eCAADe2025
CONFLUENCE
SEPTEMBER 1-5, 2025
ANKARA, TÜRKİYE
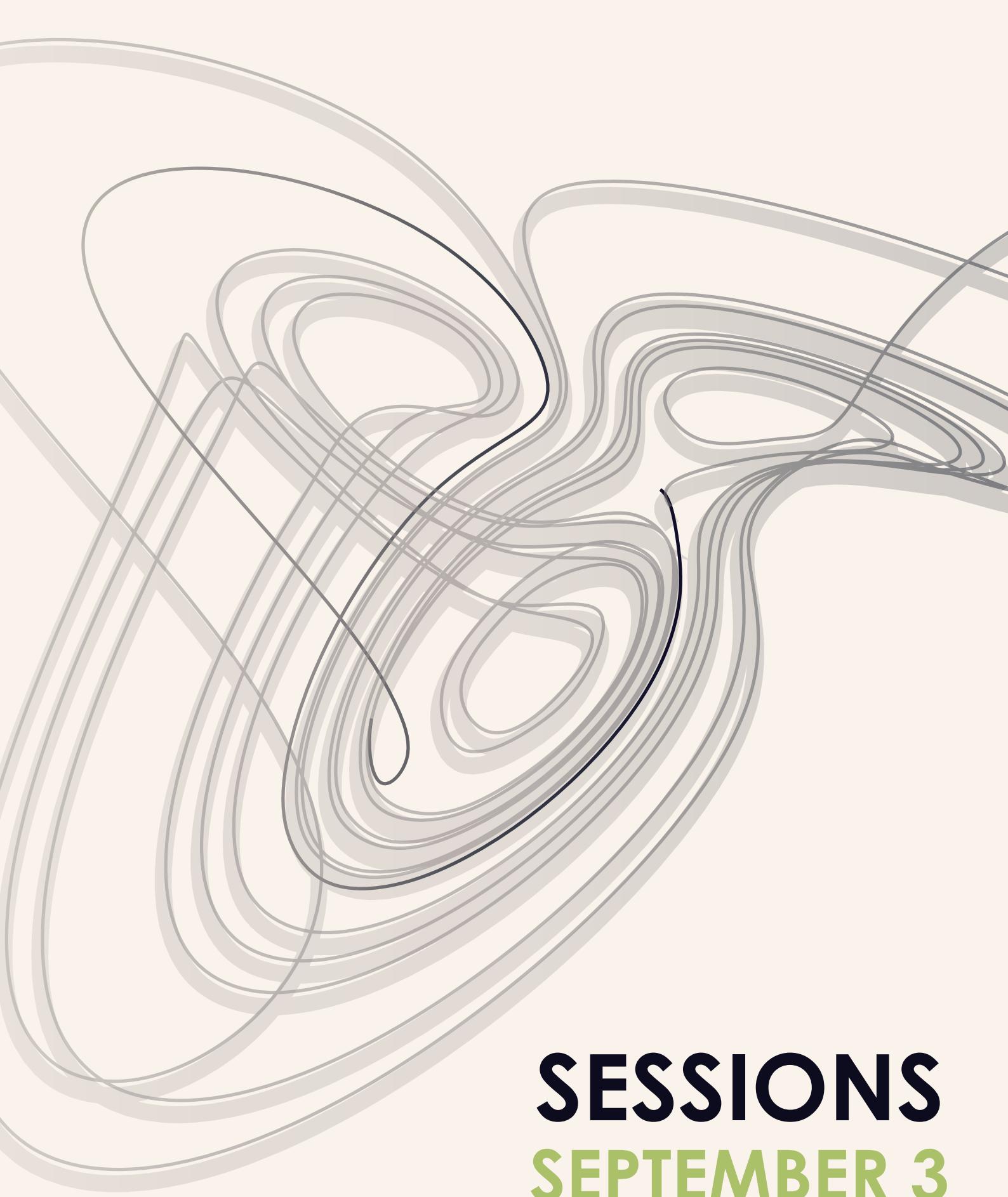
ODTÜ METU

TÜBİTAK

eCAADe2025
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ANKARA, TÜRKİYE

SESSIONS
SEPTEMBER 3

11:00-12:45
R28

S1-1 | Machine Learning and Deep Learning as Catalysts in the Built Environment
Session Chair: **Birgül Çokaloğlu**

Condensing Complexity: K-means clustering of geometric data sets as a design tool
Daniela Kröhner, Lukas Allner, Andrea Rossi, Hyo Wook Kim

Transforming 3D BIM Data into Tensor Formats for ML Applications in Architecture Image stacking method
Arman Yasa, Togan Tong

ML and Robotics for Generating and Fabricating Compositions with Discrete Elements
Emire Nur Solmaz, Arzu Gönenç Sorguç

Enhancing Apartment Building Design with 3D Knowledge Graphs and Large Language Models: A workflow for automated spatial recognition knowledge representation and natural language interaction in early-stage design *(online session)*
Bao Trinh, Evangelia Papaspyrou, Anh Le, Joao Silva

Adaptive Façades for Activity-Specific Well-Being - Exploring emotional responses with virtual reality and machine learning
Florina Pantilimonescu, Valentina Beatini

Automatic Generation of Post-Redevelopment 3D City Models Using Satellite Imagery Integrating image generative AI, segmentation, and building height estimation models
Yuki Mugita, Tomohiro Fukuda, Nobuyoshi Yabuki

Light Redistribution in Variable 3D-Printed Thermoplastic Geometries: Automated optics experiments and machine learning
Yuan Zhang, Hao Hua

