Urban Morphology in the Age of Artificial Intelligence

Book of Abstracts

ISUF | Torino | 2025

17th - 20th June

XXXII - International Seminar on Urban Form

XXXII - International Seminar on Urban Form

Urban Morphology in the Age of Artificial Intelligence

Book of Abstracts

Torino | 17th - 20th June 2025

Editors
Martina Crapolicchio
Rossella Gugliotta
Alessandro Lovisolo

Design
Alessandro Lovisolo
Ezgi Nur Güngör
Caterina Juric

Publisher
Politecnico di Torino
ISBN: 979-12-81583-31-3

Website
https://www.isuf2025.org/

We thank all speakers, moderators, student volunteers, colleagues and administrative staff from Politecnico di Torino, Department of Architecture and Design, who provide the venue and made this event possible.

CONFERENCE ORGANIZATION

STEERING COMMITTEE

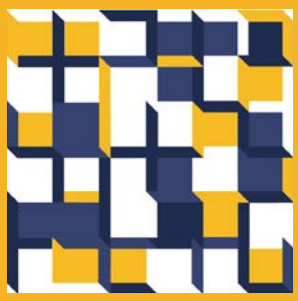
Elena Baralis, Politecnico di Torino, Deputy Rector
Michele Bonino, Politecnico di Torino, Department Architecture and Design Director
Bao Li, Southeast University Nanjing, Co-Director "Transitional Morphologies" JRU
Vítor Oliveira, Universidade de Oporto, ISUF International President
Marco Trisciuoglio, Politecnico di Torino, Co-Director "Transitional Morphologies" JRU / ISUF 2025 Chair

ORGANIZING COMMITTEE

Marco Trisciuoglio, Politecnico di Torino, Italy
Michela Barosio, Politecnico di Torino, Italy
Martina Crapolicchio, Politecnico di Torino, Italy
Santiago Gomes, Politecnico di Torino, Italy
Rossella Gugliotta, Politecnico di Torino, Italy
Ezgi Nur Güngör, Politecnico di Torino, Italy
Caterina Juric, Politecnico di Torino, Italy
Alessandro Lovisolo, Politecnico di Torino, Italy
Didem Türk Grigoletto, Politecnico di Torino, Italy
Xiao Xiao, Politecnico di Torino, Italy

SCIENTIFIC COMMITTEE

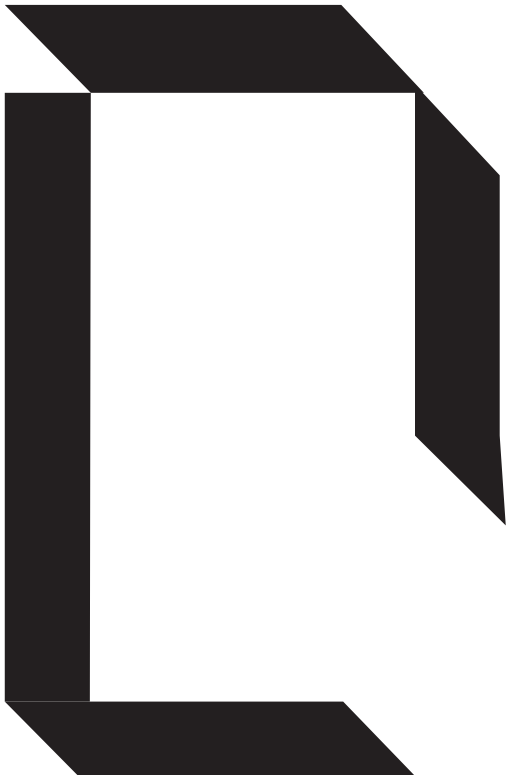
Anna Rita Amato, ISUF International
Michela Barosio, Politecnico di Torino
Meta Berghauser Pont, Chalmers University
Piero Boccardo, Politecnico di Torino
Olgu Caliskan, Middle East Technical University
Alessandro Camiz, Università di Chieti e Pescara
Paolo Carlotti, Sapienza Università di Roma
Roberto Cavallo, Tu Delft /EAAE
Nadia Charalambous, University of Cyprus
Michael P. Conzen, University of Chicago
Howard Davis, University of Oregon
Aleksandra Djordjević, University of Belgrade
Chen Fei, University of Liverpool
Heraldo Ferreira Borges, Mackenzie Presbyterian University
Martin Fleischmann, Charles University
Giovanni Fusco, Université Côte d'Azur /CNRS
Ilaria Geddes, University of Cyprus
Kai Gu, University of Auckland
Matteo Ieva, Politecnico di Bari
Anna Agata Kantarek, Cracow University of Technology
Kayvan Karimi, University College London
Karl Kropf, Oxford Brookes University
Ayşe Sema Kubat, Istanbul Technical University
Fabirizio Lamberti, Politecnicno di Torino
Peter Larkham, Birmingham City University
Michelle le Roux, Urban Collaborations South Africa
Teresa Marat-Mendes, Iscte Lisbon University Institute
Marco Maretto, Università di Parma
Stephen Marshall, University College London
Nicola Marzot, ISUF Italy
Bola Ogunbodede, University of Lagos
Anna Osello, Politecnico di Torino
Ozlem Ozer, Gebze Technical University
Ed Parham, Space Syntax Ltd.
Sergio Porta, University of Strathclyde
Fulvio Rinaudo, Politecnico di Torino
Ivor Samuels, University of Birmingham, Birmingham
Paul Sanders, Western Sydney University
Brenda Scheer, University of Utah
Shigeru Satoh, Waseda University, Japan
Roberta Spallone, Politecnico di Torino
Giuseppe Strappa, Sapienza Università di Roma
Tolga Ünlü, Çukurova University
Alice Viallard, Northumbria University
Alessandro Venerandi, University of Strathclyde
Susan Whitehand, University of Birmingham
Ding Wowo, Nanjing University



