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Turin Augmented Metropolis

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25 April 2024

the Future *Urban Legacy* Lab

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a report 2017-2021

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One of the main challenges of *FULL* is to combine consistent research with a rich program of talks, lectures, and teaching. In this table of contents the activities of the Centre are separated by the research section for clarity, but in reality are mutually interconnected.

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FULL

Future *Urban Legacy* Lab is an interdepartmental centre of the Politecnico di Torino that explores, imagines and designs the future of global and local urban legacy embodied in city form.

FUTURE

/ˈfjuːtʃər/ ▪ noun

A period of time following the moment of speaking or writing; a time regarded as still to come.

URBAN

/ ˈəːb(ə)n / ▪ adjective

In, relating to, or characteristic of a town or city; e.g. ‘the urban population.’

LEGACY

/ /ˈleg.ə.si/ ▪ noun

A situation that exists now because of events, actions, etc., that took place in the past.

LAB

/ləˈb/ ▪ noun

A room or building equipped for scientific experiments, research, or teaching, or for the manufacture of drugs or chemicals.

FAQ

How is an interdisciplinary research centre structured? how many resources are involved and what are the outputs?

18

THE LAB | PEOPLE

Departments

7 departments,
59 people,
33 disciplinary
expertise
fields.

DAD

Urban and architectural design, landscape design, construction technology, urban history, heritage preservation and restoration, geomatics.

DIST

Urban planning, urban geography, urban economics, project evaluation.

DET

Digital networks in urban settings, device-to-device communications.

DIGEP

Innovation economics and innovation management.

DIATI

Environmental assessment, urban environmental quality indicators, remediation techniques for urban post-industrial sites.

DAUIN

Big data, information technologies, public data management and policies in cities.

DENERG

Urban energy networks and grids, renewable energies in urban settings.

Team *FULL*

Project manager

Matteo Robiglio

Executive manager

Laura Martini

Deputy project manager

Francesca Governa

Scientific board

Luigi Buzzacchi
Claudio E. Casetti
Juan Carlos De Martin
Enrico Fabrizio
Francesca Frassoldati
Paolo Giaccone
Marco Carlo Masoero
Antonio Santangelo
Giuseppe Scellato
Tiziana Tosco
Antonio Vetrò
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Marco Cappellazzo
Federico Coricelli
Antonio De Marco
Luca Galleano
Marianna Nigra
Andrea Pollio
Caterina Quaglio
Maria Paola Repellino
Giulia Sammartano

PhD candidate

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Elena Guidetti
Chiara Iacovone
Francesco Milone
Valerio Palma
Marco Rapelli
Ludovica Rolando
Agostino Strina
Roberta Taramino
Valeria Todeschi
Ilaria Tonti
Didem Turk
Alberto Valz Gris

Past fellow

Emilio Abbate
Federico Accorsi
Louis Andrianaivo
Michele Barale
Natalia Bonilla
Caterina Montipò
Maicol Negrello
Emanuele Protti
Elisa Sirombo

THE LAB | PEOPLE | MAP

FULL
Matteo Robiglio
Laura Martini
Francesca Frassoldati
Elena Vigliocco
Federico Coricelli
Giulia Sammartano
Nicola Russi
Lucia Baima
Nannina Spanò
Edoardo Piccoli
Maria Paola Repellino
Daniele Campobenedetto
Caterina Barioglio
Luca Galleano
Marianna Nigra

INTERNSHIPS
Marialuisa Marinetti
Klaudia Penkala
Giulia Ravera
Lorenzo Rabagliati
Weiting Liu
Natalia Bonilla
Michele Simonetti
Carlo Musso
Ludovica Not
Angelo Caccese
Riccardo Ronzani
Adriano Aimar
Chiara Dereani
Angela Montal
Alberto Artuso
Diego Bonilla

DENERG
Guglielmina Mutani
Marco Simonetti

DENERG PhD
Valeria Todeschi

Marco Masoero
Enrico Fabrizio
Elisa Sirombo
Matteo Rocchietti

DAD
Carlo Olmo
Roberta Ingaramo
Davide Rolfo
Cesare Tocci
Francesca De Filippi
Alberto Bologna
Nina Rappaport

DASP
Caterina Quaglio
Caterina Montipò
Michele Barale
Maicol Negrello

Ludovica Rolando
Silvia Cafora
Elena Guidetti
Didem Turk

Matteo Gianotti
Valerio Palma
Emauele Protti
Ilaria Tonti
Emilio Abbate

DIST
Isabella Lami
Carlo Salone

Francesca Governa
Luigi Buzzacchi
Giulio Zotteri
Andrea Pollio
Simone Veglio

Antonio De Marco

URD
Alberto Valz Gris
Chiara Iacovone
Roberta Taramino
Agostino Strina

DIGEP
Philippe Laveque
Carlo Cambini
Laura Rondi

DIGEP PHD
Francesco Milone

Giuseppe Scellato
Elisabetta Raguseo

DET
Paolo Giaccone
Giacomo Rosso

DET PHD
Marco Rapelli

Claudio Casetti

Louis Andrianaivo

DAUIN
Juan Carlos de Martin
Antonio Santangelo
Antonio Vetrò

Francesco Ruggero

DIATI
Federico Accorsi
Tiziana Tosco
Luigi Sambuelli

Claudio Comoglio
Alessandro Casasso
Roberto Revelli

FULL's 7 departments collaborate in the development of 4 PhD programs. FULL collaborates with several external researchers from Politecnico di Torino.