Overview of Session Chair & Wrap-up of the Session

11:00-12:45
R89

S1-2 | Immersive Technologies, Gamification, and Creative Pedagogies in Architecture
Session Chair: **Joachim Kieferle**

Enhancing Collaborative Learning in Architectural Design Education Through Human-Computer Interaction and Game-based Learning
Bilge Sağlam, Burcu Şenyapılı Özcan

Impact of Robotic Fabrication on the Creative Problem-Solving abilities in Design Education
Anna Prell, A. Benjamin Spaeth

Exploring Gamification: Playing and learning through war-time architecture
Chin Kit Pan, Tian Tian Lo

Historical Context and Contemporary Interventions: Integrating AI-assisted design processes into architectural education
Melek Demiröz, Sinem Çınar

A Comparative Study of Head-Mounted VR and 2D Media in Taiwanese Architectural Education: Assessing learning outcomes and student preferences *(online session)*
Hadas Sopher, Guzden Varinlioglu

Context Familiarity in the use of Computational Design Tools
Xavier Garnavault, Aurélie de Boissieu

Architects, Makers and Challenges: Challenge-Based Learning and Maker Technology
Leyla Kyjanek Yunis, Henri Achten

An XR-Based Educational Platform for Bridging Architectural Cultural Accessibility and Immersive Learning in Urban Environments
Siyue Zhang, Sky Tian Tian Lo

Overview of Session Chair & Wrap-up of the Session

11:00-12:45
R90-B

S1-3 | Additive Manifacturing, and Human–Robot Collaboration
Session Chair: **Gabriel Würzer**

A Graphics-Based Approach to Processing Voxel Models for Biopolymer 3D Printing
Cameron Nelson, Paul Nicholas, Mette Ramsgaard

Recycling Bamboo Waste via Additive Manufacturing
Yixuan Liu

Robotic Imperfection Mitigation for 3D Printed Clay Voussoirs in Vault Structures
Kesra Mansuri, İnana Abdulli, Asena Kumsal Şen Bayram

Real-Time Adaptive 3D Printing with Robotic Arms: Exploring variability in digital fabrication
Ondřej Cigáník, Daniel Sviták, Adam Varga, Hugo Fekar, Samuel Karaš

Radiolaria Stool Series Design: Synergistic integration of computational design and additive manufacturing
Pablo Banda, David A. Torreblanca-Díaz

Gradient Furniture Series: A multi-material robotic 3D printing approach using biodegradable thermoplastics
Marjan Colletti, Georg Grasser, Simon Hildebrand, Tobia Comploi

Aerial Arch Bridge Construction: Precise and flexible assembly with drones using a 6dof parallel manipulator
Xingjie Xie, Xiaofan Gao, Menghao Yuan, Philip F. Yuan

Crafted by Hand and Machine: Human-robot fabrication workflow for the use of curved wood in construction
Alberto Johnsson, Eleni Skevaki, Marirena Kladeftira, Stefana Parascho

Overview of Session Chair & Wrap-up of the Session

15:15-17:00
R28

S2-1 | Data-Driven Environmental Design and Reconstruction Strategies
Session Chair: **Fehmi Doğan**

A Simulation-Driven Parametric Building Envelope Façade Design Using Generative AI and Virtual Reality in the Early Design Phase
David Stephen Panya, Taehoon Kim, Geunjae Kim, Jungmin Park, Gaeun Park, Seungyeon Choo

Where to Construct and How to Design Footbridges: A machine learning-based decision-support tool
Bade Eloğlu, Arzu Gönenç Sorguç

Temperature Cooling Strategies for Outdoor Built Environments: Exploring tree canopy morphology for surface temperature mitigation with interpretable machine learning *(online session)*
Zishen Bai, Kening Guo, Jiaqi Yu

Developing Machine Learning Models to Predict Outdoor Thermal Comfort of Kinetic Shading Devices: An approach for global optimization *(online session)*
Yiğit Dağlier, Berk Ekici, Koray Korkmaz

Bio-inspired Climate-responsive Wood Composite Architectural Façade Actuator: Architectural research based on the asclepias syriaca, mimosa pudica, and mandevilla plants as biological role models
(online session)
Marisa Giammarco, Celia Zeng, Manav Aggarwal, David Correa

Thermal Design with Highly Inhomogeneous Materials
Isak Worre Foged, You-Wei Yen

Uncertainty-Driven 3D CAD-Guided Point Cloud Reconstruction for Hazardous Environment Documentation
Anqi Hu, Tomohiro Fukuda

When Architectural Ideation Meets Generative AI: Deciphering cognitive processes in architectural design
Gizem Yüksek, Aurélie de Boissieu

Overview of Session Chair & Wrap-up of the Session

15:15-17:00
R89

S2-2 | AR-VR-XR Technologies for Design and Spatial Representation
Session Chair: **Serkan Alkan**

Augmented Steelworker - An experimentation of augmented reality (AR) technology in assisting manual steel structure construction
Yang Song, Leyuan Jiang

Mixed Reality Hybrid Approach for Creating User and Material Affordances in Translating Digital and Physical Form
Sarah Blahut, Marie-Therese Harnoncourt-Fuchs

Segment Any Architectural Facades (SAAF): An automatic segmentation model for building facades, walls and windows based on multimodal semantics guidance *(online session)*
Peilin Li, Han Zheng, Jun Yin, Jing Zhong, Ran Luo, Jingxuan Li, Pengyu Zeng, Haoyue Han, Miao Zhang

Transformative Pixels: Computational color and image displacement in generative and representational design *(online session)*
Hyojin Kwon