CONTENTS

004

AI APPLICATIONS ON URBAN FORMS: City as a Device (Agents & Experiments)



224 - **Ayari M.** - Multi-criteria analysis, Artificial Intelligence and spatial analysis, for the optimization of sustainable mobility in the municipality of “Mourouj”

225 - **Balcı D., Aydin C., Erdoğan Aydın G., Kılıç M.** - Transforming urban planning with LLMs: A GPT model for plan notes in Turkiye

226 - **Ben Y.** - From retrieval to generation: Multi-modal AI system for context-aware urban renewal in historic districts

227 - **Falcão da Silva L.. Pessanha Falcão A.** - Integrating Artificial Intelligence in urban design: Balancing innovation with human sensitivity

228- **Guaralda M., Nikolaeva K., Nyandega D.** - From pixels to participation: A blueprint for integrating generative AI in community consultations

229 - **Guo D.** - Quality evaluation of community street space from the perspective of children based on street view images and machine learning

230 - **Heinze S., Guinand S., Musil R.** - AI based evaluation of the Viennese Gründerzeit facades for their complete inventorying, understanding and preserving

231 - **Hu R., Zhou Z., Wen Y., Zhang W.** - Typomorphological studies of Chinese historical areas driven by artificial intelligence: Precision restoration and evolution analysis

232 - **Hu Y., Wang Z., Ullah N.** - AI-driven streetscape perception: Analyzing urban morphology and public sentiment through social media data

233 - **Jin J., Ozbil Torun A., Zhai B.** - Mapping the habitation patterns and socio-ecological dynamics of kittiwakes along the river Tyne

234 - **Lyu Y., Deng H.** - Research on the application of the establishment of a knowledge model based on historical maps and multi-source information data in the urban renewal design of historic areas — A case study of the Sima Street area in Jiangyin

235 - **Mano Y.** - Preservation of historical cities and the regeneration of cultural contexts during 80 years after the WW2 — Responding to the challenges of resilience and re-purposing in the face of unstable environmental change

236 - **Marino M.** - Venice City Campus: AI-driven proactive design for future urban morphologies

237 - **Rifaioğlu M**. - Urban form between persistence and extinction: The role of artificial intelligence in the post-disaster reconstruction of historic urban core of Antakya

238 - **Satoh S., Sugano K., Nguyen Quang H., Mashiko T., Thi H., Nguyen T., Hong Truong T., Hirai Y., Kawahara S., Kitani K., Tanaka S.** - Creation of an urban morphology archive in a symbiotic region combining “Shan Shui (Mountain–Water)” and AI-driven interactions: A case study of the Huong river basin in Hue, Vietnam

239 - **Spanò A., Patrucco G., Cappellazzo M.** - GEO AI tools for urban spaces and their built heritage

240 - **Stojanovski T.** - City Information Modeling (CIM): Computational urban morphology, digitizing urban design and Artificial Intelligence (AI)

241 - **Su F.** - Decoding urban form drivers of building energy demand: Machine learning-driven insights from Nanjing’s morphological big data

242 - **Sun Z., Chen Y., Deng H.** - Research on the optimization of morphology and atmosphere in historical streets based on multi-source data: A case study of Tangshan Old Street in Nanjing

