

Fall 2017

Research Snapshot



Harvard University
Graduate School of Design

Fall 2017

Research Snapshot



Harvard University
Graduate School of Design

From the Director of Research . . .

What does the term “research” mean exactly in the design field? Rather than trying to provide a generic and almost unavoidably simplistic answer, this second issue of Research Snapshot provides a number of examples of current investigations being led and conducted at the Harvard Graduate School of Design. The institutional frame of these investigations is diverse, from established labs to recently launched programs and initiatives. The subjects covered are even more varied, from the dense materiality of mining and digital fabrication to the more ethereal character of the encounters between landscape and the atmospheric; from precisely defined geometric and structural investigations to broad questions on social justice in contemporary cities.

The multiple objects, scales, and perspectives may seem at first disorienting for someone accustomed to more singular types of research. This diversity, however, finds its counterpart in the fundamental belief that investigation constitutes a path towards productive change. All of the enterprises gathered in this issue share this belief that the power of design, at the architectural, urban, or territorial scales, is rooted in a thorough understanding of technological, social, and aesthetic issues that only research can yield. Another common assumption is that interdisciplinary approaches are often preferable to narrow scientific agendas. Change is often the result of cross-pollination. This Research Snapshot is ultimately about the multiple links that exist between the various forms of investigations led at the Graduate School of Design, despite their differences.

Antoine Picon
G. Ware Travelstead Professor of the History of Architecture and Technology
Director of Research

Contents

DESIGN LABS

Material Processes and Systems Group	Martin Bechthold	6
Computational Geometry Lab	Preston Scott Cohen, Andrew Witt, & Cameron Wu	8
Healthy Places Design Lab	Ann Forsyth & Jennifer Molinsky	10
The Just City Lab	Toni L. Griffin	11
Responsive Environments and Artifacts Lab	Allen Sayegh	12
City Form Lab	Andres Sevtsuk	14

DEAN'S JUNIOR FACULTY GRANT PROJECTS

Is Landscape Weather?	Silvia Benedito	16
Literalizing the Picture: The Bavarian Rococo Interior and Radical Alternatives to Enclosure	Andrew Holder	18

EXTERNALLY SPONSORED GRANT PROJECTS

Circuits of Extraction: Urban Ecologies of the Mining Supply Chain	Neil Brenner & Martín Arboleda	20
Towards 21 st Century New Towns	Ann Forsyth & Richard Peiser	22
Airport Landscape Initiative	Charles Waldheim	23

Material Processes and Systems (MaP+S) Group

Martin Bechthold, Kumagai Professor of Architectural Technology, Department of Architecture

Sponsored by Dean's D-Lab Grant; ASCER Tile of Spain; AD Group; AutoDesk Build Space; Cevisama Valencia; Wyss Institute for Biologically Inspired Engineering at Harvard University

research.gsd.harvard.edu/maps

The Material Processes and Systems (MaP+S) Group is a research unit that promotes the understanding, development, and deployment of innovative technologies for buildings. The group evolved from the previously established Design Robotics Group, also at the Harvard Graduate School of Design. MaP+S looks at materiality as starting points for design research, with a special interest in robotic and computer-numerically controlled (CNC) fabrication processes as well as small-scale work on nano-materials. Much of our current work studies ceramic material systems and design robotics. MaP+S also runs the Adaptive Living Environments (ALivE) project jointly with the GSD's Responsive Environments and Artifacts Lab (REAL) and Prof. Allen Sayegh. ALivE develops novel applications for nano-scale material systems jointly with scientists from the Wyss Institute for Biologically Inspired Engineering.

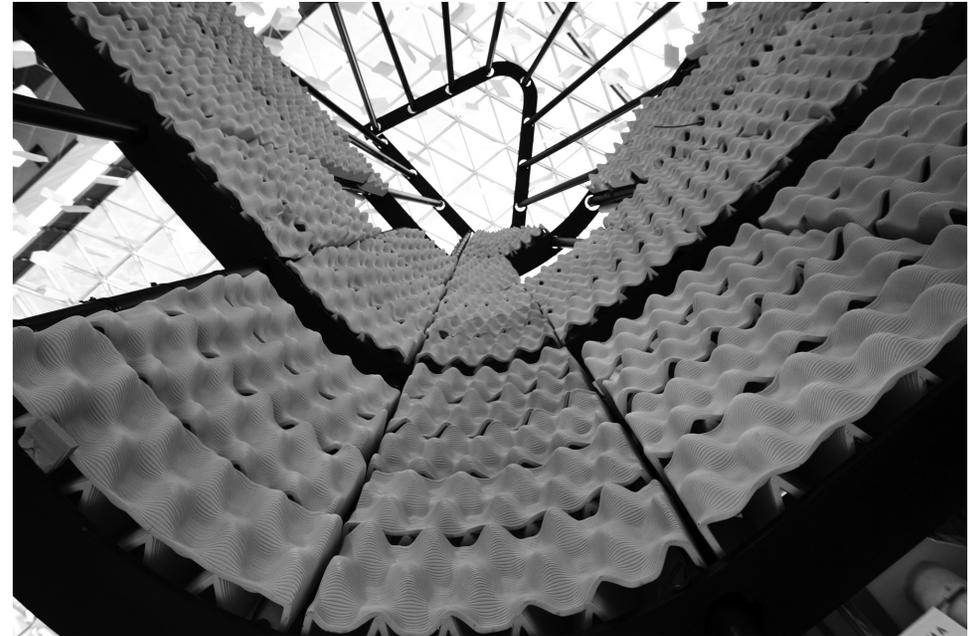
The MaP+S Group works on funded research and other projects, and supports thesis research at the masters and the doctoral level. We work with industry partners and associations, students, faculty, and staff of the GSD, as well as with other academic groups at Harvard University and beyond.

