University of Groningen

Departure to New Worlds

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# DEPARTURE FOR NEW WORLDS

SimLab

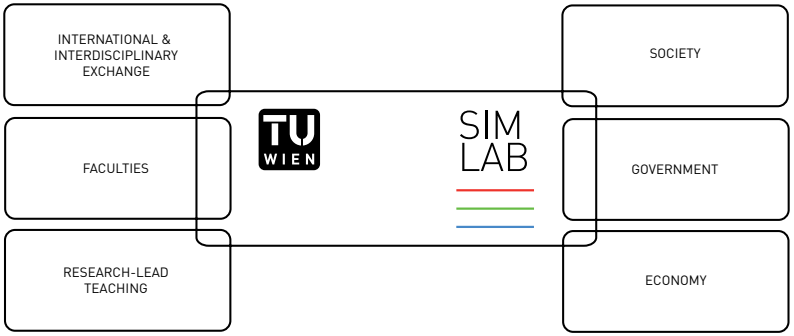
*departure to new worlds*

THE NEV
OF CITIE

Salvatore Adorno
La produzione
di uno spazio urbano
Siracusa tra Ottocento e Novecento

# SIM LAB

ANDREAS VOIGT (HEAD OF SimLab) AND CLAUDIA YAMU (GUEST PROFESSOR)




We are an interdisciplinary research centre for spatial simulation and modelling located at Vienna University of Technology concerned with geospatial methods and other digital technologies for space and the built environment incorporating computer-based visualization and modeling as substantial resources for planning and design processes. A key feature of the centre is the spatial simulation lab [SimLab] – a 3D virtual reality (VR) environment.

It is two factors that make 3D models and their presentation in a VR environment attractive to work with. First, the transparency of data and the awareness-raising process induced by the multi-scale variety of viewpoints; secondly, a database query. The added value of spatial simulation and modeling is a new dynamic in discussions and collaborative urban design processes.

*http://simlab.tuwien.ac.at*

TU WIEN
raum simlab
Vienna University of Technology
Department of Spatial Planning
Interdiciplinary Centre for Spatial Simulation and Modelling

**PROF. DR. JOHANNES FRÖHLICH**
Vice Rector for Research, TU Wien

*Technische Universität Wien* seeks to forge collaborations in academic study and research at all levels promoting such projects in the context of its profile-raising activities with the aim of further developing cooperation both inside and outside the university, i.e. between the faculties, with other research institutions, with business and the public sector. A particular focus is on building international networks of academics and researchers. This requires, inter alia, platforms for inter-university cooperation like the established *International Lecture Series* at the *Interdisciplinary Research Centre for Simulation and Modelling (SimLab)*, since it is these that provide a framework for international and interdisciplinary exchange at the highest level; without them such an exchange would be impossible.

With its research projects on energy-conscious urban and regional development and development of digital analysis methods for spatial planning and architecture, the *SimLab,* with its VR (Virtual Reality) simulation environment as the central technical infrastructure, pursues an interdisciplinary approach in line with the research focal areas of *TU Wien* and is hence concerned with scientific, economic and societal issues that are of local and global importance for the future.

The ongoing, and extremely successful, *International Doctoral College Spatial Research Lab* in collaboration with such prestigious partner universities *HafenCity University Hamburg (HCU), Karlsruhe Institute of Technology (KIT), ETH Zürich, the University of Stuttgart* and *TU München* – now already in its second cycle – can be highlighted as a flagship example of these efforts to develop research-led teaching in the context of creative academic work.

The *SimLab* at *TU Wien* is not only a cross-faculty simulation laboratory for visualization, simulation and modeling in (inter)national research projects but it also provides a platform for making complex issues and subject matter accessible to a wider audience – exactly in the sense and in the spirit of our mission statement, „Technology for People".

**PROF. DR. MICHAEL GETZNER**
Head of Department of Spatial Planning, TU Wien

Simulation and modeling in the field of spatial planning are key activities of the *Spatial Simulation Lab,* an interdisciplinary research centre, a part of our *Department of Spatial Planning* that plays an important role in research and teaching. The representation of spaces in 3D gives rise to many and diverse new findings, notably with regard to how spaces are perceived and in the assessment and evaluation of different projects, e.g. in the field of urban development.

Recently, a new publication of the *SimLab* has broadened the scope of applications to the economic valuation of environmental (dis-)amenities in the fields of changes of landscapes and the perception of noise pollution of air traffic – both by presenting participants in laboratory experiments with visualized scenarios.

Not only does the lab serve the interests of research it also offers new perspectives for presenting and conveying spaces as well as spatial relationships to both specialist audiences and laypeople alike. Though incredibly simple on the surface, complex mathematical models and an array of different technologies are hidden in the background.

The technical equipment is one aspect of the lab. However, a large part of its success is due to the departmental staff that has brought our lab to international standards enabling it to perform on the international stage. The published activity report is a document of its many and various exemplary successes in research, planning, and teaching. It is thus not surprising that the former Head of *SimLab, Claudia Yamu,* was appointed Associate Professor and the prestigious *Rosalind Franklin Fellowship* at the *University of Groningen* (The Netherlands) in 2015; moreover she has recently been awarded the internationally renowned *Michael Breheny Prize* for the "most innovative paper" appearing in *Environment and Planning B: Planning and Design*.

For the *Department of Spatial Planning,* the existence of the lab is both a distinction and an essential future perspective which is impera-

tive for us to preserve and, it goes without saying, expand further. On behalf of the *Department of Spatial Planning* I would above all like to thank *Andreas Voigt, Fabian Dembski, Julia Forster* and former Head *Claudia Yamu* for the design and development of our spatial simulation lab and for their untiring commitment.

LONDON, LAMBETH PALACE RD.

# CONTENTS


| | |
|---|---|
| Shaping Knowledge | 12 |
| Simply Complexity | 19 |
| Planning in the Limelight of an Unpredictable Future | 22 |
| Energy & Environment | 27 |
| Energy Conscious Urban Inward Development | 30 |
| Urban Energy & Mobility Systems | 34 |
| Civic Engagement Communications | 38 |
| SimLab's Research Foci | 40 |
| Teaching and Workshop Portfolio | 50 |
| Youth Lab | 54 |
| International Lecture Series | 56 |
| Service Offer | 58 |
| Partners & Friends | 60 |

The common denominator of all spatial planning processes are concrete, socially relevant questions relating to the real world. These questions are either issues that have already been solved, and which can be subjected to a routine review, or open problems which need to be solved in the first place.