243 - **Sun S., Bao L.** - Predicting changes in elderly housing needs using AI and large-scale model training

244 - **Tapkı S., Kamaci Karahan E.** - Utilizing AI for the digitization and analysis of collective memory: The case of İznik, Turkey

245 - **Wang M., Wu T.** - Research on the photothermal perception mechanisms and spatial elements of campus public spaces in hot-humid regions based on VR and physiological measurement technologies

246 - **Wang X., Li J., Cai C., Zhu X., Tang P.** - Knowledge-driven urban cognition reconfiguration: A knowledge graph-based experiment on information integration and decision-making in Zurich old town

247 - **Wang X.** - Exploring AI applications for conservation of socialist China heritage: A case study of the living area of Jilin diesel engine factory

248 - **Zamani P.** - AI applications on urban morphology: Rethinking the city as a device for decarbonization and transformative research

249 - **Zhao L., Xue X., Abuduwayti A., Zhu Y.** - An interpretable machine learning framework based on local climate zone classification for predicting urban energy consumption and solar potential

Venice City Campus: AI-driven proactive design for future urban morphologies

Marco Marino*
**Università IUAV di Venezia*

Keywords
Artificial intelligence, proactive design, Venice City Campus, adaptive planning, new urban morphologies

Proactive design is redefining the future of cities through innovative tools, and artificial intelligence (AI) emerges as a crucial ally in accelerating and optimizing decision-making processes. The Venice City Campus project envisions a university city for 60,000 students, distributed between the historic center and the mainland, transforming abandoned buildings and large disused areas into a dynamic ecosystem of education, research, and innovation. To support this vision, a specific AI-based algorithm could be developed to generate and test multiple design scenarios. By setting parameters such as urban functions, occupancy percentages, public-private space distribution, building distances, and morphological development rules, AI would enable rapid exploration of different variants and real-time optimization of solutions. Each area of the Venice City Campus could dynamically adapt, redefining land use and implementation timelines based on emerging needs. AI-driven proactive design goes beyond urban regeneration; it enables flexible and adaptive planning, capable of simulating future scenarios, defining new urban morphologies, and optimizing resources. In the historic center, abandoned buildings could be repurposed into residences, classrooms, and cultural spaces, while the mainland could host new research and innovation hubs. AI would allow each intervention to be tested and validated through advanced simulations, ensuring sustainable and resilient growth. Venice City Campus thus becomes an experimental city model, where artificial intelligence and proactive design merge to generate new urban forms, shaping the future with precision and efficiency.

ISUF Torino 2025

ISUF - International Seminar of Urban Form

The International Seminar on Urban Form (ISUF) (https://urbanform.org/) is a leading academic organization that has united scholars and research groups focused on the form of the city for thirty years.

ISUF connects researchers and practitioners across disciplines, including geography, urban planning, architecture, history, anthropology, and urban design. Our global network fosters projects that explore urban form theory and specific studies on various settlement types, from neighborhoods to regions, and from historic villages to 21st-century mega cities.

Each year, ISUF promotes an international conference. The last ten editions took place in Porto, Rome, Nanjing, Valencia, Krasnoyarsk, Nicosia, Salt Lake City, Glasgow, Lodz/Krakow, Belgrade, and São Paulo. Each of these events has significantly contributed to the development of Urban Morphology as a discipline.

Transitional Morphologies Research Center at DAD/PoliTo

The Transitional Morphologies (TransMo) Research Centre focuses on observing and studying the dynamics of urban space transformation over time, addressing both retrospective and planning perspectives. In studies of urban form, the Anglo-Saxon geographical and Italian typological approaches recognize the morphogenesis (the process of development) of a settlement as the foundational step toward creating new management models, descriptive frameworks, and design experimentation.

Building upon the tradition of Italian morphological studies developed after World War II, the research on urban transitional morphologies was initiated at Politecnico di Torino by Augusto Cavallari Murat in the late 1960s. This work has continued with contributions from numerous Italian and international scholars from the 1980s through the first decade of the 21st century. TransMo organizes annual workshops, design studios, publications, and seminars at Politecnico di Torino as well as at other national and international academic institutions.

A particular emphasis is placed on collaboration with the Chinese branch of the Transitional Morphologies Joint Research Unit (JRU), established in 2018 between Politecnico di Torino and Southeast University in Nanjing. This collaboration, directed by Bao Li and Marco Trisciuoglio, focuses on developing new tools for urban regeneration in Chinese cities.