Customising Emergency Shelter Design Exploring spatial layout adaptability with AR-enhanced, LEGO-based design
Farkhondeh Vahdati, Mia Tedjosaputro, Asterios Agkathidis, Alvin Fernandez Komar

Bridging Visual Complexity and Well-being: A computational approach to photographic analysis in assessing visual stress in architectural environments
Duygu Tüntaş

Empirical Data Meets Immersive Design: Lessons learned from 3D modelling a biodiversity intervention site for virtual reality
Henna Fabritius, Petri Kangassalo, Laura Mrosla

Generative AI-Augmented Decision-Making for Elderly Seating Comfort in Community Micro-Spaces: A VR-based design approach *(online session)*
Hanzhe Guo, Xing Chen, Zhe Guo, Jiayi Gao, Xiaoyu Zhang

Insights from AI-Driven Architectural Design Competition: Challenging conventional paradigms
Gizem Mersin, Selen Çiçek, Lale Başarır

Overview of Session Chair & Wrap-up of the Session

15:15-17:00
R90-B

S2-3 | New Modes of Design Narration
Session Chair: **Wolfgang Dokonal**

A New Soul of Architecture: AI-directed drawing
Fabio Bianconi, Marco Filippucci, Andrea Migliosi, Chiara Mommi

Gender Bias in AI Generated Spatial Atmospheres: Analysing gender-specific distortions in AI-generated spatial atmospheres inspired by the characters in Elias Canetti's „The Earwitness"
Leona Borkeloh

Gesture-Driven Storytelling: Designing interactive experiences for cultural heritage interpretation in blended spaces
Aysel Merve Baron, Leman Figen Gul

Smart Labels: Linking Non-Standard Shapes and Semantics in Built Heritage: The "Grotta del Fauno" case study at Villa d'Este in Tivoli
Armando Trento, Antonio Fioravanti, Paolo Fiamma

Liminality: Augmented Reality Experiences at the Boundary of the Physical and the Digital
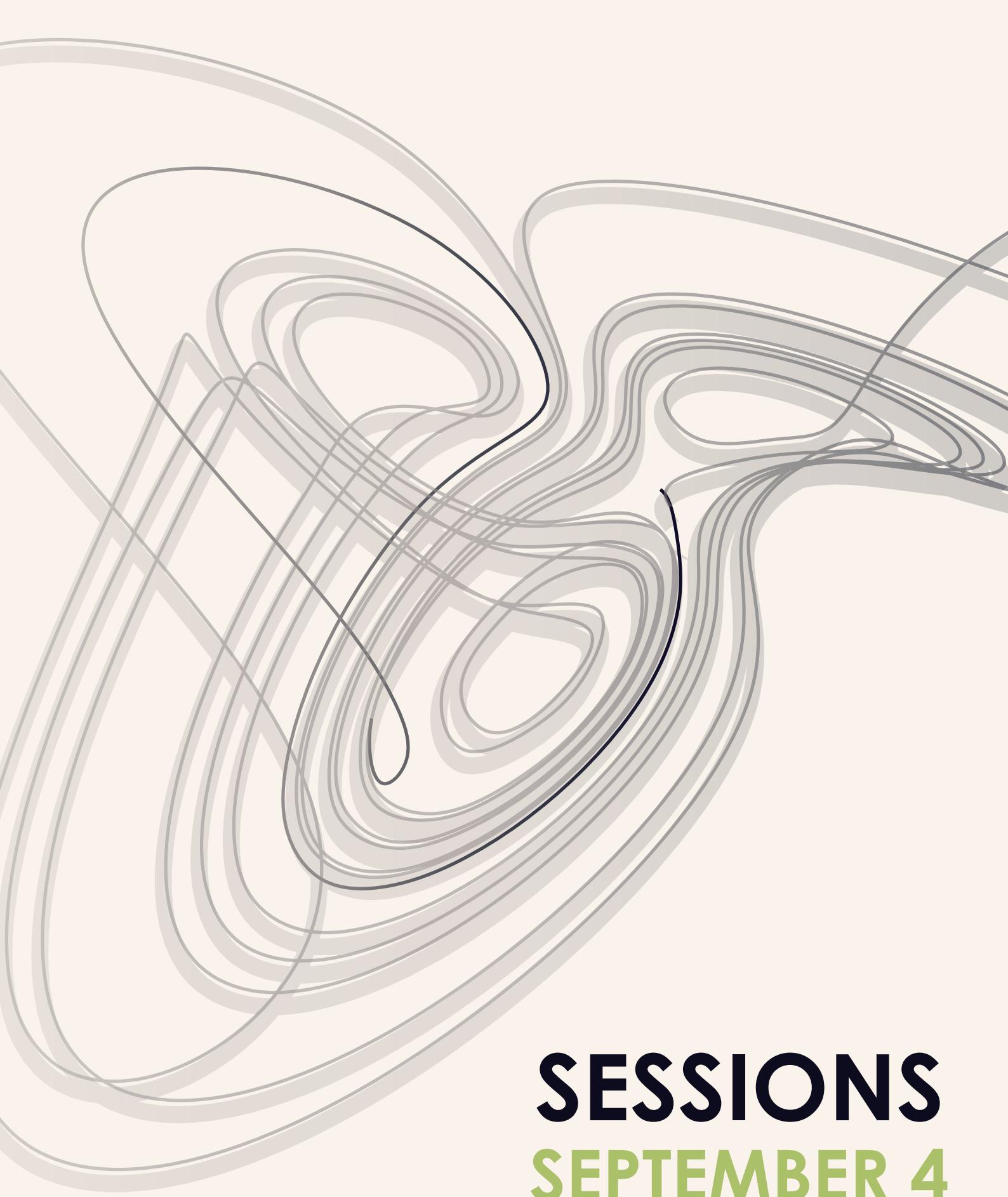Arzu Gönenç Sorguç, Müge Kruşa Yemişcioğlu, Ozan Yetkin