# SHAPING KNOWLEDGE

LONDON, QUEEN ELIZABETH HALL

# THINK SMART

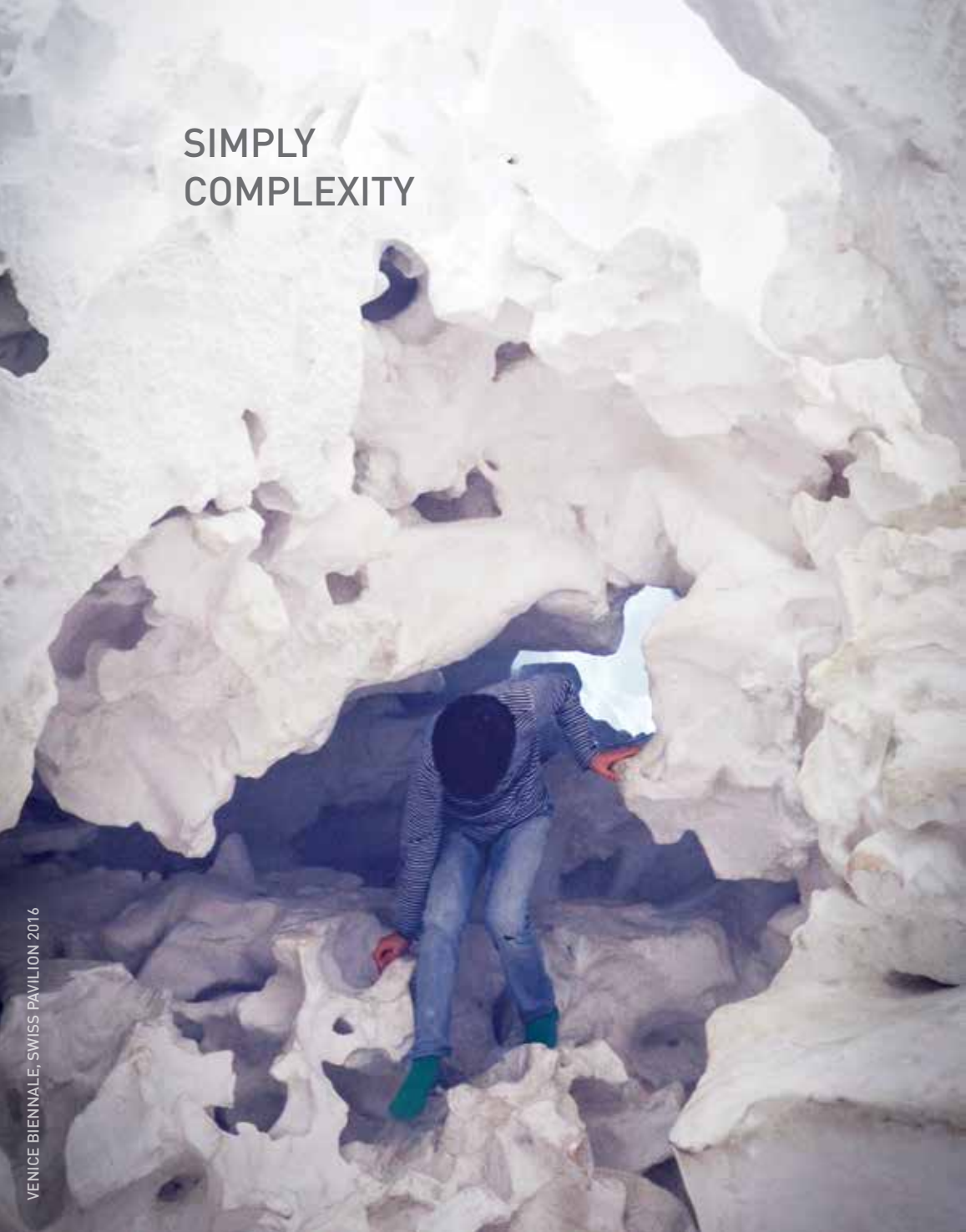
MAXIMILIAN TOBISCH AT THE SimLab

# MULTISCALARITY & SUSTAINABILITY

YBBSITZ, AUSTRIA

PARIS, BOULEVARD PÉRIPHÉRIQUE

# SIMPLY COMPLEXITY



VENICE BIENNALE, SWISS PAVILION 2016

Batty (2013:7) points out that cities are in the process of becoming ever more complex. Evolving systems, such as cities, are complex systems, and thus in urban planning we are confronted with the fact of a large number of components and their reciprocal influence (Miller, Page 2007). In general, all aspects of planning (from theory to practice) are permeated by the notion of complexity, because the "real world" is imbued with complexity.

Cities are a good example of complex systems that change over time in a structural and functional sense, and therefore involve adaptive behaviour. The understanding of an environment built in a complex way and spatial development has a direct impact on modeling and simulation in order to support decision-making and further planning processes.

Batty, M. (2013): *The New Science Of Cities.* Cambridge, MA: The MIT Press.
Miller, J. H.; Page, S. E. (2007): *Complex Adaptive Systems: An introduction in computational models of social life.* New Jersey: Princeton University Press.

# URBAN DYNAMICS

LONDON, LIVERPOOL STREET STATION

# PLANNING IN THE LIMELIGHT OF AN UNPREDICTABLE FUTURE

VIENNA, HENRIETTENPLATZ

In accordance with the line of thought of Scholl (2005), we create planning strategies which act as guidelines into the future. Obviously, imagined futures are helpful in debating the decisions and choices to be made. However, imagining futures by extrapolating facts from the past and the here and now does have is limited. Thinking along linear Newtonian cause-effect lines seems dubious from the perspective of a world considered to be in continuous change.

The Newtonian worldview has been favoured in spatial planning for a long time. This technical paradigm addresses the idea of a factual reality, a certainty within the reach and a linear route into the future. Apart from a factual reality, an agreed reality is also considered to respond to the built environment. However, we have to be aware that the only constant factor is probably discontinuous change. Kropf (2001) notes that urban form and the social and economic life of cities are best apprehended by descriptions of inter-alia transformation, cycles, growth and decay, catastrophes, shifting centres of activity, dynamics and influence.

This is reminiscent of an evolutionary perspective. It relates to complex adaptive systems (CAS) (Gell-Mann, 1994; Holland, 1992; Solvit, 2012), which define spatial systems on the basis of internal interactions between dynamics and robustness while interacting and floating in an external environment between order (uniformity) and chaos (diversity). This idea

of CAS introduces notions such as dynamics, self-organisation, emergence and adaptivity, which are all relevant with regard to evolving space, complexity and planning. The notions are somewhat counter-intuitive to traditional planners, since they are accustomed to the dominance of linearity and functionality.

Cities are a good example of CASs changing over time in structural and functional senses. CASs have the potential to co-evolve during a transition process. With co-evolution, the system undergoing a transition could fundamentally undergo a transformation in terms of its structure (in the case of Bènard conventions cells or lasers). This co-evolution is the result of the system adapting to a new context, with a better fit between the system and its environment. During the process of co-evolution, stability decreases while the system's dynamics increases again.

In evolutionary systems we find both a slow deformation and a sudden metamorphosis changing the underlying structure and pattern of a system. For example, many changes in urban evolution have been conditioned by technical innovation and fundamental societal changes. The agricultural and industrial revolution profoundly altered how society and the economy work changing urban systems fundamentally within a few decades.

In this line of thought planning has to be responsive to a world being adaptive, as proposed by complexity studies. Non-linearity tackles urban situations as something stable at a particular moment while they can become unstable at the very next moment, and vice versa This occurs because, for example, contextual driving forces (in society these could be riots or an economic crash) emerge suddenly and the existing system is no longer properly connected (a good fit) to its changing context. In general, system changes refer to instabilities of a system triggered. Batty (2005) rightly points out that cities respond flexibly to external pressuring forces such as new technologies, economic change, changes in transport modes, and so on while responding to these changes from bottom up or from the 'inside out'. Moreover, each city contains several subsystems which we consider 'urban', too, influencing each other while coping with changes and undergoing transformation as a response to changes. What we observe are dynamic interactions within the urban and the rural at

various levels of scale and differently sized systems interacting with each other (city, town, village, hamlet). Our cities are becoming more and more complex (Batty, 2013).

What does this all mean for spatial planning? From the knowledge gained over the last decades and with the rise of computer technology we are enabled to incorporate complexity science into spatial planning. This will support to create meaningful guiding principles leading us into the future. We have to consider planning in the limelight of an unpredictable future (Popper, 1957).

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Holland J (1992) *Adaptation in Natural and Artificial Systems: An Introductory Analysis with Applications to Biology, Control, and Artificial Intelligence.* Cambridge, MA: MIT Press.
Kropf KS (2001) *Conceptions of change in the built environment.* Urban Morphology 5(1): 29–42.
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Solvit S (2012) *Dimensions of War: Understanding War as a Complex Adaptive System.* Paris: L'Harmattan.