In Spring 2025, Southeast University in Nanjing will host a Preparatory Seminar in anticipation of the ISUF Conference scheduled for June in Torino.

Conference logo ISUF 2025

The conference logo combines tradition and innovation. It features a map of Torino by Girolamo Righettino from 1583, depicting the city's original square layout from the Roman era as it transitioned to the Baroque urban form. Superimposed on this map is the design from the cover of the 1967 Portsmouth Symposium proceedings on Design Methods in Architecture, edited by Geoffrey Broadbent and Anthony Ward in 1969 for the Architectural Association in London, but altered to reflect Torino's traditional colors of blue and gold. The logo is intended to evoke the square logo of ISUF. Additionally, the square motif was chosen by designer Bruno Munari for the Nuovo Politecnico book series by the Torino publishing company Einaudi, where Walter Benjamin's book "The Work of Art in the Age of Mechanical Reproduction" (originally published in 1935) was released in Italian in 1967. The contents of that book served as an inspiration for the contents (and the title) of ISUF 2025 conference: "Urban Morphology in the Age of Artificial Intelligence".

Program

17th - 20th June

Monday | June 16th

3:30-4:00 pm	ISUF Council Welcome
4:00-7:00 pm	ISUF Council Meeting
7:00-7:30 pm	GRAPH THEORY DIAGRAM *Exhibition opening*

Tuesday | June 17th

8:00 am	Registrations
09:00-9:30 am	Addresses *Politecnico di Torino (Stefano Sacchi, Vice Rector for Society and Public Engagement, Community and Rector's Program Implementation)* *Torino Municipality (Chiara Foglietta, Councilor for ecological and digital transition, environment, mobility, transport and innovation)* *DAD Department of Architecture and Design at PoliTo (Michele Bonino, Director)* *Vítor Oliveira (President of ISUF, International Seminar on Urban Form)* Salone D'Onore
09:30-10:30 am	KEYNOTE SPEECH #1 *Attilio Petruccioli* The typo-morphological approach in the age of Artificial Intelligence Salone d'Onore
10:30-11:00 am	Coffee break Sala delle Colonne
11:00-12:00 am	Dialogue/interview *Barbara Caputo* (Artificial Intelligence Machine Learning) *Meta Berghauser Pont* (Spatial Morphology Group) News from the Future. Artificial Intelligence in the Age of Urban Form Salone d'Onore
12:00-1:00 pm	KEYNOTE SPEECH #2 *Marco Trisciuoglio* Urban Form and Architecture in Torino. The Chessboard as a Matrix of a Transitional Morphology Salone d'Onore
1:00-2:00 pm	Lunch break Sala delle Colonne