2017 Achievements: In 2017 we completed a 1.5-year sponsored project on composites in architecture that produced several novel process prototypes as well as design proposals for their implementation.

Our collaboration with REAL and the Wyss Institute continued with a new exhibition of

technological innovations at the 2017 Wyss Retreat in November, a conference and demo event with over 500 scientists that work in the context of the Wyss Institute. Related to this we filed a provisional patent for a novel mechanism based on buckling of curved struts, and co-published a paper with the Bertoldi Group on the numerical analysis and simulation of the systems. Other papers include the ACADIA paper on auxetic material systems, and a paper pending on our work in pneumatically actuated privacy systems for buildings. Combining our efforts on the material science side with the expertise in ceramics and 3D printing, we are in the process of developing novel cooling approaches for buildings that benefit from functionalizing surfaces and are designed such that evaporative cooling strategies can decouple temperature and humidity control.

Ceramic 3D printing continues to be a preoccupation of the group, with exciting work on the way in the domain of functionally graded ceramics and complex 3D printing processes. Parallel to this work we developed a structural system made solely from high-strength ceramic material that will be showcased at the 2018 Cevisama in Valencia, Spain.



3D Printed Ceramic Installation for the 2017 Cevisama Exhibition in Valencia, Spain.

Computational Geometry Lab

Cameron Wu, Associate Professor of
Architecture, Department of Architecture

Andrew Witt, Assistant Professor in Practice
of Architecture, Department of Architecture

Preston Scott Cohen, Gerald M. McCue
Professor in Architecture, Department of
Architecture

*Sponsored by Dean's D-Lab Grant; ESRI;
Geometrica*

The Computational Geometry Lab researches the intersection of design and science of shape, aided by computational tools and design intuition. The Lab is unique at the School in the sense that it combines computational, formal, architectural, and historical research into a single synthetic program. The members of the Lab also pursue its research topics through seminars that use the facilities of the Lab, including Mechatronic Optics, Conic and Developable Surfaces, Structural Surfaces, and Narratives of Design Science. The Lab also actively supports the new Masters in Design Engineering (MDE) curricula.

RECENT AND ONGOING PROJECTS

Spanning and Developable Surfaces:
The Lab continues to investigate Knot and Spanning surfaces and has developed a remarkably efficient method of developable discretization for the assembly of complex surfaces with an order of magnitude (10x-100x) reduction in the number of parts.

Machine Vision and Sensing:
The Lab has recently developed hardware and software systems that assist with both machine vision and projection mapping for augmented experiences. This is motivated by the potential of machine vision and AI techniques to change the fundamental process of design.

On the Bipartite Staircase :
The Lab continues its research on typological issues, not only at the building scale but also at the building element scale. Among other

work, our research on Bipartite Staircases, those which have two helical, bifurcating, or otherwise interrelated paths, is being developed into a short publication.

RECENT AND FORTHCOMING PUBLICATIONS

Chronology of Design Science CCA ePubs (2017)

The Lab has initiated a series of three joint publications between the GSD and the Canadian Centre for Architecture (CCA) that focus on the history of design research institutes and labs. The first three ePubs will focus on the Natural Forces lab of Ralph Knowles, the geometric work of Resch, and Kenzo Tange's Tange Laboratory at the University of Tokyo.

Andrew Witt, "The Machinic Animal" in *When is the Digital in Architecture?* (2017). This anthology extension of the CCA's Archeology of the Digital project proposes a series of origin points for what we understand as digital design. Witt's essay considers how projects such as Yona Friedman's Flatwriter drew on behavioral models to define a new discipline of computational design.