Claudia Yamu
Associate Professor at University of Groningen / former Head of SimLab / Rosalind Franklin Fellow / Visiting Professor at SimLab (2015/16)

# ENERGY & ENVIRONMENT

PARIS, JARDIN DES GRANDS EXPLORATEURS

We are taking part in various scientific programs linked to strategic topics in the field of "Energy and Environment". Our success is based on our expertise, interdisciplinary teamwork with national and international institutions, faculties and universities and a strong focus on analysis and visualisation of complex correlations.

### City of the Future – Simultaneous Planning Environment for Building Clusters in Resilient, High Energy-Efficient Urban Quarters (SIMULTAN)

Previous scientific research projects have shown a high potential for essential efficiency arrangement within overlapping energy systems. Due to the negative response to passive houses already built and low-energy buildings there is an ever-increasing resistance to the use of innovative systems. Expectations of both developers and residents have been disappointed. In general, the difficulties arising at the planning and execution stage as well unexpected backlashes in energy-supply systems can be traced back to their very complexity and sophistication.The planning team for both high efficient building retrofits and generally new designs still lacks a tool which enables an integrated planning strategy and consistency within the scenarios for the development of an energy supply and demand system. Power supply companies lack a comprehensive and consistent planning tool for technological opportunities within the building sector by considering the general supply and demand behaviour forecast. This project proposes to use a systematic approach.

### Energy and Resource Awareness in Urban and Regional Development (EWARD)

The doctorate college is embedded in a broad range of initiatives at the Vienna University of Technology, as well as taking up the current scientific and public debate on transformation processes of European cities with respect to infill development, urban growth, spatial consolidation and shrinkage, competitiveness, cooperation, energy as well as resource demand (consumption) and supply (provision). *http://raum.tuwien.ac.at/eward/*

### Urban Energy and Mobility Systems (URBEM)

Vienna Public Utilities Company and the Vienna University of Technology have together instituted a Doctorate College called "Urban Energy and Mobility Systems" (URBEM-DK). The goal is the research into and development of scenarios leading to a "sustainable, supply-secure, affordable and liveable city", using the example of the city of Vienna with an integrated and inter-disciplinary approach (keyword "Smart City").
*http://urbem.tuwien.ac.at*

- Analysis of energy consumption and mobility behaviour of the population
- Optimised choice of transport in the urban area
- Sustainable methods of renovation of existing stock and construction of new buildings
- Thermal, natural and electrical energy systems for and in buildings
- Planning of ICT structures for control of urban energy supply
- Business and economic analysis and risk management of urban energy and mobility systems

Involvement of participants in planning and decision processes, etc., using virtual environments.

### Smart Cities with Sustainable Energy Systems (CI-NERGY)

The CI-NERGY Marie Curie Initial Training Network (ITN) will train young scientists to develop urban decision-making and urban energy system models that maximize energy efficiency and renewable energy integration toward a low carbon future. The ITN will be a highly multi-disciplinary coordinated PhD program focused on urban energy modeling aimed at addressing one of the most challenging and critical urban sustainability problems. The training will be structured to provide a balanced combination of theory and practical application. Thus, the ITN will be a collaborative group composed of six of the best academic research centres from Germany, France, Switzerland, United Kingdom, Irland, Italy, and Austria, and four of the leading energy and software technology companies in the industry (e.g. Siemens, WienEnergie, Électricité de France (EDF), and Integrated Environmental Solutions Ltd. (IES).

### Energy & Urban Space (ENUR)

This research project deals with energy demand, power requirements, energy consumer behaviour, energy concepts and projects as well as energy scenarios and planning instruments. The research focuses on the sustainable spatial and settlement development of Austrian cities in the context of energy supply and planning. *http://enur.project.tuwien.ac.at*

*For general information about TU Wien's activities in this field, please visit also the website of the Research Centre „Energy and Environment" http://energiewelten.tuwien.ac.at/home/EN/*

The effects of climate change through energy consumption and emissions on urban life can no longer be ignored.[1] Thus we are creating post-oil scenarios using Paris as a case study to simulate the transition from fossil fuels to renewable energy as well as reduction of path distances ("city of short distances") in order to find out more about how urban planning can influence developments incorporating the idea of reducing primary energy demand and emissions. These scenarios include the current urban development and master plans as well as detailed test planning for certain neighbourhoods.

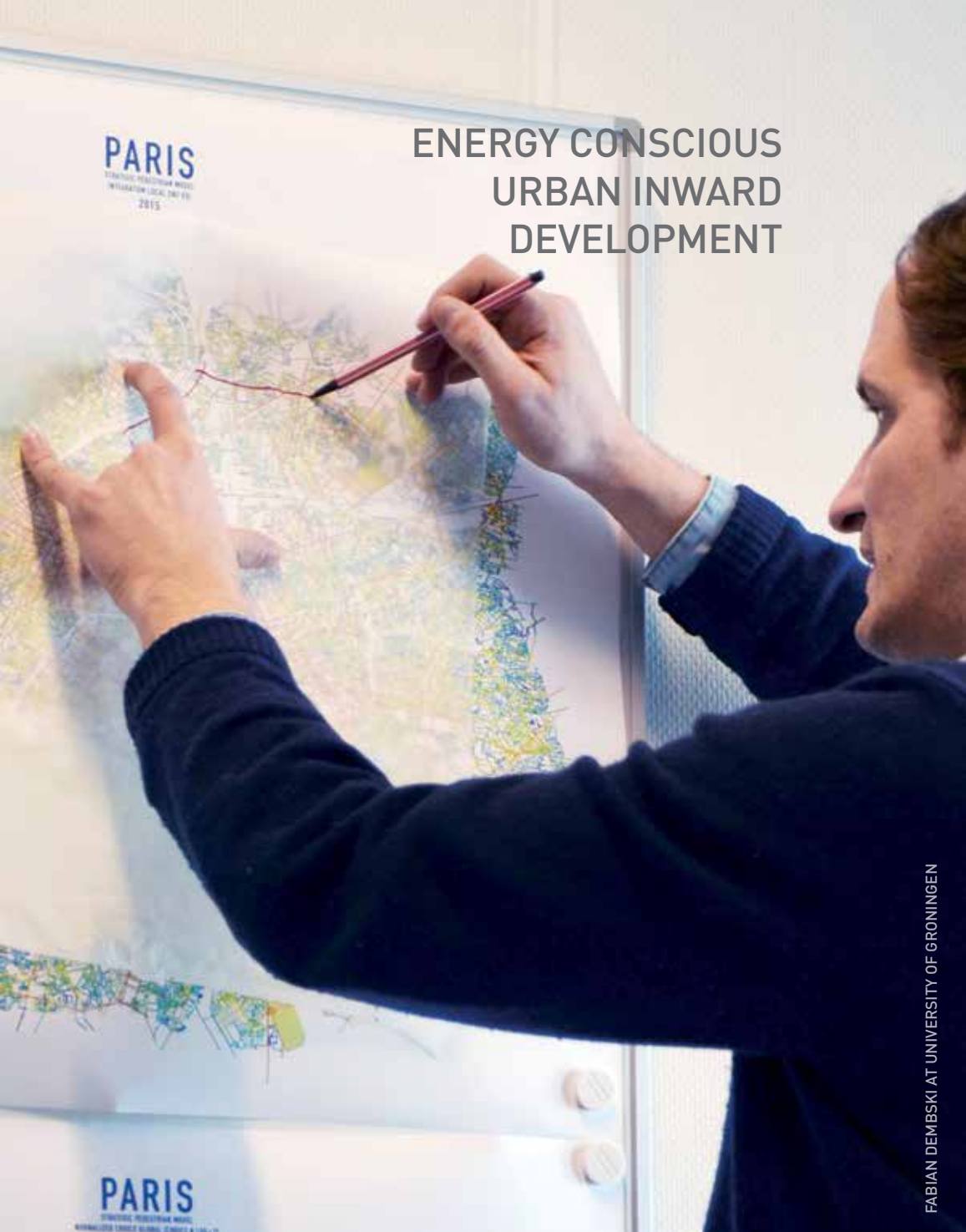
Based on these scenarios we analyse the effects of urban planning on energy and environment by developing a combination of methods for creating a decision and planning support tool.