2:00-4:00 pm **Parallel Session A**

MAP A.1
Chaired by: Martin Fleischmann
Room 3V

SHP A.2
Chaired by: Nicola Marzot
Room 4V

ENV A.3
Chaired by Marco Maretto
Room 5V

AI A.4
Chaired by Tolga Ünlü
Room 6V

4:00-4:30 pm Coffee break
Sala delle Colonne

4:30 - 6:30 pm **Parallel Session B**

MAP B.1
Chaired by Ilaria Geddes
Room 3V

SHP B.2
Chaired by Alessandro Venerandi
Room 4V

ENV B.3
Chaired by Alessandro Camiz
Room 5V

AI B.4
Chaired by Nadia Charalambous
Room 6V

6:30-7:30 pm *Anne Vernez Moudon (1945 -2025). A Tribute*

Wednesday | June 18th

8:00 am — Registrations

8:30 - 10:30 am — Parallel Session C

MAP C.1
Chaired by Nicola Marzot
Room 3V

SHP C.2
Chaired by Marco Maretto
Room 4V

ENV C.3
Chaired by Sergio Porta
Room 5V

AI C.4
Chaired by Santiago Gomes
Room 6V

10:30-11:00 am — Coffee break
Sala delle Colonne

11:00 - 1:00 pm — Parallel Session D

MAP D.1
Chaired by Liu Cui
Room 3V

SHP D.2
Chaired by Alessandro Araldi
Room 4V

ENV D.3
Chaired by Conrad Kickert
Room 5V

AI D.4
Chaired by Todor Stojanovski
Room 6V

1:00-2:00 pm — Lunch break
Sala delle Colonne

2:00 - 4:00 pm **Parallel Session E**

MAP E.1
Chaired by Muzaffer Ali Arat
Room 3V

SHP E.2
Chaired by Alessandro Cece
Room 4V

ENV E.3
Chaired by Mirko Guaralda
Room 5V

MAP E.4
Chaired by Roberto Podda
Room 6V

4:00-4:30 pm Coffee break
Sala delle Colonne

4:30 - 6:30 pm **Parallel Session F**

MAP F.1
Chaired by Martina Crapolicchio
Room 3V

SHP F.2
Chaired by Tolga Ünlü
Room 4V

ENV F.3
Chaired by Ilaria Geddes
Room 5V

MAP F.4
Chaired by Ana Ricchiardi
Room 6V

6:30-7:30 pm *ISUF Regional Network Meeting*

Thursday | June 19th

8:00 am — Registrations

8:30 - 10:30 am — **Parallel Session G**

MAP G.1
Chaired by Didem Turk Grigoletto
Room 3V

SHP G.2
Chaired by Teresa Marat-Mendes
Room 4V

MAP G.3
Chaired by Li Bao
Room 5V

MAP G.4
Chaired by Rossella Gugliotta
Room 6V

10:30-11:00 am — Coffee break
Sala delle Colonne

11:00 - 1:00 pm — **Parallel Session H**

MAP H.1
Chaired by Li Bao
Room 3V

MAP H.2
Chaired by Santiago Gomes
Room 4V

MAP H.3
Chaired by Martin Fleischmann
Room 5V

MAP H.4
Chaired by Nadia Charalambous
Room 6V

1:00-2:00 am — Lunch break
Sala delle Colonne

2:00 - 4:00 pm **Parallel Session I**

MAP I.1
Chaired by Alessandro Venerandi
Room 3V

MAP I.2
Chaired by Ana Ricchiardi
Room 4V

MAP I.3
Chaired by Muzaffer Ali Arat
Room 5V

MAP I.4
Chaired by Paolo Carlotti
Room 6V

4:00-4:30 pm **Coffee break**
Sala delle Colonne

4:30-5:30 pm ***Urban Morphology &* common *engagement***

5:30-8:0 pm **Free Morphologic Walking Tour in Torino**

Friday | June 20th

08:30-9:30 am	KEYNOTE SPEECH **#3 *Tolga Ünlü*** *The Conzenian approach in the Age of Artificial Intelligence* Salone d'Onore
09:30-10:30 am	KEYNOTE SPEECH **#4 *Lars Marcus*** *Contributions to a Theory of Land* Salone d'Onore
10:30-11:00 am	Coffee break Sala delle Colonne
11:00:12:00 am	Land & AI @ Politecnico di Torino Dive Deep coordinated by Fabrizio Lamberti (GRAINS – GRaphics And INtelligent Systems group) and Piero Boccardo (Urban Lab Torino)
12:00-12:30 am	The Jeremy Whitehand Legacy Susan Whitehand interviewed by Nicola Marzot (ISUF Italy)
12:30-1:00 pm	**Concluding Session** Conclusions by Tolga Ünlü (Secretary General of ISUF, International Seminar on Urban Form)

Venue
Valentino Castle

In the green heart of the 19th century park of Torino, the Valentino Castle had various uses over the centuries before being taken over by the School of Architecture at Politecnico di Torino.

In the 1500s it was a riverside residence located out of town, and its period of maximum splendour was under Christine of France, the first regent in the Savoy Duchy, who chose it to be the palace of entertainment, extending it according to French tastes and promoting the rich decoration of the rooms on the piano nobile.

After her death, the parties that the Madame Royale enjoyed organising were no more, and just a few decades later one of the side gardens was turned into the Botanical Gardens for the University, which can still be visited.

During the 19th century, the castle was radically altered due to the Exposition of 1858 initiated by the the Prime Minister Camillo Cavour.

Event
ISUF 2025 initiatives in the plenary sessions

News from the Future. Artificial Intelligence in the Age of Urban Form

Dialogue/interview with Barbara Caputo (Artificial Intelligence Machine Learning) and Meta Berghauser Pont (Spatial Morphology Group)

In a dual interview led by the technical-scientific journalist Bruno Ruffilli, BARBARA CAPUTO (President of Focoos AI, Torino) and META BERGHAUSER-PONT (Director of the Spatial Morphology Group, Gothenburg) will discuss the potential intersections between "the paradigms and challenges of the age of artificial intelligence" (Barbara) and "the prospects opened by technological innovation for the study of urban form, balancing quantity and quality" (Meta).

The session aims to foster an open (rather than closed) discussion about AI and its societal impacts, particularly in the context of digital-supported urban morphology. Topics will include the role of prompting and data in AI, the application of machine learning in protocols and image recognition, mapping practices involving social, economic, and ecological factors, and the future of generative AI and its potential as a design tool at the urban and territorial scales.