Andrew Witt, "Expanded Mechanisms" in *Lineament* (2017). This paper documents the work and research of Expanded Mechanisms, a research seminar which used the Lab's resources, including its two universal robots, in the development of bespoke and material-specific fabrication devices.

Cameron Wu, "Borromini and the Elastic Idiom" in *Finding San Carlino* (2018). Using classification methods from analytic geometry, this paper will propose close readings of San Carlo to differentiate between varied idioms and syntaxes employed by Borromini. The descriptions of the sectional interiors may be interpreted as incremental steps of an evolving idiomatic language for Borromini, marking the advent of a nascent architectural modernity.



A method of subdividing arbitrary curved surfaces into developable strips. Courtesy of Andrew Witt

Healthy Places Design Lab

Ann Forsyth, Professor of Urban Planning, Department of Urban Planning and Design

Jennifer Molinsky, Lecturer, Department of Urban Planning and Design and Senior Research Associate, Joint Center for Housing Studies at Harvard University

Sponsored by Dean's D-Lab Grant

research.gsd.harvard.edu/healthy

How health is related to the places where people live and how to make places healthier are questions of wide current concern in the US and globally. The Healthy Places Lab, in its first months of operation, links faculty and students at the Harvard University Graduate School of Design to others within the school and beyond. Centrally concerned with how places matter in human health, and how design and planning interventions might make a difference, the Lab is a new kind of model for the GSD. Functioning as an "open" lab, the Healthy Places Lab provides a network for interested faculty to develop new research collaborations, supports an interdisciplinary student group, and serves as a resource for integrating health more fully into the curriculum at the GSD.

Through the Lab, faculty and students will engage a variety of topics where space and place can make a difference—investigating environments to support aging, understanding places for active transport in growing cities, or proposing models for sanitation and public spaces in squatter settlements and slums. While new this year the Lab draws on existing work done by: projects such as the Health and Places Initiative (HAPI), centers such as Joint Center for Housing Studies, the new joint masters degree between planning and public health, and various courses from the class on Healthy Places to options studios.

During its first year the Lab is building capacity and relationships, helping bring students and faculty together to investigate projects.

More information will be available at research.gsd.harvard.edu/healthy.

AFFILIATED FACULTY 2017-2018

Silvia Benedito, Associate Professor of Landscape Architecture

Anita Berrizbeitia, Chair of the Department of Landscape Architecture, and Professor of Landscape Architecture

Dan D'Oca, Associate Professor in Practice of Urban Planning

Eric Howeler, Associate Professor of Architecture

Jerold Kayden, Frank Backus Williams Professor of Urban Planning and Design

Rahul Mehrotra, Professor of Urban Design and Planning

Peter Rowe, Raymond Garbe Professor of Architecture and Urban Design

Holly Samuelson, Assistant Professor of Architecture

The Just City Lab

Toni L. Griffin, Professor in Practice of Urban Planning, Department of Urban Planning and Design

Sponsored by Dean's D-Lab Grant

designforthejustcity.org

The Just City Lab investigates the definition of urban justice and the just city, and examines how design and planning contribute to the conditions of justice and injustice in cities, neighborhoods, and the public realm.

During the 2016-17 academic year, the Lab began the development of a distinct index of urban justice values and an exploration of participatory tools for developing a just city framework at the neighborhood scale. The index of urban justice values identifies and defines 50 values that the Lab has found to be the most desired components of a healthy, vibrant, and equitable community. The Lab's researchers Caroline Lauer, MUP '18, Milan Outlaw, MIT, MArch '17, and Meghan Venable Thomas, MPH '18, used preference surveys collected over three years to identify and create distinct design-oriented definitions for a collection of values that seek to repair and/or strengthen conditions of inequality, disinvestment, abandonment, marginalization, and disenfranchisement. The values are organized around 12 principles: Acceptance, Aspiration, Choice, Democracy, Engagement, Fairness, Identity, Mobility, Power, Resilience, Rights, and Welfare. The Lab will publish an illustrated index of the values as a tool to help community members facilitate meaningful dialogues and development of clear and measurable goals and imperatives for neighborhood improvement.

The Lab also initiated a partnership with Cambridge city councilman Nadeem Mazen, the city's first Muslim American to hold the office, in an effort to pilot the exploration of

approaches for engaging community members in the development of their own just city value proposition and design prototypes that test ways to advance specific just city values. Engagement tool and design prototypes developed in the Design for the Just City seminar will be further investigated in the Lab during the 2017-18 academic year to produce a toolkit of participatory methods of engagement.

Visit our website www.designforthejustcity.org for updates on our work, previous publications and the Just City manifesto videos, a collection of student videos defining the Just City.