Scales, accessibility and morphology are inextricably interwoven. Only a well-functioning system across scales can be highly efficient. Consequently, we offer a multi-scalar approach to the city using the method of the geometric street network modeling in combination with a lifecycle assessment method.

"Paris post-oil" is as much about the future as it is about the past. We analyse the urban fabric starting from the baroque grid via Haussmann's interventions to the implementation of high-ranked road networks installed for automobiles during the 20th century[2] in order to learn more about the potential of robust and adaptive patterns and how to use them for creating highly efficient, walkable neighbourhoods for future developments – in the sense that every vision of the future is based on a vision of the past.

Our scientific work aims at synthesizing future potential development scenarios for big cities based on the case study of Paris. This is directly linked to energy-conscious urban planning concepts: which places have the

# ENERGY CONSCIOUS URBAN INWARD DEVELOPMENT




FABIAN DEMBSKI AT UNIVERSITY OF GRONINGEN

potential for interventions and can we deal with existing urban structures being hierarchically ordered?

We are focusing on walkability and, inter alia, energy efficiency. Taking Paris as an example, we analyse how its urban system has evolved and which structures have remained most robust and have stood the test of time (shifting centres, connectivity, and accessibility).

Paris, intra muros, is the city with the highest density in Europe (21,289 citizens/km$^2$) and its metropolitan region *(unite urbaine)* is the second largest after London. Paris population is growing approx. 50,000 per year. Prognoses say that in 2050 it will reach 15 Million.[3]

There is almost no potential for urban infill development in the historical core (and the current city in the administrative sense). The surrounding urban structure (*banlieus,* i.e. suburbs) in the inner ring *(petite couronne)* is characterized by high-ranked street networks like motorways and railway structures. What is significant for the situation in Paris is the *Boulevard Périphérique* – the ring motorway, which was built in place of the city walls from the 1950's till the 70's. It is one of the most frequented streets in Europe[4] (1, 1 to 1, 2 million vehicles per day) and a major barrier between the city and its suburbs.

Our objective is to create a test scenario for potential urban infill developments based on the concept of emergence linked to walkability; post-oil strategies using the historical as well as the transformation potential of space-consuming structures in the centre of *Grand Paris* (the metropolitan region) designed by highway engineers[5] during the 20th century. On a local neighbourhood scale the method of test planning (Scholl)[6] will be applied. These very detailed urban scenarios can be extrapolated to other similar neighbourhoods and incorporated in the overall evaluation on a global scale (urban region).

For the creation of scenarios a detailed analysis of the status quo is essential. Thus we are analysing data provided (e.g. movement patterns, urban morphology, mobility and modal split, green space etc.) on the current status to preserve a multi-scalar approach.

In order to verify and compare the scenarios, different methodologies and special software will be applied: depthmapX (by Space Syntax) is a multi-platform software to perform different spatial network analyses. In

the research-models it will be applied on a citywide and neighbourhood scale. urban scale. GaBi (by thinkstep) will be applied to compare and forecast energy consumption in various scenarios.

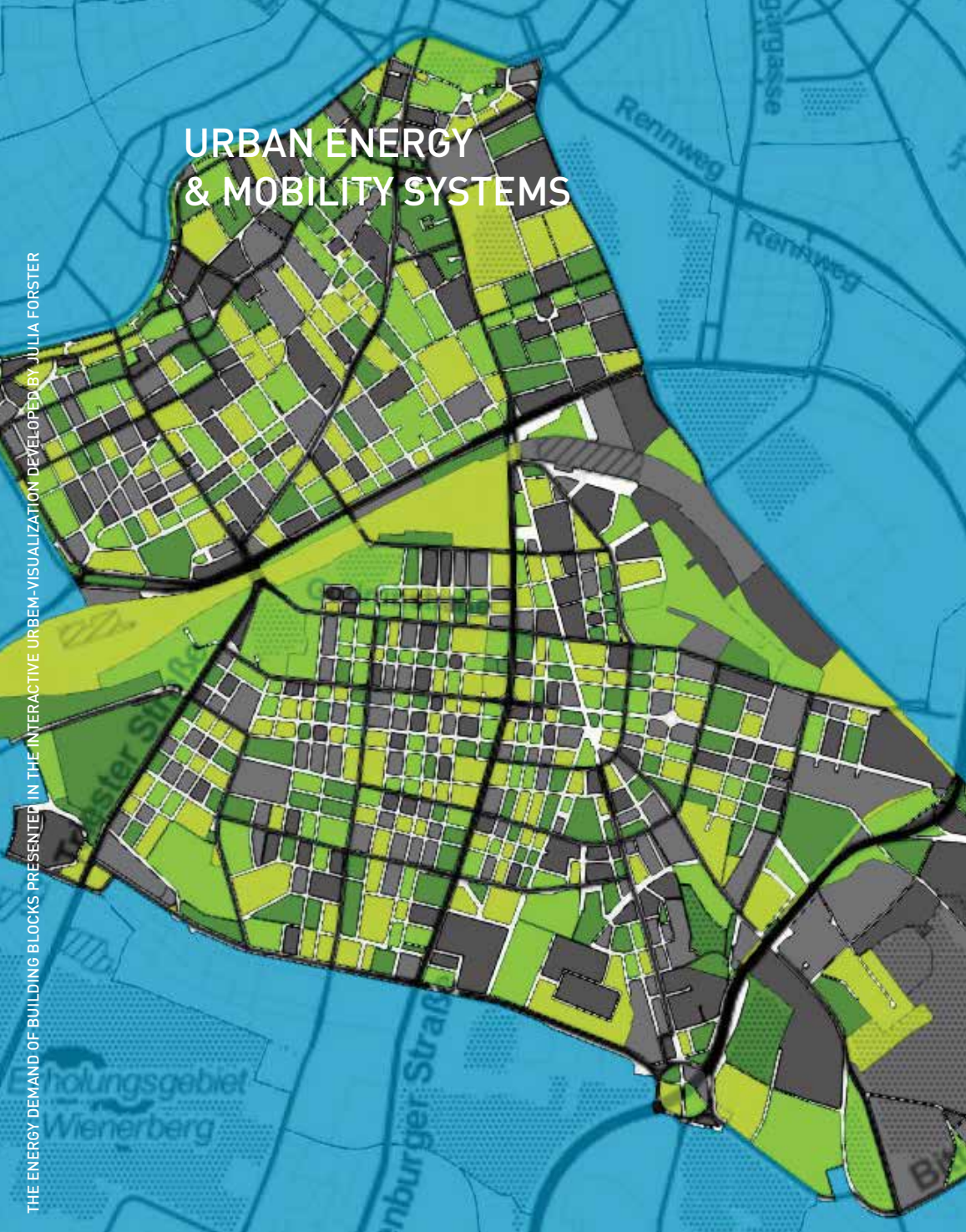
For the first time we link the GaBi database with the Space Syntax model database in order to investigate, verify and understand parameters concerning primary energy demand, $CO_2$ emissions, greenhouse effect potential, fine dust pollution, acidification potential, and POCP. As a result a decision and planning support tool is to be developed.