The Jeremy Whitehand Legacy

Susan Whitehand (Former member of Urban Morphology Research Group, University of Birmingham) interviewed by Nicola Marzot (ISUF Italy)

"The former stem from my first meeting with Jeremy at the conference organized by Sylvain Malfroy at the EPFL in 1996, which marked the beginning of a relationship of exchange that has been fundamental to my training as a young researcher. That meeting, incidentally, was facilitated by Gian Luigi Maffei, whom I had met a few months earlier, after finishing my university studies, to ask for advice on my future! The latter can be traced back to the conference in Birmingham, which established the association, where I began my comparative analysis of the Italian and Anglo-Saxon schools, in the presence of M.R.G. Conzen, who still has many interests today.

Talking with SUSAN WHITEHAND will be a great opportunity to reflect together on the relationship between the tradition of morphological studies and technological innovation, in the spirit of the conference, together with friends and researchers in a transgenerational context".

Nicola Marzot, note, April 2025.

Land & AI @ Politecnico di Torino

Dive Deep coordinated by Fabrizio Lamberti (GRAINS – GRaphics And INtelligent Systems group) and Piero Boccardo (Urban Lab Torino)

It is now undeniable that analysis, mapping, and prefiguration systems of human settlement forms cannot avoid incorporating machine learning practices (for example, in image recognition), interpretive/predictive models based on evolutionary neural networks inspired by human intelligence, increasingly sophisticated systems of generative design, possibly based on data collection and what is called Evidence-Based Design. Starting from 2026, Politecnico di Torino will offer multidisciplinary micro-programs that can be linked to various master's degrees. Why not develop an AI APPLIED STUDIES IN URBAN MORPHOLOGY program? The Dive Deep initiative, coordinated by FABRIZIO LAMBERTI (GRAINS – Graphics And Intelligent Systems group) and PIERO BOCCARDO (Urban Lab Torino), asked researchers' teams working at Politecnico di Torino to create an initial agenda.

Event
ISUF 2025
evening initiatives

Anne Vernez Moudon (1945-2025) A Tribute

Vítor Oliveira (ISUF International President)

Anne Vernez Moudon (Yverdon-les-Bains, 1945 – Paris, 2025) played a key role in bringing together the founding members of ISUF in the first meetings in Lausanne in the mid-1990s. She served as ISUF's president, leading the organization through its formative first decade. Since then, Anne remained a leading figure in the field of urban morphology, exploring the physical forms of settlements, how they evolve over time and at different scales, and how they relate to other dimensions of life.

Ayşe Sema Kubat, Attilio Petruccioli, Ivor Samuels, Paul Sanders and Neris Parlak reminded us of Anne, her foundational work, and the legacy she left for future generations of urban morphologists.

ISUF Regional Networks Meeting

Giuseppe Strappa (ISUF Regional Networks Coordinator)

"For ISUF Torino 2025, a round table of the Regional Networks was organized on the topic of the specificities of the studies in the different associations. This topic is very significant as it explains the very meaning of the existence of local networks.

It is noteworthy to note, in this regard, how the geographical areas of almost all the new associations proposed do not coincide with national states. The North American network actually includes the USA, Canada, Quebec, Mexico. The South Southern Africa network is currently represented by members from South Africa and Botswana, but future co-operation will also include neighbouring and small countries of the region such as Swaziland, Lesotho, Namibia, Zimbabwe and Mozambique (even if already represented by the PNUM network). The Oceania Network of Urban Morphology includes Australia and New Zealand. The ANUM Arab Network of Urban Morphology will include a large number of countries in Africa and the Arabian Peninsula.

These associations in formation confirm the formation of new cultural areas that do not coincide with geographical borders".

From the ANNUAL REPORT ON ISUF REGIONAL NETWORK ACTIVITIES – 2025 by Giuseppe Strappa (ISUF Regional Networks Coordinator).

Urban Morphology & Common Engagement

Martina Crapolicchio (Transitional Morphologies Research Center, Politecnico di Torino)

How can spatial form become an active interface for inclusive and sustainable urban transitions? What is the role of urban morphology at the intersection of agency and collective engagement?

Various existing case studies, supported by different methodological approaches, demonstrate how urban form analysis and design can influence civic interaction, as well as how it is shaped by it. From the 15-minute city to Positive Energy Districts (PEDs), and from participatory planning in Cyprus to heritage regeneration in China, it is possible to identify the morphological conditions that enable co-production, participation, and transition. This highlights the potential for dialogue on shared challenges and opportunities at the intersection of urban form and collective engagement practices.