Responsive Environments and Artifacts Lab

Allen Sayegh, Associate Professor in Practice of Architectural Technology, Department of Architecture

Sponsored by Dean's D-Lab Grant; University of Bergamo; Wyss Institute for Biologically Inspired Engineering at Harvard University

research.gsd.harvard.edu/real

The Responsive Environments and Artifacts Lab (REAL) at Harvard Graduate School of Design is a research lab that pursues the design of digital, virtual, and physical worlds as an indivisible whole. It recognizes the all-pervasive nature of digital information and interaction at scales ranging from our bodies to the larger urban contexts we occupy and the infrastructures that support them.

REAL takes an interdisciplinary look at the understanding and design of the built environment from the lens of technologically-augmented experiences, with a strong focus on the sustainability and longevity of technology. Putting the human being at the center and forefront, researchers at REAL examine the emerging ways in which technology fuses into the ways we live, work, and play from the micro (bodily sensors, smart product design, augmented interfaces) to the macro (interactive buildings, information infrastructures, communication frameworks).

RESEARCH TOPICS

Human-centered Urban Environments and the Future of Cities:

Looking at the future of the built environment from a human-centered point of view, the Lab investigates models and strategies for the sustainability and longevity of integrated, responsive, and interactive urban spaces and systems. By employing a cross-disciplinary approach, the Lab tackles complex urban challenges such as the future of mobility, food systems, urban safety, or technologically-enhanced retail. Beyond typical smart-city

models, REAL reframes problems, analyzes technological and social opportunities, and develops proposals from the individual to the urban scale through prototyping scenarios and testing solutions. Experimenting with the use of novel technologies, the Lab elaborates design strategies that inform human-centered design processes and practices.

Augmented Urban Experiences:

In order to better understand the impact of different typologies of urban spaces in the subjective experience of cities, the Lab conducts research and performs experiments that leverage emerging digital technologies combined with social sciences' approaches. Wearable augmenting and sensing instruments include eye-tracking devices, proximity sensors, augmented reality applications, and EEG scanners. Merging quantitative and qualitative analysis, REAL investigates topics such as spatial understanding, subjective perception, sensory augmentation, and latent urban qualities. By building upon objective layers of data and affording them with the complexity and variation of subjective, personal feedback, these studies demonstrate that it is possible to gain a more holistic, and perhaps novel understanding of the role played by the varying urban qualities on the user behavior as well as on the social dynamics of cities.

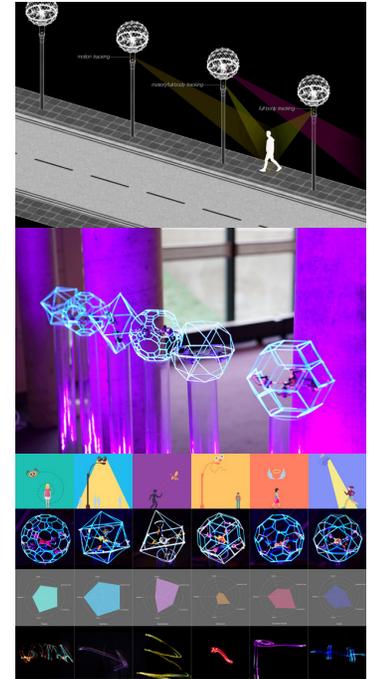
Technologically-driven Design Research Strategies for Interactive and Responsive Environments:

Within this research stream, the Lab develops alternative design research methodologies to investigate mediated relationships between

the individual and the built environment for the creation of responsive and engaging urban spaces and experiences. Design research strategies studied by the Lab include: (a) technological longevity, addressing issues on the integration of digital and smart technologies in cities, overtaking challenges of obsolescence through technological sustainability; (b) digital/physical hybrids, merging virtual environments and tangible spaces for user-centered augmented realms; (c) creative glitch, breaking up routine patterns and behaviors of urban systems by incorporating design elements of inherent spontaneity, informality, and even error; and (d) dynamic interaction, evaluating the impact of emerging technologies on morphological transformations of cities for dynamic and real-time responses to contextual contingencies.

PEOPLE

Stefano Andreani, Research Associate and Project Manager
James Moffet, MDes
Honghao Deng, MDes
Jiabao Li, MDes
Humbi Song, MArch I



Twinkle - an urban flying companion by Honghao Deng, Jiabao Li



PULSUS NY/Cambridge 2017

City Form Lab

Andres Sevtsuk, Assistant Professor of Urban Planning, Department of Urban Planning and Design

*Sponsored by Dean's D-Lab Grant;
Dean's Junior Faculty Research Grant;
The World Bank*

cityform.gsd.harvard.edu

The City Form Lab is investigating how urban form affects the quality of life in 21st-century cities. It develops new analytic software tools for urban designers and planners and researches the effects of city design decisions on social, economic, and environmental wellbeing.