This PhD research is supervised by Prof. Andreas Voigt and part of the EWARD doctoral college (Energy and Resource Awareness in Urban and Regional Development) and is thematically closely connect not only to the members of the EWARD PhD college at TU Wien (Prof. Rudolf Giffinger) but also to UFR Géographie et Aménagement at Université Paris-Sorbonne IV, France (Prof. Anna Geppert) and the Faculty of Spatial Sciences at University of Groningen, the Netherlands (Prof. Claudia Yamu).

1 *UNFCCC Paris Agreement* (as contained in the report of the conference of the Parties on its twenty-first session, FCCC/CP/2015/10/Add. 1), pp. 4-12, 2015
2 Marshall Stephen: *Streets and Patterns.* Oxon and New York: Spon Press 2005, pp. 6-17
3 Alba, Dominique; Mancret-Taylor, Valérie et. al.: *Abécédaire de la future Métropole du Grand Paris,* Carnet 1: État des lieux thématique, 2014, p. 98
4 Passalacqua, Arnaud: *La Bataille de la Route,* Paris: Descartes & Cie, 2010, pp. 45-48
5 Marshall, Stephen: *Streets and Patterns.* Oxon and New York: Spon Press 2005, p. 28
6 http://www.sia.ch/fileadmin/TEC21_2010_29-30_Testplanungen_Scholl.pdf

**Fabian Dembski**
TU Wien, SimLab, Doctoral Program EWARD (Energy and Resource Awareness in Urban and Regional Development) / Research Program SIMULTAN (Simultaneous Planning Environment for Building Clusters in Resilient, High Energy-Efficient Urban Quarters) / Lecturer
Visiting Researcher at University of Groningen and Université Paris-Sorbonne IV (2015/16)

# URBAN ENERGY & MOBILITY SYSTEMS




THE ENERGY DEMAND OF BUILDING BLOCKS PRESENTED IN THE INTERACTIVE URBEM-VISUALIZATION DEVELOPED BY JULIA FORSTER

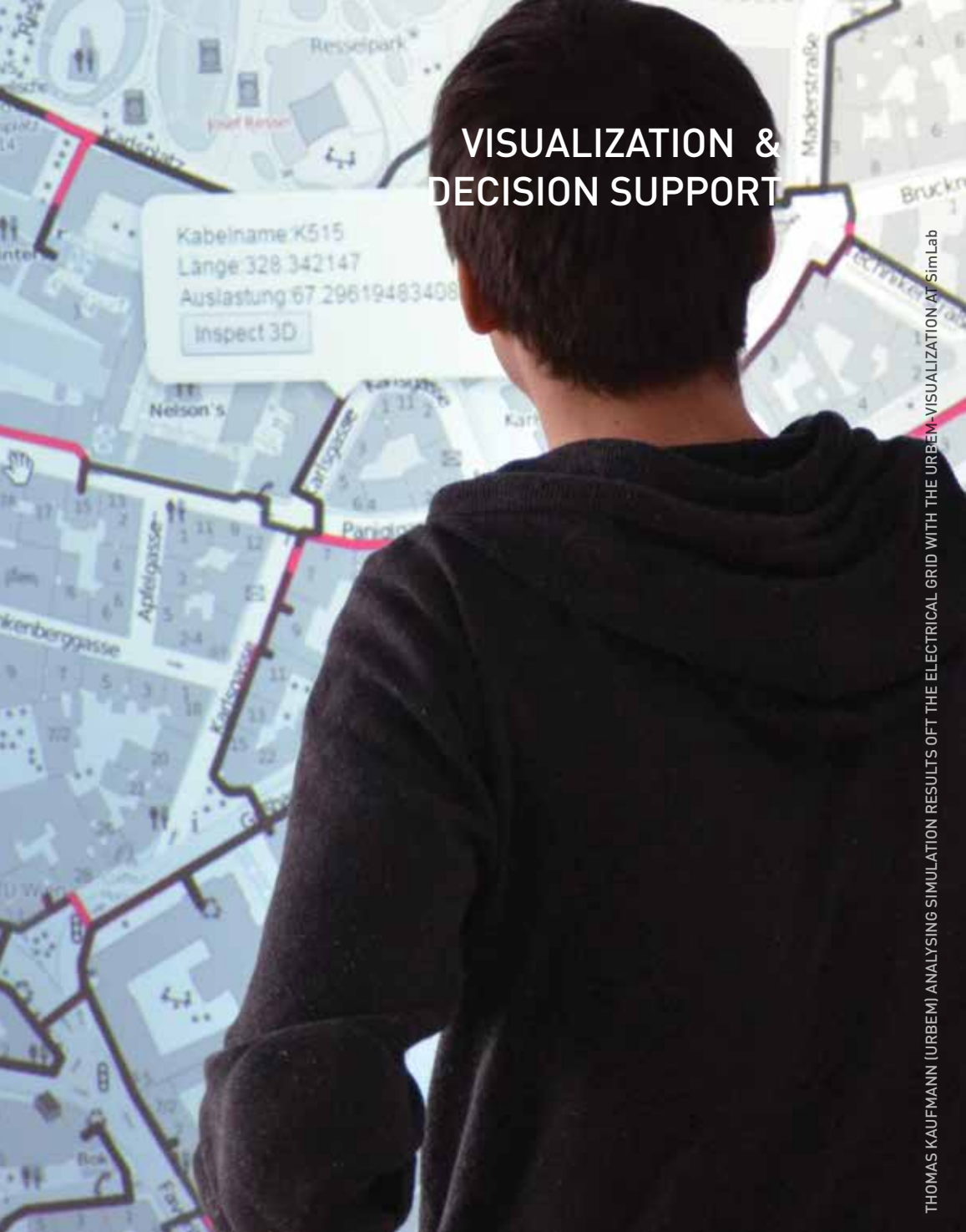
The City of Vienna follows a long-term initiative to become a Smart City. Efficient, affordable and low-carbon energy systems as well as environment-friendly transport systems are tantamount to provide a sustainable development of a city. Supporting and controlling these developments in Vienna for the realization of its ambitious goals requires planning strategies and decision support for the cooperation in interdisciplinary fields. In this context spatial visualizations are essential utilities for the exchange of information. Thus we develop and research interactive visualizations which enable the support of planners and decision makers in decision processes as well as try to achieve awareness for subsequent planning problems. The visualizations are multi-scalar and use digital technologies in multiple dimensions.

Current population forecasts predict a growth of the population which will pass the two million mark by 2029. Thus the requirements on space, infrastructure and support systems and therefore planners and decision makers are increasing. Concerning these issues our research focuses on the city's internal development potential as a basis for gaining new living and working areas. A model is being generated calculating the floor-area potential and building-area potential considering city development areas. The model output can be visualized constituting the basis to test and simulate future scenarios.

For a detailed demonstration of the interdisciplinary fields of application of visual planning support a prototype is being developed within the doctoral college URBEM (Urban Energy and Mobility Systems). This prototype provides web-based, multi-scalar and interactive information for the city.

Julia Forster
TU Wien, SimLab, Doctoral Program URBEM (Urban Energy and Mobility Systems) / Research Program SIMULTAN (Simultaneous Planning Environment for Building Clusters in Resilient, High Energy-Efficient Urban Quarters)

Theater an der Wien
Linke Wienzeile
Rechte Wienzeile
Opern Schnitzel
Opernpasse
TU Wien
Freihaus
Kebab-Haus
Feelgood
Kaffeerösterei
Alt Wien
Kosiro 2
Die Gruft
Bar Amore
Aruba
Kiosk
Paulanergasse
Cafe Offside
Margaretenstraße
Wiedergasse




# VISUALIZATION & DECISION SUPPORT

THOMAS KAUFMANN (URBEM) ANALYSING SIMULATION RESULTS OFT THE ELECTRICAL GRID WITH THE URBEM-VISUALIZATION AT SimLab

3D models and visualizations are commonly used to overcome a lack of communication between different parties, e.g. laypeople, general public and planners, as they can translate conventional drawings and analyses into a format that is more easily understood (Pietsch 2000). Lack of communication and lack of mutual understanding regarding spatial problems can lead to inconsistencies in the planning and design process. Thus, 3D visualizations often work as a communication tool and can be seen as a support tool for a decision-making process (Roupé, Johansson 2010). Wissen Hayek (2011: 921) points out that 3D-visualizations within planning processes can fulfill the key functions of supporting individual information processes, facilitating participation in discussions and achieving the objectives of information transfer in the different stages of planning processes.