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SESSIONS

SEPTEMBER 4

09:00-10:45
R28

S3-1 | Immersive Technologies and AI-Enhanced Workflows in Architecture
Session Chair: Bob Martens

Observe Like an Architect: A neural network model that recognizes embedded design intentions in plan sketches through eye-tracking
Xiaoyun Zhang, Takehiko Nagakura

Parametric and Modular Design for Bamboo Chairs in Extended Reality: An accessible workflow
Zimu Bao, Zilu Wang, Yuting Chen, Sky Lo, Gerhard Bruyns, Daniel Elkin

Enhancing Augmented Reality with Virtual Shadow Rendering: Implementation on multiple real-world geometries through SLAM-based 3D modeling
Ryoya Izu, Tomohiro Fukuda, Nobuyoshi Yabuki

Speculative Futures in Classroom Design: Exploring the integration of spatial computing technologies through design fiction *(online session)*
Begum Moralioglu, Leman Figen Gül

Development of 360SpatialAI: Indoor spatial information extraction and management web app based on 360 image and AI technology
Jin-Kook Lee, Youngchae Kim, Hayoon Kim

Spatial Learning for Functional Hybridisation - Critical methodology for generative architectural suggestions in concept design phase *(online session)*
Roberto Pasquale Romeo, Federica Pradella, Giorgio Castellano, Fabio Bazzucchi, Ingrid Maria Paoletti

Cognition in Decision-Making: From virtual spaces to physical places *(online session)*
Antonios Taxiarchis Theodorou, Christina Prakate

3D Reconstruction of Existing Urban Environments: Automatic removal of dynamic objects using temporally consistent RGB inpainting and mask generation
Kyosuke Uchitani, Tomohiro Fukuda, Nobuyoshi Yabuki

Metacognitive, Cognitive, and Creative Dynamics in the Artificial Intelligence-Aided Design Process
Gizem Yazıcı, Fehmi Doğan

09:00-10:45
R89

S3-2 | Parametric and Computational Approaches in Architectural Design
Session Chair: **Arzu Gönenç Sorguç**

Mesh Generation Method of Irregular Kagome Gridshell Based on Principal Stress Lines
Jingyuan Hu, Weixin Huang, Jin Bai, Ziying Shi, Pan Lai, Junlong Chen, Junkai An, Anqi Liu, Xinyu Wang

Combining Generative Adversarial Networks and Reinforcement Learning for Floor Plan Layout Generation
Mertcan Güldilek, Mustafa Emre Ilal, Berk Ekici

Parametric Optimization of the Environmental Impacts of the 3D Architectural Model
Romario Baudouin Njiomou Tchuigwa, Aleš Marek

Analog-Digital Hybrid Parametric Design Modeling
Chao Xue, Boyu Bao, Thomas Fischer

Incremental Modularity: Parameterization and validation of flexible structural systems in modular contemporary architecture
Marina Borges, Gustavo de Sousa

Towards Morphological Intelligence: An AI-assisted approach integrating architectural graphs and images to identify spatial characteristics of high-rise residential building floorplans in China
Yuyang Wang, Jiaqi Li

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FloorPlan-DeepSeek (FPDS): A multimodal approach to floorplan generation using vector-based next room prediction *(online session)*
Jun Yin, Pengyu Zeng, Jing Zhong, Peilin Li, Han Zheng, Tiancheng Zeng, Miao Zhang, Jingxuan Li, Shuai Lu

Expert Evaluation of a House Floor Plan Recommendation System Using Graph Neural Networks *(online session)*
Hyejin Park, Minji Heo, YeJi Seo, David Stephen Panya, Hyeongmo Gu, Seungyeon Choo

09:00 -10:45
R90-B

S3-3 | Fabrication Experimentations in Detailing, Form-Making and Material
Session Chair: **Benjamin Spaeth**

Timber Joint Connections, Generative Design Method: A topological system approach
Ho Man Yau, Davide Lombardi, Theodoros Dounas, Yang Song, Asterios Agkathidis

A Strategy for Decomposition and Fabrication of Volumetric Meshes with Flat Sheet Materials
Reza Taghavifard, Andrei Nejur

Hybrid Weaving Processes: Reinterpreting traditional weaving techniques through digital fabrication for architectural willow-jute hybrid building elements
Javier Fuentes Quijano, Pit Siebenaler, Alexandre Dubor, Moritz Dörstelmann

Reciprocal Lattice: A jointless discrete system of topologically optimized timber-plates and varied profile dowels
Sina Mostafavi, Tahmures Ghiyasi, Bahar Bagheri, Edgar H. Montejano Hernandez, Cole Howell

Automation of the Spraying Process for Complex-shaped GFRC Panel Manufacturing
Hiroki Awaji, Akari Shimono, Kosuke Akita, Yasushi Ikeda

Smart Hinges Using Shape Memory Alloys for Architectural Applications
Pinar Neseliler, Gözde Damla Turhan-Haskara, Yenal Akgün, Feray Maden

Prompt2Product: Integrating Stable Diffusion for parametric modeling and manufacturing of ceramic products *(online session)*
Hatice Pelin Alkan Gokmen, H. Fuat Alsan, Taner Arsan, Sabri Gokmen