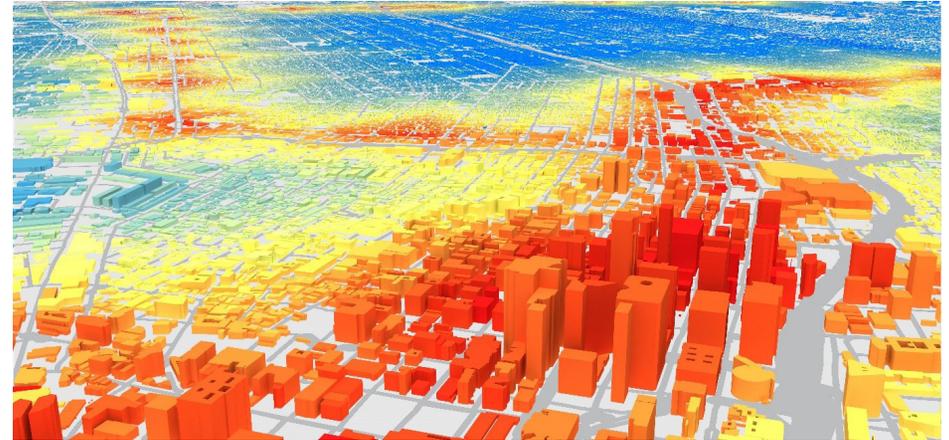
The City Form Lab has been developing and freely sharing the Urban Network Analysis (UNA) plugins for Rhinoceros 3D and ArcGIS software platforms, which enable researchers to analyze relationships between people and places along spatial networks. The UNA Rhino toolbox, released in 2015, has been downloaded by over 3,000 users worldwide. The UNA GIS plugin, released in 2011, has been downloaded by over 100,000 users worldwide. The Lab is also using spatial analysis tools to investigate business location choices, property values, and walkability in cities.

One of the Lab's recent papers, published by Environment and Planning B, demonstrates how spatial network analysis can help solve complex retail location choice and urban design problems. The paper describes a change to the traditional Huff model of retail patronage and demonstrates how the model is used to plan retail centers in the Punggol New Town in Singapore.

The Lab was recently invited to the OECD in Paris to present its research on urban accessibility indices and how accessibility can drive land use and transportation planning. The Lab is continuing the collaboration with OECD on

developing a standard for collecting sidewalk and other pedestrian infrastructure network data in cities around the world. Multi-modal accessibility, and increasingly pedestrian accessibility, is becoming an important goal for many cities around the world.

The UNA toolbox helps planners and architects analyze accessibility and walkability, quantifying the ease with which various destinations in cities can be accessed among different stakeholder groups, how different pedestrian routes are likely to be utilized, or how many visitors different urban amenities are likely to attract. This, in turn, helps us understand what locations in the city suit best for particular land uses, how many and what types of users of public space are likely to benefit, or how the activities in one location might influence another.



Accessibility to public transit in downtown Los Angeles, CA.

Is Landscape Weather?

Silvia Benedito, Associate Professor of Landscape Architecture, Department of Landscape Architecture

Sponsored by Dean's Junior Faculty Research Grant; The Graham Foundation for Advanced Studies in the Fine Arts

This research captures the very essential question: whether landscape is also weather. While much reflection has been set in the aqueous, vegetative, and land domains, less critical attention has been dedicated to the medium of weather and its role in the disciplinary scope of landscape and urbanism. In the context of climate attentiveness, paralleled with greater need for responsive practices, this question emerges as central for an integrative and relational approach in the design practices.

Centered on the claim that landscape is also weather, meteorological elements become design elements. This research re-examines paradigmatic design projects* through the lenses of atmospheric phenomena and corresponding spatial affordances—often unseen but impactful to humans' health and delight. The transition from the physical to immaterial, quantifiable to qualifiable, terrestrial to meteorological, and visualized to sensed, offers the possibility to expand design possibilities. Weather and the body become critical media for establishing climatic-driven design that promotes greater wellbeing with civic and ecological significance.