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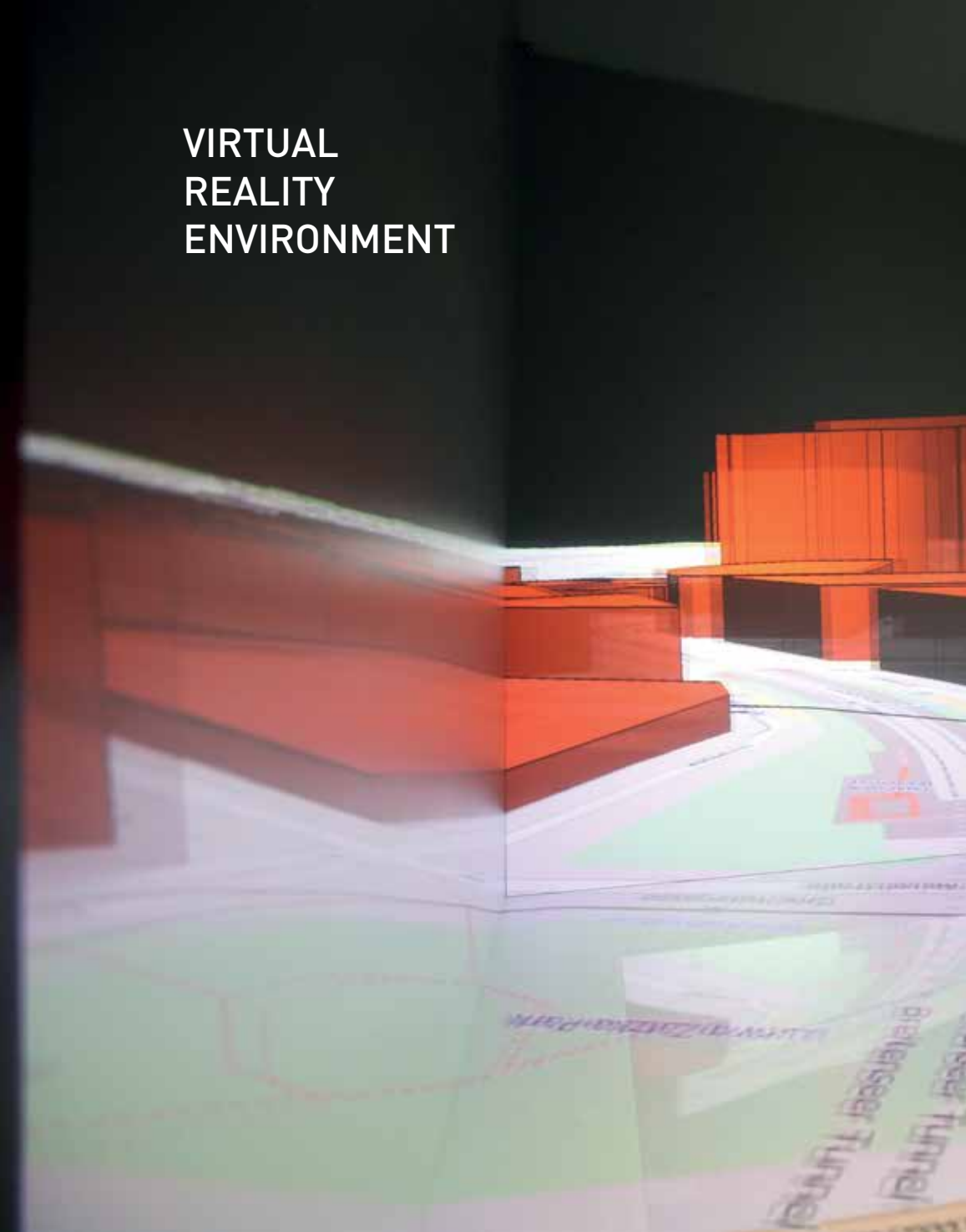
Roupé, M.; Johansson, M. (2010): Supporting 3D City Modelling, Collaboration and Maintenance Through An Open-Source Revision Control System. In Dave, B.; Li, A.; Park, H.-J. (eds.), New Frontiers: Proceedings of the 15th International Conference on Computer Aided Architectural Design Research in Asia CAADRIA 2010, pp. 347–356.
Wissen Hayek, U. (2011): Which is the appropriate 3D visualization type for participatory landscape planning workshops? A portfolio of their effectiveness. *Environment and Planning B: Planning and Design,* 38, pp.921–939.

# CIVIC ENGAGEMENT COMMUNICATION PLANNING PROCESS

VIENNA, SIM LAB PAVILION AT THE SCIENCE FAIR

# VIRTUAL REALITY ENVIRONMENT



JULIA FORSTER AT THE HLRS CAVE / VIRTUAL REALITY

# SPATIAL ANALYSIS

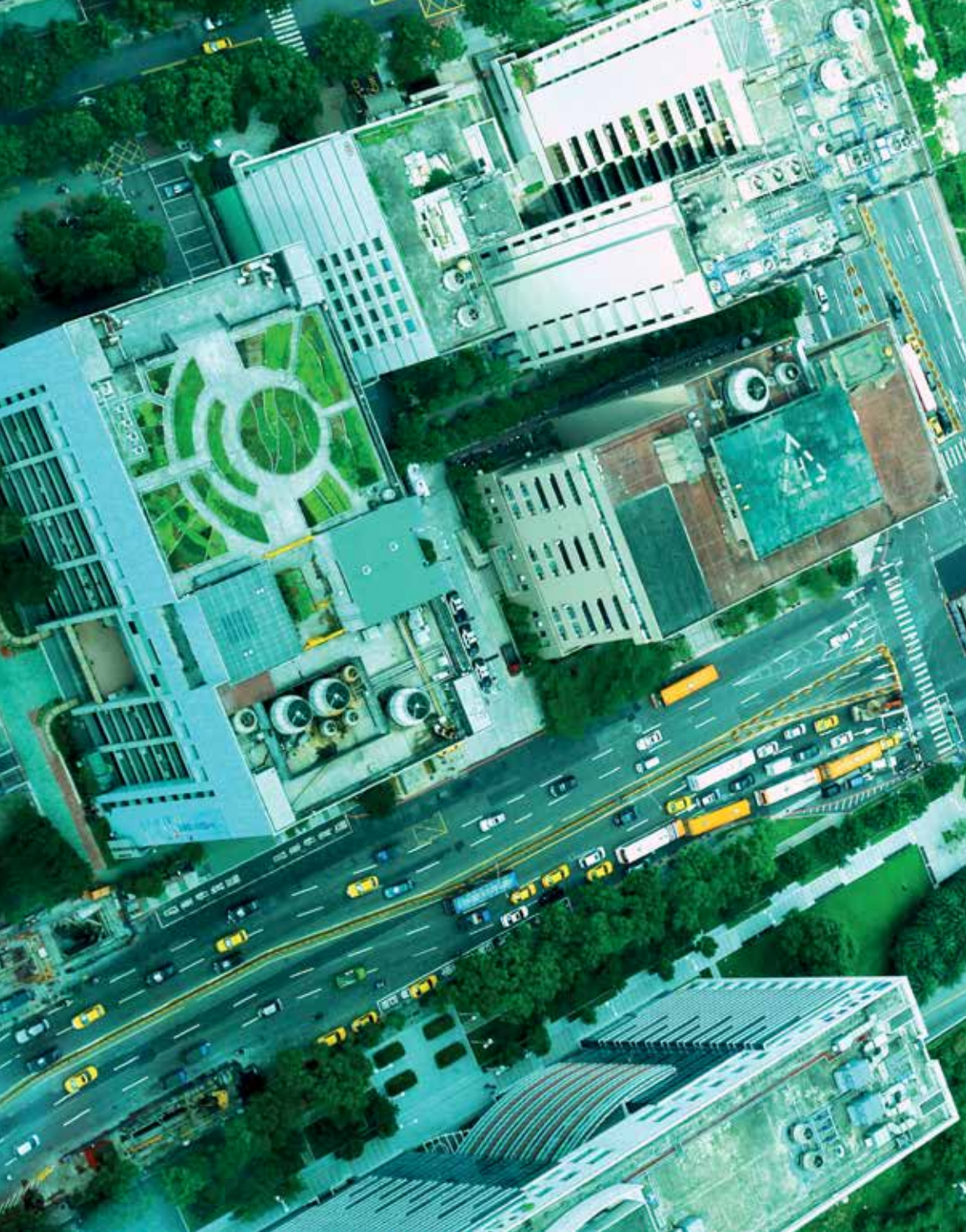
JUNICHI TOMYA (GUEST RESEARCHER AT SimLab)