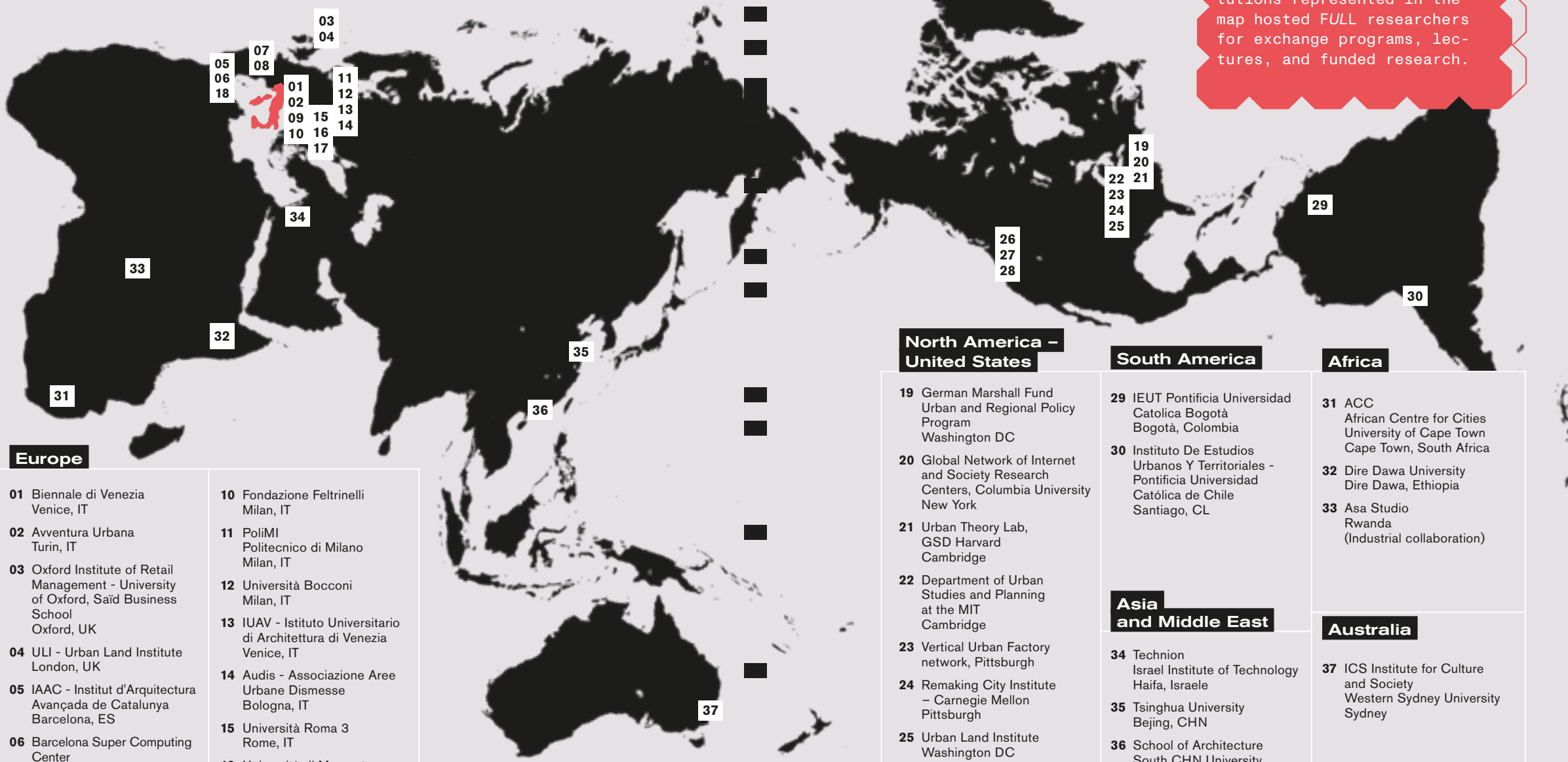
CAPTION:

FULL — DIST = affiliations

= connections

THE LAB | OUTREACH

The map shows the institutions that collaborated with *FULL* in the past years. The institutions represented in the map hosted *FULL* researchers for exchange programs, lectures, and funded research.