Initiative by MARTINA CRAPOLICCHIO (The Transitional Morphologies TransMo Research Center for the Public Engagement Mission at the Department of Architecture and Design DAD at Politecnico di Torino), moderator NICOLA MARZOT (ISUF Italy).

Event
Exhibition

The GRAPH THEORY DIAGRAM

Curated by ROSSELLA GUGLIOTTA (Transitional Morphologies TransMo Research Center at the Department of Architecture and Design DAD at Politecnico di Torino), with the contribution of XIAO XIAO (Transitional Morphologies TransMo Research Center) and the support of Enrica Bodrato (Biblioteca Mosca, Department of Infrastructure and DISEG at POlitecnico di Torino).

The GRAPH THEORY DIAGRAM exhibition revisits Cavallari Murat's studies on the European city between the 42° and 47° parallels north, with a particular focus on Turin. His work aimed to identify the underlying rules of urban form, developing a methodology for reading the city based on graph theory. The exhibition encourages a renewed dialogue between Italian morphological thinking and current computational approaches. Decades before the formal development of space syntax (Hillier and Hanson, 1984), Cavallari Murat's work anticipated the need to move from descriptive accounts of urban form to abstract models capturing spatial logic and connectivity. Building on Cavallari Murat's legacy, the exhibition presents the research by the Transitional Morphologies Joint Research Unit, extending the scope of investigation to the 32°parallel north. His legacy serves as a tool not only to interpret the past but also to understand urban transitions over time.

Event
Symposium

Urban morphology in the Age of Artificial Intelligence Nanjing Symposium

Bao Li (Southeast University) and Marco Trisciuoglio (Politecnico di Torino)

URBAN MORPHOLOGY IN THE AGE OF ARTIFICIAL INTELLIGENCE NANJING SYMPOSIUM was held in Nanjing from March 28th to 30th as the opportunity to discuss the tradition and the new frontiers of URBAN MORPHOLOGY IN THE AGE OF ARTIFICIAL INTELLIGENCE. Chinese and European scholars debated, in front of colleagues, PhD candidates and some selected master students, relevant topics of nowadays as the digital transition in urban form studies, the EBD (Evidence Based Design) approach for sustainable cities, the possible development of Space Syntax tools, the role of generative and parametric design in urban regeneration processes.

The organizers of the Nanjing Symposium, Bao Li and Marco Trisciuoglio, have decided to dedicate the three days in Nanjing to an important common reflection, capable of laying the critical foundations for the discussion on the theme of the relationships between urban morphology and intelligence, in preparation not only for the ISUF conference in Turin, but for the years to come. From this point of view, the outcomes of the meeting were, according to all the participants, excellent.

Keynote Speakers

Attilio Petruccioli

The typo-morphological approach in the age of Artificial Intelligence

Attilio Petruccioli, an architect, is a founding member of ISUF International (1994), alongside Giancarlo Cataldi and Gian Luigi Maffei. He organized two ISUF International conferences in Italy: ISUF 2002 in Cernobbio on Gianfranco Caniggia's work and ISUF 2003 about The Planned City? in Trani. Since 2004, he has been a Member of Honour of INTBAU, an association initiated by the Prince of Wales Foundation, and is also an expert for ICOMOS/UNESCO.

From 1994 to 1998, he was the Aga Khan Professor of Design for Islamic Societies at the Aga Khan Program for Islamic Architecture at MIT. Between 2003 and 2012, he served as the first Dean of the Faculty of Architecture at Politecnico di Bari, then as Chair of the Department of Civil Engineering and Architecture, and eventually as Director of the PhD Program in Architectural Design for Mediterranean Countries. During those years, he transformed a small institution in Southern Italy into one of the leading international research centers for traditional urban environments and the application of modern information technologies to their physical restoration and social revitalization. In 2012-2013, he was the Msheireb Property Chair at Qatar University. Subsequently, he worked on several urban design projects for the Addiriya Development Agency and the Royal House in Riyadh and Jeddah.

As a result of his lifelong interest, he has authored and edited numerous books on architectural design and the history of Islamic architecture. His research interests include the methodology of design (landscape and contextual design, typological research, and the work of modern architects), traditional settlements and housing, Islamic architecture, town and territory, and Mediterranean landscape architecture. He is the Director of the Bibliotheca Orientalis and the Islamic Environmental Design Research Centre in Trani. His seminal work, After Amnesia: Learning from the Islamic Mediterranean Urban Fabric (2007), has been translated into Turkish and recently into Arabic.