Reinterpreting Traditional Windows Lattices Patterns in Contemporary Design through Parametric Design and Digital Fabrication
Jiangyang Zhao, Davide Lombardi, Yang Song, Jinyang Liu

Tooling Ice Structures: Low-tech and low-carbon formwork method for ice shell structures in the Swedish Artic
Julio Diarte Almada, Elena Vazquez

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11:15-13:00
R28

S4-1 | Artificial Intelligence in Architectural Design, Sustainability, and Data Interpretation
Session Chair: **Emre İlal**

Synthetic Interpretations: AI-Driven scoring framework for architectural design evaluation
Kaan Bingöl, Mustafa Koç, Selen Çiçek, Mehmet Sadık Aksu, Emre Öztürk, Gizem Mersin, Oben Akmaz, Lale Başarır

Creativity+ in Architecture: On AI and the expansion of creativity
Nadine Zinser-Junghanns

AI-Driven Solutions for Rainwater Harvesting
Dilara Albayrak, Arzu Gönenç Sorguç

Application of Hybrid AI Technology in Calculating Carbon Emissions in Interior Design *(online session)*
Shih-Hsien Hsiang, Shen-Guan Shih

Adoption of AI Systems for Circular Construction Procurement: A Comparative Analysis of the UK and Türkiye
Nilüfer Kızılkaya Öksüz, Temitope Omotayo, Ali Murat Tanyer, Abisola Muftau, Jiamei Deng

Artificially Interactive Individualized Genetic Algorithms (AIIGA) for Gestalt Analysis: Evolutionary algorithms enhanced with sAI in architectural design
Matthias Kulcke, Gabriel Wurzer, Wolfgang E. Lorenz

Generative AI Meets CAD: Training latent diffusion models with NURBS geometry
Adam Sebestyen, Albert Wiltsche, Albert Wiltsche, Ozan Özdenizci

How People See Design Data: Evaluating spatial data visualizations through a taxonomy framework
Md Zishaan Khan, Halil Erhan

Overview of Session Chair & Wrap-up of the Session

11:15-13:00
R89

S4-2| Digital Technologies for Simulation and Performance Assessment in Architecture
Session Chair: **Antonio Fioravanti**

A Real-Time Synchronization System for 3D Point Cloud Data Utilizing Operational Difference Information for Telepresence
Chika Kinoshita, Tomohiro Fukuda, Nobuyoshi Yabuki

A General Predictive Model to Evaluate Daylight Levels of Residential Buildings in the Mediterranean (Next Med) Region
Berk Ekici

Experiential Learning in Environmental Design Using Energy Simulation Tools: Exploring energy optimization in Hassan Fathy's projects between traditional and contemporary architectural practices *(online session)*
Mina Michel Samaan, Ayatallah Magdy

Ambisonic Acoustic Simulations for Historical Reconstruction
Guzden Varinlioglu, Drishya Jayakrishnan, Madiha Mukarrama, Shahnaz Gulshan,Arjun Puliekandy, Jacopo de Berardinis

Structural Assessment of Historic Masonry Structures Using Isogeometric Analysis and Parametric Approaches: The case of Mardin vaults
Serdar Aydin, Osman Gündüz, Begüm Aktaş

Real-time Monitoring of Cultural Heritage Buildings in Greece through their Digital Twins: Visualization of adaptive reuse plans in xr collaborative environments
Philippos Nikolaidis, Yannis Zavoleas, Alkis Poulis

Bringing Tradition to Life: Phygital reconstruction and experience of Chinese ancient theater opera stage *(online session)*
Tianyu Han, José Pedro Sousa, Heitor Alvelos

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IFC Schema Extension for Navigation Models of Humanoid Robots in the Built Environment
Marie Sartorius, Petra von Both

Overview of Session Chair & Wrap-up of the Session

11:15-13:00
R90-B

S4-3| Advancements and Applications of Building Information Modelling in Architecture
Session Chair: **Figen Leman Gül**

Testing A Digital Process Model for Preserving Stone Craftsmanship in BIM: From digital heritage to circularity
Muhammed Çuha, Serdar Aydın

From Stereotomy to Subdivisions: Crafting a BIM tool for discrete elements design
Pedro Azambuja Varela

Analysis of Current Potential and Limitations of BIM-LCA Integration
Yannick Scherle, Petra von Both

How Client's Defined BIM Standards Facilitate Better Outcomes Optimization of unitised façade design using nested families in Revit
Zofia Feliksinska Swierz, Anetta Kepczynska-Walczak

Improving BIM Interoperability: A Grasshopper-Python workflow for structural modelling from Rhino to Revit *(online session)*
Paulin Faskel Tchoundie Tchuigwa

Mobile 3D LiDAR-based Scan2BIM Process: A comparison of point cloud processing tools
Handan Aş Çemrek, Seda Sönmez, Ümit Işıkdağ

Implementing BIM-Based Material Passports for Sustainable Resource Management in the Construction Industry
Yusra Ekin, Birgul Colakoglu

Integrating BIM into Architectural Education: Developing adoption for the Chinese context
Silvia Albano, Zhelun Zhu

Overview of Session Chair & Wrap-up of the Session

15:30-17:15
R28

S5-1 | Data-Informed Strategies in Urban Context
Session Chair: **Rudi Stouffs**

Towards Optimizing Urban Regeneration in Post-Industrial Cities via Computational Analysis of Digitized Urban Structures
Marziyeh Salimi, Anetta Kępczyńska-Walczak