Europe

01 Biennale di Venezia
Venice, IT

02 Avventura Urbana
Turin, IT

03 Oxford Institute of Retail Management - University of Oxford, Saïd Business School
Oxford, UK

04 ULI - Urban Land Institute
London, UK

05 IAAC - Institut d'Arquitectura Avançada de Catalunya
Barcelona, ES

06 Barcelona Super Computing Center
Barcelona, ES

07 Baumeister - BMa
Bruxelles, BE

08 Paul Andreu Architecte
FR (Industrial collaboration)

09 Links Foundation
Turin, IT

10 Fondazione Feltrinelli
Milan, IT

11 PoliMI
Politecnico di Milano
Milan, IT

12 Università Bocconi
Milan, IT

13 IUAV - Istituto Universitario di Architettura di Venezia
Venice, IT

14 Audis - Associazione Aree Urbane Dismesse
Bologna, IT

15 Università Roma 3
Rome, IT

16 Università di Macerata
Macerata, IT

17 UniSalento
Lecce, IT

18 Urban Next / ACTAR
home based in New York, USA; office in Barcelona, ES

North America – United States

19 German Marshall Fund Urban and Regional Policy Program
Washington DC

20 Global Network of Internet and Society Research Centers, Columbia University
New York

21 Urban Theory Lab, GSD Harvard
Cambridge

22 Department of Urban Studies and Planning at the MIT
Cambridge

23 Vertical Urban Factory network, Pittsburgh

24 Remaking City Institute – Carnegie Mellon
Pittsburgh

25 Urban Land Institute
Washington DC

26 Global Metropolitan Studies Center University of California
Berkeley, California

27 UCLA - University of California, Los Angeles

28 UC Davis Art University of California
Davis

South America

29 IEUT Pontificia Universidad Catolica Bogotà
Bogotà, Colombia

30 Instituto De Estudios Urbanos Y Territoriales - Pontificia Universidad Católica de Chile
Santiago, CL

Asia and Middle East

34 Technion
Israel Institute of Technology
Haifa, Israele

35 Tsinghua University
Bejing, CHN

36 School of Architecture South CHN University of Technology, Guangzhou, Guangdong Province, CHN

Africa

31 ACC
African Centre for Cities
University of Cape Town
Cape Town, South Africa

32 Dire Dawa University
Dire Dawa, Ethiopia

33 Asa Studio
Rwanda
(Industrial collaboration)

Australia

37 ICS Institute for Culture and Society
Western Sydney University
Sydney

TRANSFORMATIVE URBAN DESIGN AND LANDSCAPE

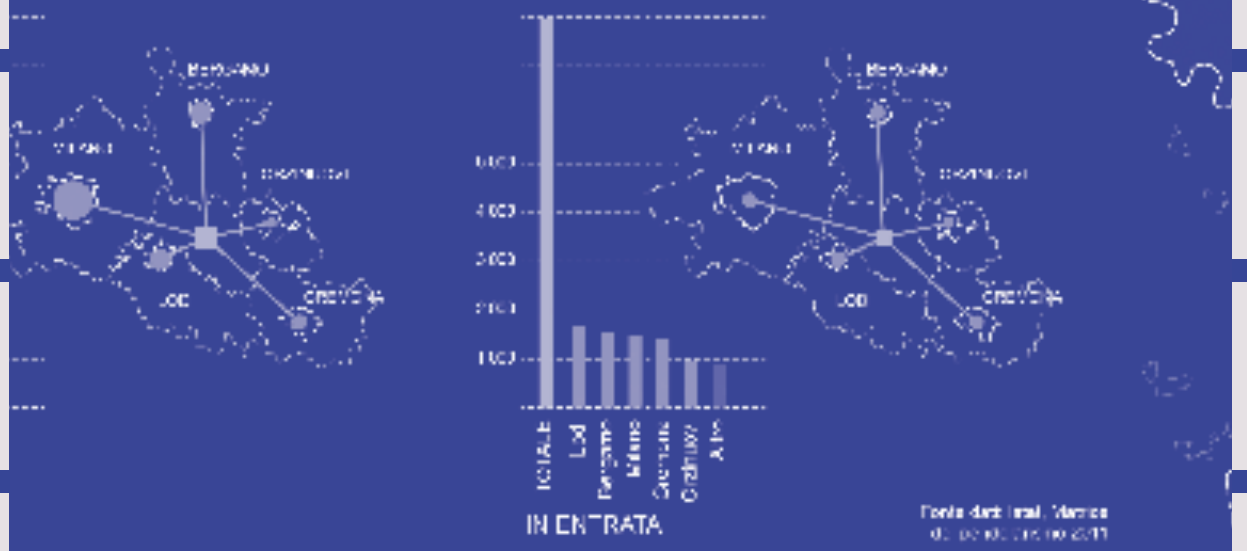
TUD

How to improve socio-technical projects to face the wicked problems of the city?