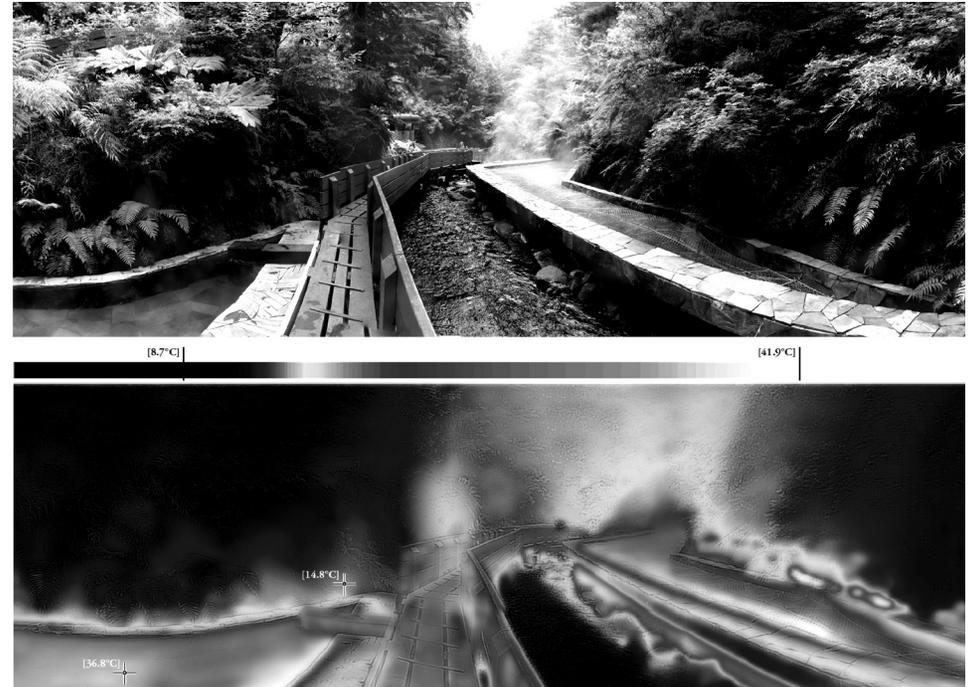
While entangled with larger atmospheric processes, urban landscapes are also subject to coalescing conditions of the built environment—density, material performance, canopy structure, building alignments and orientation. This proposal measures and produces climatic diagnostics focused on microclimates and bioclimatic affordances. Furthermore, it

determines the implications of design decisions relative to human comfort and thermal stress through infrared thermography (IRT) analysis and thermographic data assessment.

In the context of measured and sensed meteorological conditions, this research firstly traces the genealogical links between landscape, weather, and atmosphere across a range of disciplines. Secondly, it establishes references in meteorological-driven design arguing for an interdisciplinary mode of practice. As such, the project aims at igniting a greater spatial sensibility while, at the same time, proposing a set of interdisciplinary methodologies to support the correlation between atmospheric processes and human vulnerability, at the individual and collective domains.

The research will result in a book titled *Atmosphere Anatomies: On Design, Weather and Sensation* with photography by Iwan Baan to be published by Lars Müller Publishers in 2018.

(* Under analysis are projects such as the Villa d'Este (Tivoli, Italy), the Rousham Gardens (Oxfordshire, England), Chandigarh (Chandigarh, India), the Sea Ranch (Sonoma, USA), Jardines del Pedregal de San Angel (México City, México), Paley Park (NYC, USA), SESC (São Paulo, Brazil), Térmas Geométricas (Pucón, Chile), and the Jardin des Bambou (Paris, France).



Térmas Geométricas (Pucón, Chile).
Thermal variances/ Section 1

Literalizing the Picture: The Bavarian Rococo Interior and Radical Alternatives to Enclosure

Andrew Holder, Assistant Professor of
Architecture, Department of Architecture

*Sponsored by Dean's Junior Faculty
Research Grant*

In the period between 1710 and 1760, the South German Catholic Church embarked on a major program of building and redecoration, which in stylistic terms inherited the very latest developments from the French and Italian late baroque. To walk into any of these so-called "Bavarian rococo" churches is to enter a wunderkammer of possibility where the most fundamental of architectural conventions are re-worked, inverted, or abandoned altogether. Perhaps first among these counterintuitive possibilities depicted in the typical Bavarian rococo interior is the notion of a building without enclosure - which is to say building without an absolute marking of the distinction between interior and exterior.

In any given church, frescoes at the ceiling depict not a roof, but a sky, or even an entire urban scene filled with painted observers looking down onto the real occupants of the nave. Walls are not flat, definite room-dividers but complex assemblies of sculptures that produce a plastic conjunction of overlapping spaces without discrete thresholds. And clouds, rain, and wind—present throughout the interior as stucco decoration, or stuchi—suggests a completely novel permeability of the building envelope where human activities might benefit by incorporating natural environmental effects instead of resisting them in sealed, controlled envelopes. Each of these possibilities, though, is strictly segregated in the realm of the possible instead of the actual. They are just pictures. For every fantastic depiction of the dissolution of the building's perimeter there is a corresponding device that guarantees it will not be taken seriously as a

projective model for how to build: apparent cuts in the ceiling to scenes above are, for instance, simply elaborate quadratura frescos; crevices in walls that appear to extend to indefinitely large spaces beyond are revealed as tricks of indirect illumination; and invasions of clouds and wind into the interior are bracketed off with tromp l'oeil curtains as a double reminder that the fake scene is being presented on a fake stage.