UrbanSense: A framework for quantitative analysis of urban streetscapes leveraging vision large language model *(online session)*
Jun Yin, Jing Zhong, Peilin Li, Ruolin Pan, Pengyu Zeng, Lele Cao, Hungchen Tai, Jiahao Li, Miao Zhang, Shuai Lu

A Hybrid cGAN Framework For Predictive Spatial Openness Analyses of Urban Open Spaces
S.EliF Serdar Yakut, Meltem Erdem Kaya

A Revisit of the Fifteen-minute City Model: Exploring the trade-off between urban accessibility and thermal environment using interpretable machine learning *(online session)*
Zishen Bai, Jiaqi Yu, Kening Guo

Generating Lost Urban Fabric: Exploration of Generative Adversarial Networks as a design tool in post-disaster urban recovery
Fatma Nur Takış, Sinan Akyüz

Optimize Urban Layout to Achieve Higher City Running Vitality
Haojun Wang, Hao Zheng, Shenzhou Dai

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Between Real and Imagined: Developing a dynamic immersive virtual auditing framework for high-density urban health trails
Yuhao He, Tian Tian Lo, Fenggui Rao, Yuhao Li, Hanzhe Bao

Research on Establishing Approach of Intuitive Generative System based on Reinforcement Learning under the Context of Urban Renewal
Yuting Zhao, Dasong Wang, Peng Tang

Overview of Session Chair & Wrap-up of the Session

15:30-17:15
R89

S5-2| Computational Approaches in Architectural Design and Optimization
Session Chair: **Ali Murat Tanyer**

AR-Assisted 3D Generator: A parametric investigation into customised emergency shelter design
Farkhondeh Vahdati, Mia Tedjosaputro, Asterios Agkathidis

Rule-Based Generative Design Principles for Discrete Mortise-Tenon Timber Assemblies *(online session)*
Qianbin Xu, Frederico Fialho Teixeira, Maryam Shafiei

Parametric Optimization of Window Surfaces Based on Targeted Illumination Levels in Specific Rooms of Building
Romario Baudouin Njiomou Tchuigwa, Aleš Marek

Automatic Floor Plan Generation System Using Graph Neural Networks with Building Exterior Constraints and Room Attribute Information
Gen Urakawa, Tomohiro Fukuda, Nobuyoshi Yabuki

Oriented-HouseDiffusion: Orientation-aware floor layout generation using diffusion models
Fatemeh Mostafavi, Seyran Khademi, Georg Vrachliotis

Inverse Algorithm Design of Floor Plans: Leveraging neural networks to convert floor plans into algorithmic designs
João David, Inês Pereira, Catarina Belém, António Leitão

Optimization in Preliminary Design of Tall Buildings via Parametric Modelling and Genetic Algorithms
Gökçe Nihan Demirel, Bekir Özer Ay

Beyond Carbon Footprint: A parametric tool for early-stage multi-impact life cycle assessment in building design
Payam Madelat, Jelena Kazak, Francesco De Luca, Viktoria Voronova

Overview of Session Chair & Wrap-up of the Session

15:30-17:15
R90-B

S5-3 | Human–Machine Collaboration in Architectural Design
Session Chair: **Aulikki Herneoja**

User Experience Analysis in Spatial Perception: A hybrid study using eye-tracking and think-aloud (ETA)
Ezgi Yilmaz, Livanur Erbil Altintas, Batuhan Taneri

Textile Tango: Shaping soft adaptive spaces through human interaction
Paula Castel, Yagmur Bulut, Seyedehgelareh Sanei, Mathias Maierhofer, Samuel Leder, Achim Menges

Designing with Robots: Navigating the Unknown to unlock Creativity and Innovation
Andrea Kondziela, Victor Sardenberg, Mirco Becker, Ena Lloret-Fritschi

Kakadoo: LLM enabled speech interface for enhanced human-computer interaction
Alp Okan Atakan, Fani Kostourou, Viktoria Sandor, Stefan Seer, Reinhard Koenig

Human-AI Collaborative Decision-Support in Architectural Pre-Design: A conceptual framework: leveraging NLP and ontology-based systems for early-stage alignment
Askim Naz Yildiz, Pia Fricker

