Rohit P. Sanatani, Takehiko Nagakura

- 09:15 [253] Multisource Analysis of Big Data on Street Vitality Using Gis Mapping and Deep Learning: A case study of Ding Shu, China
Jinze Li, Peng Tang
- 09:30 [296] Geographic Information System Based Analysis on Walkability of Commercial Streets at Growing Stage
Yoonjung Choi, Hyunsoo Lee
- 09:45 [303] Development of a Method for Assessing the View Index of Plants of Interest Using Deep Learning
Anqi Hu, Nobuyoshi Yabuki, Tomohiro Fukuda
- 10:00 [305] Generative Pre-Trained Transformers for 15-Minute City Design
Rutvik Deshpande, Sayjel Vijay Patel, Camiel Weijenberg, Maciej Nisztuk, Miriam Corcuera, Jianxi Luo, Qihao Zhu
- 10:15 Discussion / Q & A
- 10:30 Tea/ Coffee Break

SESSION 10A: Artificial Intelligence and Machine Learning in Design at B N B Lecture Hall

10:45 - 12:15 (90 Minutes)
Chair: Matias Del Campo

- 10:45 [282] An Image-Based Machine Learning Method for Urban Features Prediction with Three-Dimensional Building Information
Bowen Qin, Hao Zheng
- 11:00 [283] An Integrated Application of Building Information Modeling, Computer-Aided Manufacturing, Machine Learning, and the Internet of Things - A hybrid stadium as a case study
Bowen Qin, Tianyu Wang, Winka Dubbeldam, Justin Korhammer, Cong Huang, Dengguo Wu, Hongming Jiang
- 11:15 [292] Cross-disciplinary Semantic Building Fingerprints – Knowledge graphs to store topological building information derived from semantic building models (BIM) to apply methods of artificial intelligence (AI) throughout the life cycle of buildings
Christoph Langenhan, Jessica Bielski, Christoph Ziegler, Viktor Eisenstadt, Klaus-Dieter Althoff, Andreas Dengel
- 11:30 [293] Synthesizing Style-Similar Residential Facade From Semantic Labeling According to the User-Provided Example
Jiaxin Zhang, Tomohiro Fukuda, Nobuyoshi Yabuki, Yunqin Li
- 11:45 [300] Variability in Machine Learning for Multi-criteria Performance Analysis
Victor Okhoya, Marcelo Bernal
- 12:00 Discussion / Q & A

SESSION 10B: Structural performance-based design and optimisation at FA-101

10:45 - 12:15 (90 Minutes)
Chair: Nic Bao

- 10:45 [108] An investigation into Water-Soluble 3D Printed Formwork informed by Finite Element Analysis Reusable 3D Printed Formwork

Erin Hunt, Jonathan Grinham

- 11:00 [148] Towards a tool kit for Membrane Tensegrity Shells: Exploring the relationship between struts and geometry
Lance Marco Yu, Ying Yi Tan, Sachin Sean Gupta, Kenneth Joseph Tracy
- 11:15 [286] Computational Design for Additive Manufacturing of a Doubly Curved Gyroid Lattice Wall
Thian-Siong Choo, Bryan Wang, Danielle Berbozo, Shalynn Ng, Lee Jun Rae Koh
- 11:30 [432] TwistedLam: A robotic fabrication method for hyperbolic paraboloid glulam and clt blanks
Chi Zhang, Lauren Franco, Lawson Spencer, Sasa Zivkovic
- 11:45 Discussion / Q & A

SESSION 10C: Urban Modelling and Simulation at CEPT Auditorium

10:45 - 12:15 (90 Minutes)

Chair: Marco Poletto

- 10:45 [340] Extending Visuospatial Analysis in Design Computing: An exploration with a novel GPU-based algorithm and form-based codes
Geoff Kimm, Marcus White, Mark Burry
- 11:00 [403] An Urban Building Energy Simulation Method Integrating Parametric BIM and Machine Learning
Jong Bum Kim, Seongchan Kim, Jayedi Aman
- 11:15 Discussion / Q & A
- 12:15 Buffer

SESSION 11A: Artificial Intelligence and Machine Learning in Design at B N B Lecture Hall

12:30 - 14:00 (90 Minutes)

Chair: M. Hank Haeusler

- 12:30 [331] Skyways versus Sidewalks Evaluating the Perceptual Qualities and Environmental Features of Elevated Pedestrian Systems in Hong Kong
Sifan Cheng, Pu Jiang, Francesco Rossini, Jeroen van Ameijde
- 12:45 [347] Bespoke 3d Printed Chair: Research on the digital design and fabrication method of multi-body pose fusion
Keke Li, Hao Wu, Xiangwen Ding, Haowei Li, Philip F. Yuan
- 13:00 [359] Traditional Chinese Village Morphological Feature Extraction and Cluster Analysis Based on Multi-source Data and Machine Learning
Xiao Wang, Peng Tang, Chenyi Cai
- 13:15 [406] Gesture modeling - In between nature and control
Chor-Kheng Lim
- 13:30 [412] Optimising the Control Strategies for Performance-Driven Dynamic Building Facades Using Machine Learning
Yuanyuan Li, Chenyu Huang, Jiawei Yao
- 13:45 [442] An Attention Economy Theme Park
Daniel Escobar, Carlos Navarro, Evangelia Papaspyrou

SESSION 11B: VR/AR/XR + Interactive environments at FA-101

12:30 - 14:00 (90 Minutes)

Chair: Sky Lo Tian Tian

- 12:30 [384] Urban Cultural Inheritance: Generative adversarial networks (gans) assisted street façade design in virtual reality (vr) environments based on hakka settlements in Hong Kong
Jiahua Dong, Qingrui Jiang, Anqi Wang, Yuankai Wang
- 12:45 [429] Chroma: A human-centric AR application connecting color space and users
Anastasia Karaspiliou, Anna Karagianni, Dimitris Andreadakis, Helena G. Theodoropoulou, Nikolaos C. Spanoudakis, Christos Gerotherodoros, Vasiliki Geropanta, Panagiotis Parthenios
- 13:00 [437] Parametric Design and Analysis of Dynamic Louver for Optimized Daylighting in High-Rise Office Buildings
Alireza Jahanara, Jae Yong Suk, Jae Yong Suk
- 13:15 Discussion / Q & A

SESSION 11C: Digital Representation and Visualisation + Theory at CEPT Auditorium

12:30 - 14:00 (90 Minutes)

Chair: Sherif Abdelmohsen

- 12:30 [346] Mining High-Impact Authors From CAADRIA Conferences through Social Network Analysis and Information Visualization of the CAD Field
Teng-Wen Chang, Yi-Sin Wu, Yu-Cyuan Fang
- 12:45 [350] A Comparative Analysis of Architectural Experience in the Reality Continuum Based on Embodiment, Tactility and Affordance
Avishek Das, Lars Brorson Fich, Claus Broendgaard Madse
- 13:00 Discussion / Q & A
- 14:00 Lunch Break
- 14:30 **Annual General Meeting + Closing Ceremony (CAADRIA)** at B N B Lecture Hall
- 16:00 Tea/ Coffee Break
- 16:30 **Keynote Speaker 03: Neil Leach** at B N B Lecture Hall