# SPATIAL MODELING

TU WIEN/VIENNA

SPACE SYNTAX

IRIS MACH (HEAD OF JASEC/TU WIEN) AND TOMOHIRO MURAKI (UNIVERSITY OF TOKYO) AT SimLab



# URBAN TRANSFORMATION

TAIPEI, TAIWAN

# RURAL CHALLENGES

JYVÄSKYLÄ, FINLAND, JYVÄSJÄRVI

The credo of the centre is the dissemination of state-of-the-art knowledge in the context of research-led teaching, benefiting all students from Bachelor up to PhD level. The following courses are offered:

Undergraduate Level

- Space Workshop
- Bachelor Seminar
- Urban Design and Analysis

Graduate Level

- Master project
- Urban Simulation
- Strategies for Urban and Regional Development
- Research, Methods, Models
- Planning Support Systems
- Procedural GIS 3D Modeling for Civic Engagement
- Space Syntax
- Excursions and Walking Lectures

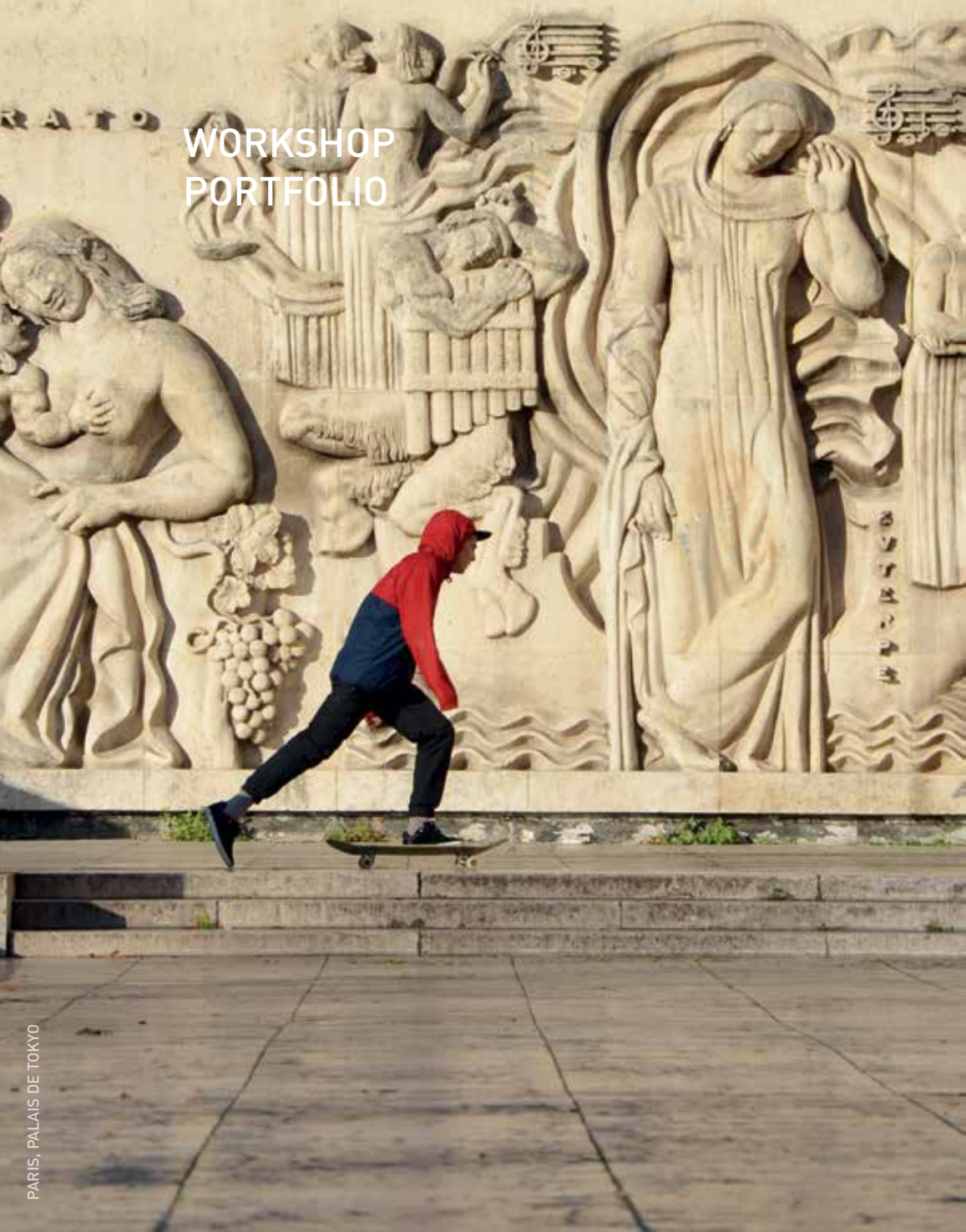
- PhD Workshops
- Bachelor, Master and PhD Thesis Supervision

*In cooperation with IFOER / TU Wien*

# TEACHING

VIENNA, RESSELPARK/VIENNA UNIVERSITY OF TECHNOLOGY (MAIN BUILDING)

# WORKSHOP PORTFOLIO



PARIS, PALAIS DE TOKYO

We offer a wide range of lectures and workshops for partner universities and other institutions:

Urban Voids: Grounds for Growth
*about the potential of urban voids for urban infill development and sustainable growth of cities.*

Urban Development During the 19th and 20th Century
*from Haussmann to highway engineers: evolution and functions of the urban discipline and the effects on its practice*

Multi-scalarity & Sustainability
*urban analytics and forecasting for small- and medium-sized cities: from an architectural scale to a regional scale*

Space Syntax & Graph Theory
*theory and methodology, tutorial and hands-on-exercise*

Lynch, Cullen, Gehl: Urban Vistas and Urban Visions
*visual graph analysis, serial vision and theoretical background*

Movement & Stationary Activity
*"observing pedestrians"; gate counts, traces and stationary activities (analysis)*

Skater, Data and the City
*informal usage of space & occupation (skateboarding & parcours in cities)*

Strategies for Urban Development
*planning strategies for growing and shrinking cities*

*(in German, English and French)*

Teaching children planning issues will help them to become engaged and knowledgeable citizens in the future. Together with *movens society** we organize programs that reach out to schools and work with teachers to educate them about public processes and even urban renewal. We support pupils and school graduates considering university studies in their choice of studies. We are working together with different faculties and professionals from the fields of planning, architecture, engineering and geodesy.