Robotic Fabrication of Bamboo Roof Structures in Traditional Indonesian Housing Typologies A Workflow for Human-Robot Collaboration
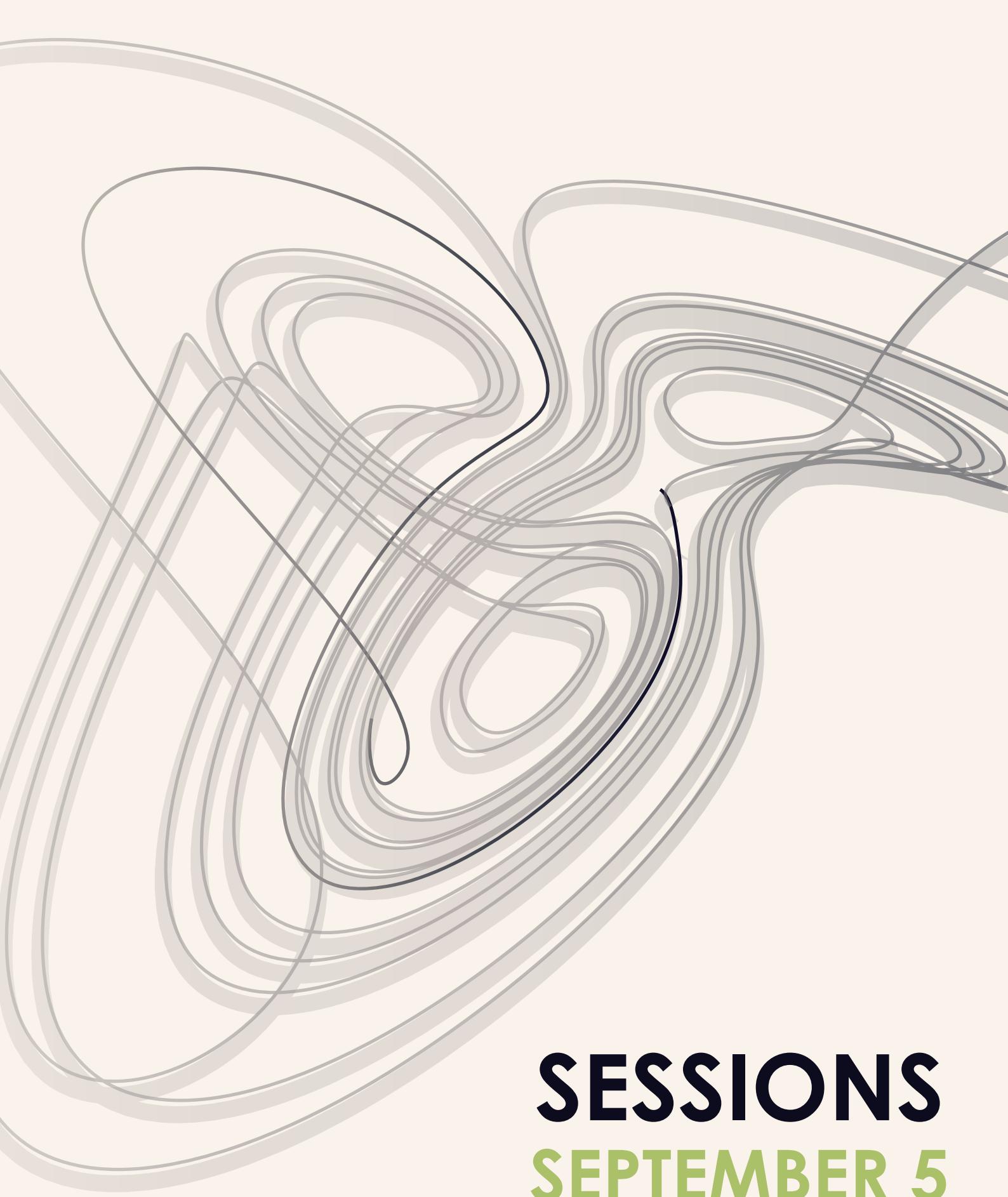Ahmad Mansuri, Asterios Agkathidis, Davide Lombardi, Hanmei Chen

User-Centered Generative AI Framework for Visual Stimuli in Architectural Design: Development and evaluation of the GAI-A interface
Leman Figen Gül, Oğulcan Üneşi, Burak Delikanlı, Ertuğrul Ömer Gül

Voice-Aided Design Using Large Language Model *(online session)*
Wen Gao, Jiawen Yang, Chenglin Wu, Yang Liu, Xuanming Zhang

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SESSIONS
SEPTEMBER 5

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10:30 - 12:15
R28

S6-1 | Revisiting Material and Making in Design
Session Chair: **Andre George Proctor Brown**

Multimodal Large Language Models for Adaptive 3D Concrete Printing
Giancarlo Di Marco, Lok Hang Cheung

Enhancing 3D Clay Printing with Computer Vision and Deep Learning
Serdar Aşut, Xiaochen Ding, Swornava Guha, Sanguk Ryu, Wei Wei

Bio-Fusion Tectonics The operation of AIGC in generative design and robotic additive manufacturing processes
Chengbi Duan, Dasong Wang, Hao Hua

A Theoretical Framework for the Standardisation and Industrialisation of 3D Concrete Printing through Decentralised Science
Giancarlo Di Marco, Davide Lombardi, Theodoros Dounas, Asterios Agkathidis

The Architect as Digital Craftsman: Revisiting manual dexterity through artificial intelligence
Ayça Ayaz Erdağ, Arzu Gönenç Sorguç

Biodegradation in Design Process: Digital building catalog for bio-inspired design proposals
İrem Ercan, Filiz Özbengi Uslu, Mehmet Ali Kayabaş

TerraTimber: Digital circular construction methodologies for structural hybrid building systems with reclaimed wood and earth
Daniel Fischer, Erik Zanetti, Tamara Haußer, Riccardo La Magna, Moritz Dörstelmann

Porosity and Interlocking: Digital stereotomy for small-scale structures with irregular stone
Mengdi Mao, Guan Lee, Marjan Colletti

Overview of Session Chair & Wrap-up of the Session

10:30 - 12:15
R89

S6-2 | Ongoing Shifts in Architectural Education through Emerging Technologies
Session Chair: **Anetta Kepczynska-Walczak**

Architectural Design Studio in Confluence: AI Integration at the schematic stage and its potential impact on final design
Funda Tan Bayram, Betül Alankuş

How Can Generative AI Techniques,Enhance a User-Centred Design: A case study with football stadium design
Walid Elazzaoui, Elien Vissers-Similon, Sara Eloy, Tine Segers

Educational Confluences in the Gap from BIM to AI: Driving innovation to evolve didactical frameworks beyond computational design *(online session)*
Marco Mondello, Mohamed Abdelalim

An Adoption of AI in Architectural Education through an Analysis of Stable Diffusion Practice-Based Lectures
Soon Min Hong, Jungmin Park, Gaeun Park, Hyeongmo Gu, Minji Heo, Sangyoon Chin, Seungyeon Choo