Marco Trisciuoglio

Urban Form and Architecture in Turin. The Chessboard as a Matrix of a Transitional Morphology

Marco Trisciuoglio, an architect, is Co-Director of the Joint Research Unit Transitional Morphologies (TransMo), established in 2018 between Politecnico di Torino, Italy, and Southeast University in Nanjing, China. He is a Professor of Architectural and Urban Design at Politecnico di Torino, Department of Architecture and Design, where he served as Director of the PhD Program in Architecture, History, and Projects for the last 6 years. He teaches Urban Morphology in design studios and theoretical courses. He is also a Professor at the Architecture Internationalization Demonstration School at Southeast University, Nanjing, China, where he has worked for over 10 years on the design studio for Urban Morphology, architectural typology, and contemporary settlement patterns, applying the typo-morphological approach to urban regeneration projects in Nanjing.

With a background in cultural anthropology, through his Master in Architecture and PhD in Methodology of Architectural Design, his research explores the idea of the city as a collective architecture and as a collective construction, of buildings, spaces, and symbols, within the context of Italian cultural legacy. He has spent the last decade studying the morphology of human settlements in urban and rural China. His main research interests focus on the links between tectonics, typology, and topography, themes of his key publications: Scatola di Montaggio (2008, Chinese edition 2015), Typological Permanencies and Urban Permutations (with Bao Li et al., 2017), and L'architetto nel paesaggio. Per un'archeologia dell'idea di paesaggio (2018, 2025, English edition in preparation).

Tolga Ünlü

The Conzenian approach in the Age of Artificial Intelligence

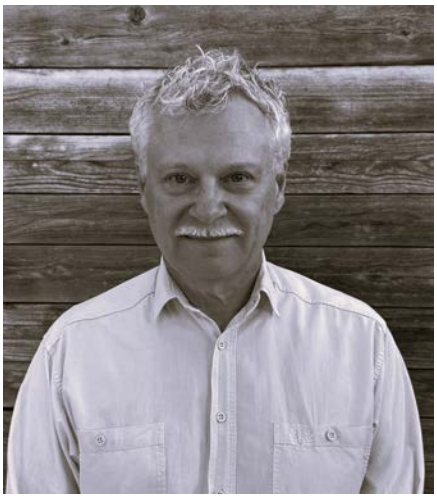
Tolga Ünlü has served as ISUF Secretary General since 2021. He has been a member of both the Urban Morphology Research Group since 2012 and the International Seminar on Urban Form (ISUF) since 2009. He played a founding role in establishing the Turkish Network of Urban Morphology in 2014.

Since 2020, he has been a Professor of Urban Morphology and Planning at the Department of City and Regional Planning, Çukurova University, Adana, Turkey.

Prior to this, he held various roles at the Department of City and Regional Planning at Mersin University from 2006 to 2020, after earning his bachelor's, master's, and PhD degrees from the Department of City and Regional Planning at Middle East Technical University (METU).

His research focuses on urban morphology, urban design, and planning practices, particularly concerning urban growth, fringe belt development, and the relationship between research and practice in urban morphology and planning. He has authored articles and book chapters on the physical development and planning history of Turkish cities, as well as their morphological transformations.

Lars Marcus
Contributions to a Theory of Land



Lars Marcus, an architect, is a founding member of the Spatial Morphology Group (SMoG) at Chalmers University of Technology in Gothenburg, Sweden, where he is a Professor of Urban Design. He previously held a professorship at the KTH Royal Institute of Technology and is currently a Fellow of the Royal Swedish Academy of Engineering Sciences. He is also the founder and partner of Spacescape, a consultancy firm specializing in spatial analysis, design support, and policy development for architectural and urban projects involving architects, municipalities, and real estate companies. He has pioneered research-based architectural services and was among the first to introduce the Space Syntax research approach in Sweden.

For the past 25 years, he has conducted research on how the built environment, regarded as spatial capital, shapes and influences everyday life in cities and urban systems more broadly. Over the long term, this contributes to fundamental societal issues such as social integration, local markets, and ecosystem services. He argues that urban morphology functions as a form of technology within urban design, supporting and guiding nearly all human activity.

In 2025, he published his groundbreaking book Measures and Meanings of Spatial Capital: Contributions to a Theory of Land, emphasizing that spatial form is essential for building resilience into highly complex urban systems (MIT Press).

XXXII - International Seminar on Urban Form