The concept of "Literalizing the Picture" is to take literal, physical terms what was only pictorial in the Bavarian rococo. How can the spatial scenarios contained by the Bavarian rococo interior be literalized as contemporary proposals for building? Far from a purely academic exercise, the intent is to recover a set of design principles from the rococo with particular trenchancy for contemporary architectural problems. In urban environments of ever-increasing density, how might it be possible to learn from the rococo organizational system that permit the sharing of communal objects between spaces as opposed to the rigid segregation of objects by lines of private property? In an age of increasing energy costs where maintaining a thermally impenetrable barrier to the outside is no longer economically feasible, what aesthetic systems are available to architecture that would seek more porous, open relations to the outside?

The Dean's grant enabled extensive documentation of more than forty rococo church interiors in Germany, Switzerland, and Austria. This material served as the foundation for essays appearing in *Log, Praxis*, and

Harvard Design Magazine, and is now being re-examined as the basis for a speculative drawing project on plan-making without absolute enclosure.



Interior of the Asambasilika Osterhofen at Altenmarkt, Bavaria

Circuits of Extraction: Urban Ecologies of the Mining Supply Chain

Neil Brenner, Professor of Urban Theory,
Department of Urban Planning and Design

Dr. Martín Arboleda, Urban Studies
Foundation Postdoctoral Fellow, Urban
Theory Lab

Sponsored by The Urban Studies Foundation

urbantheorylab.net

This project sheds light into the processes of urban transformation that have emerged as the mining industry reorganizes itself in the form of global supply chains. As East Asian economies underwent dynamic processes of industrial upgrading and urbanization after the 1990s, Latin American resource peripheries—for centuries the ‘backyard’ of Western empires—became gradually entangled in a complex infrastructural corridor of supply chains and ‘maritime silk roads’ that repositioned the gravitational center of the world economy towards the Pacific Ocean. Increasing spatial separation of extraction and manufacturing has pushed extractive industries towards greater functional integration with the port and shipping industries. An erstwhile insular focus on the extraction site has been gradually superseded by a deliberate organizational emphasis on the supply chain, understood as an integrated logistical system which encompasses extraction, processing, smelting, and transport.

By rethinking geographies of extraction beyond the mere spatiality of shafts and pits and the political territory of their national economy, the project therefore proposes to transcend the state-centrism of traditional approaches and to grasp the process of urbanization as it unfolds across logistical space. Underpinned by detailed local, on-site research, the project analyzes the ways in which the Atacama Desert became ensnared in a global logistical apparatus that connected mining sites in the Andean plateaus of Chile with an expanding constellation of megacities, factories, ports, and stock exchanges in East Asia and other

parts of the world. The project explores the modalities of state power, transnational labor organization, debt instruments, ecological degradation, and sociopolitical contestation that have emerged as the mining industry embraces the imperatives of speed, connectivity and homeostasis as central organizational principles.

Because it combines theoretical experimentation with empirically grounded observation, this project is aimed at producing various outputs. The main product is a scholarly book titled *Planetary Mine: Territories of Extraction in the Fourth Machine Age* (London and New York: Verso, 2018). The project also involves a set of scholarly articles and non-scholarly publications such as blog entries and short, narrative texts for heterodox outlets. The project also includes dissemination activities such as conference panels, workshops, and podcasts. It is also expected that part of the materials produced by this research will contribute to a broader multimedia exhibition developed within the broader framework of the Urban Theory Lab’s long-term investigation of the operational landscapes of planetary urbanization.



Dry bulk carrier ship being loaded in the port of Tocopilla, Chile
Courtesy of Claudia Pool

Towards 21st Century New Towns

Richard Peiser, Michael D. Spear Professor of Real Estate Development, Department of Urban Planning and Design

Ann Forsyth, Professor of Urban Planning, Department of Urban Planning and Design

Sponsored by China Vanke Co., Ltd.

Towards 21st Century New Towns, to be published by the University of Pennsylvania Press, is the culmination of three years of research. The book looks at the ideas behind new towns, the practice of building them, and their outcomes. It examines their character in terms of design, planning, finances, management, governance, quality of life, and sustainability. As stated in the Introduction, "People have been building new settlements for thousands of years. The new town idea is more recent, a reaction to generic urbanization in the industrial and postindustrial era. These relatively large, comprehensively-planned developments on newly urbanized land boast a mix of spaces that can provide opportunities for all the activities of daily life for a variety of people. From garden cities to science cities, new capitals to large military towns, hundreds have been built in the twentieth century. Their planning and development approaches have also been influential far beyond the new towns themselves. While new towns are difficult to execute well, and their popularity has waxed and waned over the past century, their development is currently on an upswing with major initiatives in the developing countries of East Asia, South Asia, and Africa. They continue to be built in developed countries as well."