A Comparative Study of Two AI-Assisted Architectural Design Studios
Hadas Sopher, Guzden Varinlioglu

Understanding Experiences of Architecture Students with Text-to-Image Generative AI
Şule Taşlı Pektaş

Competency Framework Package for Educating Emerging Construction Technologies
Ruri Natsuki, Tsukasa Ishizawa

Integrating Mixed Reality Technologies in Design Education: A cognitive evaluation proposal
Sibel Özden Omuzlu, Ayşegül Akçay Kavakoğlu

Overview of Session Chair & Wrap-up of the Session

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10:30 - 12:15
R90-B

S6-3 | Inclusion of Robotics in Architecture
Session Chair: **Tomohiro Fukuda**

Robotic Sand Packing for Reusable Casting Formworks: Integrating vision-based toolpath feedback for geometric accuracy
Kieron Cook, Ozguc Bertug Capunaman, Benay Gursoy

Robotically Carved Adaptive Moulds for Rammed Earth Construction: Adaptability for site-specific design *(online session)*
Hila Sharabi, Guillem Perutxet Olesti, Ben Spong, Nikoletta Karastathi

Development and Implementation of an Autonomous Mobile 3D Printing Robot
Yunning Feng, Hao Wu, Jiyu Liu, Meng Cao, Xu Liu, Philip F. Yuan

From Passive to Active Matter: A novel robot-material system for parallel construction
Xin Sun, Chia-Yen Wu, Philipp Kragl, Lior Skoury, Samuel Leder, Thomas Wortmann, Achim Menges

Vision-based 6-DOF Grasp Method in Cooperative Robotic Wood Fabrication Taking a reciprocal Christmas Tree as an example
Yalei Zhu, Tianyi Gao, Quanpi Zheng, Philip F. Yuan

Node Design Algorithm
Wilhelm Neusser, Mauricio Morales-Beltran, Isik Ulkun Neusser, Manfred Berthold

Robotic Binder Deposition for the Reuse of Construction Demolition Waste
Cansu Ersoy, Arian Babaei

Advancing Robotic Assembly with BIM and Mixed Reality Integration: An integration of computational and visual experience
Ankita Maurya, Filipe Brandão, João Carvalho, Pedro Andrade, Bruno Figueiredo

Overview of Session Chair & Wrap-up of the Session

13:15 - 15:00
R28

S7-1 | Generative Workflows, Rule-Based Reasoning, and Data Analytics in Architecture
Session Chair: **Mine Özkar**

Cross-Dimensional Phantasm An architectural formation approach based on Generative AI and 3D reconstruction algorithms
Yingxu Wang, Dasong Wang, Peng Tang

Recipe for AI Integration in Architecture: Learning from good practice precedents
Irina Miodragovic Vella, Sladjana Markovic

Computer Representation of Building Codes Using NLP Techniques for Automated Compliance Checking
Melis Aldemir Toraman, Sibel Macit İlal

From Automation to Intelligence: An AI agent for spatial reasoning and 3D co-design
Ximing Zhong, Yingkai Li, Pia Fricker, Xiange Zhang

Comparative Canvas: Multi-scale architectural data analytics using open-source AI
Seyran Khademi, Fatemeh Mostafavi, Casper van Engelenburg, Pablo G. Morato, Georg Vrachliotis

Applying LoRA to Stable Diffusion for Architectural Facade Design Generation *(online session)*
Jungmin Park, Soon Min Hong, Gaeun Park, Yeji Seo, Hyejin Park, Seungyeon Choo

Identification of Crack Location to Aid Preventive Conservation of Timber-framed Buildings *(online session)*
Ozlem Cavus, Mine Ozkar

Design Space Exploration of Free-form Shells Through Conditional Variational Autoencoder
Reza Taghavifard, Morteza Rahbar

Navigating Design Space in the Creative Process: Integrating machine learning for structured exploration avoiding design fixation
Ekaterina Pestriakova, Gerhard Schubert, Frank Petzold

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ANKARA, TÜRKİYE

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S7-2 | Digital Twins, Urban Analytics, and Environmental Performance
Session Chair: **José Pedro Sousa**

Wind Analysis Methods to Improve Pedestrian Comfort in Urban Design A case study in Tallinn, Estonia
Jelena Kazak, Francesco De Luca, Payam Madelat

Citizen Interaction with a Digital City Twin
Xin Zhang, André Brown, Antony Pelosi

A Data-Driven Interface for Understanding Urban Interactions in Public Green Spaces
Bertuğ Kaan Demir, Başak Uçar, İnan Utku Türkmen

RoadNetOpt – A street network optimization tool for urban sustainability
Ye Tang, Zijian Jing, Yiheng Feng, Shubing Qiu, Li Li

Seasonal Perception and Sentiment in Urban Scenes: A multimodal time-series study using social media data
Yan Lan, JingHan Liu, ZhengYang Li, Han Tu

Linked Urban Data: Leveraging the capabilities of urban data analytics using Knowledge Graphs
(online session)
Xi Peng, Diellza Elshani, Hana Svatoš-Ražnjević, Achim Menges, Thomas Wortmann

Asymmetries in Urban Weather Generator for Climate-responsive Design: The effect of vegetation on urban heat island
Michele Morganti, Agnese Salvati, Alice Vicini

Evaluating Urban Vitality through Place Quality in Knowledge Districts Using City Information Modeling (CIM)
Adriane Eloah, Marcela Noronha, Gabriela Celani, Bige Tunçer

Overview of Session Chair & Wrap-up of the Session

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