* founded by Katharina Tielsch, Fabian Dembski, Marjan Maftoon; https://movensblog.wordpress.com

# YOUTH LAB

VIENNA, PAVILION AT THE SCIENCE FAIR

In the framework of its International Lecture Series, SimLab invites internationally renowned academics and experts for an exchange of knowledge and opinions. Lectures und discussions are open to the public and are attended by students from all level and by experts as well as academics from a wide range of disciplines.

In many cases the fruitful discussions do not end in the lecture theatre but are continued in the informal framework of SimLab.

GUEST LECTURER

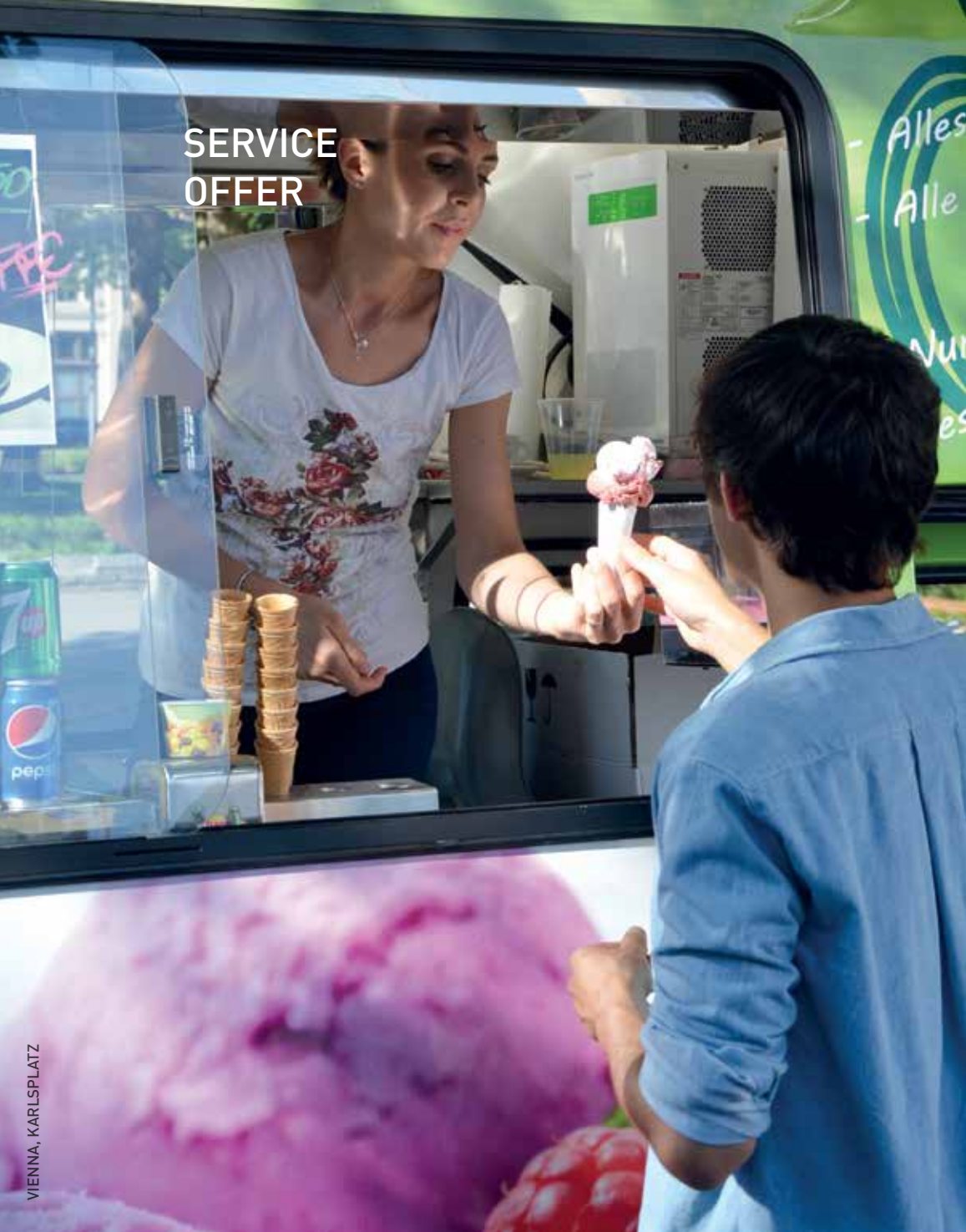
Ela Cil Izmir Institute of Technology (TR)
Christian Derix AEDAS London (UK)
Gert de Roo University of Groningen (NL)
Pierre Frankhauser Université de Franche-Comté (F)
Anna Geppert Université Paris-Sorbonne (F)
Reinhard König Bauhaus Universität Weimar (D)
John Marx Architecture4Form, San Francisco (USA)
Michael Mehaffy Sustasis Foundation, Portland, OR (USA)
Gabor Mödlagl Stadtbaumeister/Stadt Feldkirch (A)
Anna Rose Space Syntax Ltd. (UK)
Nikos Salingaros University of Texas at San Antonio (USA)
Rolf Signer ETH Zürich (CH)
Cécile Tannier Centre national de la recherche scientifique (F)
Richard Wener Polytechnic Institute of New York University (USA)

* initiated by Claudia Yamu

# INTERNATIONAL LECTURE SERIES

GERT DE ROO (UNIVERSITY OF GRONINGEN) AT SimLab

# SERVICE OFFER



VIENNA, KARLSPLATZ

SimLab offers services for the academic, public and private sectors:

- Research
- Spatial planning and design (2D/3D/4D)
- Consultancy and evaluation for projects
- Survey reports/feasibility studies
- Competition support
- Virtual reality environment
- Rooms, equipment and high-tech facilities

SimLab has conducted projects from a wide spectrum of different fields, including urban planning and design, engineering, architecture and archaeology.

**ETH ZURICH** HIGH PERFORMANCE COMPUTING CENTER STUTTGART **UNIVERSITÄT STUTTGART** UNIVERSITÉ DE FRANCHE-COMTÉ **SPACE SYNTAX LTD. LONDON** ARS ELECTRONICA CENTER **AESOP** UNIVERSITY OF GRONINGEN **UNIVERSITÉ PARIS-SORBONNE IV** IZMIR INSTITUTE OF TECHNOLOGY **UNIVERSITY OF TEXAS AT SAN ANTONIO** FH JOANNEUM **ECOLE SPÉCIALE D'ARCHITECTURE** KYOTO INSTITUTE OF TECHNOLOGY **UNIVERSITY OF TOKYO** UNIVERSITY OF VIENNA **UNIVERSITY OF CAMEBRIDGE** ACCADEMIA NAZIONALE DEI LINCEI **UNIVERSITY COLLEGE LONDON** MOVENS SOCIETY **DAXNER & MERL**

# PARTNERS & FRIENDS

TEA CEREMONY IN TAIPEI

mobile
SimLab
coming soon*
*pease check our website
for further information
http://simlab.tuwien.ac.at

VIENNA UNIVERSITY OF TECHNOLOGY
DEPARTMENT OF PLANNING
SIM LAB
WIEN 4., KARLSGASSE 13
and WIEN 9., AUGASSE 2-6/3/D
simlab.tuwien.ac.at

SimLab – *departure to new worlds*

SimLab
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Department of Spatial Planning
Technische Universität Wien
Karlsgasse 13, 1040 Wien

TEAM 2015/2016/2017
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