The first part of the research was a class led by Richard Peiser where students made recommendations regarding new towns in Chengdu, Wuhan, and Zhengzhou. The students addressed how to add parking to existing communities; how to design playgrounds, open space, and landscaping, for children and elderly, how to manage apartments and con-

dominiums, how to deal with diversity among residents, and how to improve community management.

The second part of the research was a major conference held at Harvard on Sept. 24-25, 2016 where 30 scholars and professionals presented papers. Following the conference, scholar-authors revised their papers based on the discussions and input from professional designers and developers who also contributed commentaries.

The forthcoming book promises to be the most comprehensive and authoritative book on new towns to be published since Osborn and Whittick's volume, *The New Towns: The Answer to Megalopolis*, of 1970. In addition to discussing the nuts and bolts of developing new towns all over the world, the book features a complete inventory of new towns, perspectives on development from practitioners who managed the process, and critiques of new towns from social and cultural perspectives. While 20th century new towns have tended to be car-oriented with emphasis on lifestyle and recreation, 21st century new towns will have better public realms, more walkable neighborhoods, greater ranges of housing types for different demographic groups, and be less car dependent. We foresee an expansion of new town purposes beyond economic development, worker housing, and urban deconcentration towards increasing amounts of refugee resettlement, planned retreat from potential disasters, and efficient responses to localized land shortages.

Airport Landscape Initiative

Charles Waldheim, John E. Irving Professor of Landscape Architecture, Department of Landscape Architecture

Sponsored by the Inter-American Development Bank; David Rockefeller Center for Latin American Studies; Adolfo Ibañez University, Santiago de Chile; The Graham Foundation for Advanced Studies in the Fine Arts

The Office for Urbanization is committed to the production of knowledge through modes of applied design research. The Office develops speculative and projective urban scenarios through design research projects while imagining alternative and better urban futures. All projects in the Office aspire to reduce the distance between design innovation and societal impact.

Various projects are currently underway, including the multi-year Airport Landscape Initiative. Given the rapid growth of air travel that came alongside the great expansion of cities, many airports have since become obsolete, underutilized, and subsequently abandoned. Reasons for this include insufficient size of facilities, locations that became unfavorable for airport operations, decommissioning of military uses, and the functional obsolescence of buildings. With a database of over 1800 decommissioned airfields around the globe, we claim that the abandonment of airports is a pervasive phenomenon globally. Within a decade, hundreds of urban airports will cease operations. What will be done with these flat, concrete, highly complex sites—many of them in the center of cities—once they are no longer needed for air travel? The Airport Landscape Initiative gathers and examines contemporary design proposals for the ecological enhancement of operating airfields and the conversion of abandoned ones.

The Office examines the airport as a central site and case study for the practice of landscape and ecological urbanism conveyed through a variety of disciplinary perspectives

including: exhibition (2013) and publication (2016) titled, *Airport Landscapes: Urban Ecologies in the Aerial Age*, with Sonja Dumpelmann, and two research publications *Airfield Manual: Field Guide to the Transformation of Abandoned Airports* (2017), and the *Airfield Manual: The Case of the Mendoza Aeroparque* (2017). Recommendations are not considered as design projects but as principles conveyed through design scenarios. For example, the *Airfield Manual* compiles case study strategies and best practices for the conversion of decommissioned airports for a variety of new uses. Written for an audience of civic, business, and political leaders as well as for directors of aviation, engineers, and managers, *Airfield Manual* offers an executive summary of the issues and options attendant to the ownership, management, deactivation, and decommissioning of the airport site.

The Airport Landscape Initiative has been sponsored by the Inter-American Development Bank. Additional support for the investigation was generously provided by the David Rockefeller Center for Latin American Studies at Harvard University and the Adolfo Ibañez University, Santiago de Chile, along with the Graham Foundation for Advanced Studies in the Fine Arts and GSD's John E. Irving Dean's Innovation Fund and Scruggs Fund.

Administration

Mohsen Mostafavi
Dean and Alexander and Victoria Wiley Professor of Design

Patricia Roberts
Executive Dean

Antoine Picon
G. Ware Travelstead Professor of the History of Architecture and Technology
& Director of Research

Anne Mathew
Director, Research Administration

Nony Rai
Coordinator, Research Administration

For additional information on the GSD Design Labs and other research programs,
please refer to www.gsd.harvard.edu/research

For GSD faculty profiles, please visit www.gsd.harvard.edu/faculty