Since its foundation, F*UL*L has tackled the paradoxes of bureaucracy attached to urban rules and city codes. To fulfil this mission, F*UL*L has initiated various research studies to collect and review the current urban rules. *Re-coding* and the PhD research *Servitude of Form* serve as a repository of the state of the art of urban regulations and contain various ideas to redesign by redesigning the rules. Turin is the living lab of F*UL*L's research, and in 2021 the Metropolitan City asked the centre to produce the new 2021-23 Strategic Master Plan *Turin Augmented Metropolis* envisions 110 actions in the metropolitan area informed by the centre's multidisciplinary nature. The focus on urban legacies of F*UL*L's research finds application in large-scale and regional analysis for the urban regeneration of Lombardy and the seismic risk areas in central Italy.

Diagram of the commuting phenomenon by number of inhabitants in the Lombardy Region. Source: Istat.

FULL's research aims to define a model of territorial regeneration that looks at the existing fabric, the morphology of settlements and the specific recurrences of each context and territory analyzed.



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Turin Augmented Metropolis

TYPE
Applied research

YEAR
2020 - 2021

TEAM

Scientific coordinator:
Matteo Robiglio

Project manager:
Laura Martini

Scientific managers:
Nicola Russi, Francesca Governa, Giuseppe Scellato, Stefania Ravazzi (UniTo), Matteo Tabasso (LINKS Foundation), Alessandro Portinaro (LINKS Foundation), Giulia Melis (LINKS Foundation)

Team:
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in collaboration with:
LINKS Foundation, TIRESIA (PoliMi)

Commissioned by:
Città Metropolitana di Torino

Torino Metropoli Aumentata (Turin Augmented Metropolis) is the concise, clear and communicable title that sums up the vision proposed by the MSP for the future of the metropolitan city. The image of augmentation means the construction of a new alliance between the city of Turin and its region, based on integration and complementarity, rather than opposition and otherness. Augmentation is determined by an updated interpretation of the concept of rebalancing, meant not as uniformity but as the enhancement of the differences and specificities of each metropolitan area. Augmentation is the transition towards a post-Fordist and post-pandemic metropolis, which harmoniously combines the natural and artificial environment, developing the potential of both to build equity, well-being and sustainability.

The Metropolitan Strategic Plan (2021-2023) faces a global challenge: the definition of a new balance between city and region, development and environment. At the same time, it interprets this challenge starting from a critical comparison with the local situation of the Metropolitan City of Turin, which is specific and exceptional compared to all other similar administrative entities in Italy. Turin is the Italian metropolitan city that includes the greatest variety of regions within its boundaries, since it is a metropolitan city of the plain, a metropolitan city of the hills and a metropolitan city of the mountains. This regional diversity gives rise to unprecedented potential, which the MSP aims to exploit, systematise and implement.

In order to realise this vision, the MSP proposes a substantial paradigm shift, giving a new centrality to basic infrastructure over sectoral policies. New tangible and intangible infrastructures support hybrid forms of connection and mobility, which are the fundamental prerequisite for quality diffusion in all the regions of the augmented metropolis. The MSP's challenge is to

ensure equal rights and equal opportunities for citizenship for all its inhabitants in every point of the metropolitan city.
The vision of Torino Metropoli Aumentata is structured within the six programme points of Next Generation EU, in line with the objectives defined by the Italian Recovery and Resilience Plan. The MSP pragmatically organises its objectives around the funding structure that will make them possible. It also identifies the objectives of the European cohesion policy and the sectoral programmes that might contribute to completing individual actions. Above all, it includes the affinity of its own highly cultural approach with that underlying the European document, committed to local implementation of the large-scale, long-term continental vision it proposes.
The MSP is arranged into six areas: a more productive and innovative Turin Metropolis (digitalisation, innovation, competitiveness and culture); a greener and more ecological Turin Metropolis (green revolution and ecological transition); a more mobile, accessible and connected Turin Metropolis (infrastructures for sustainable mobility); a Turin Metropolis that learns more (education and research); a more attractive, fair and equal Turin Metropolis (inclusion and cohesion); a healthier Turin Metropolis (healthcare).
This framework supports a complex but clearly hierarchical, three-level articulation. Each axis includes a series of strategies and each strategy unfolds into a series of actions to be implemented. In total, the MSP proposes 24 strategies and 111 actions to augment Turin. This three-part structure underlines the importance of coherence between objectives, policies and actions. The transformation of the metropolitan city can be effectively and positively oriented only through a solid and continuously verified connection between these three scales.

A more productive and innovative Turin Metropolis

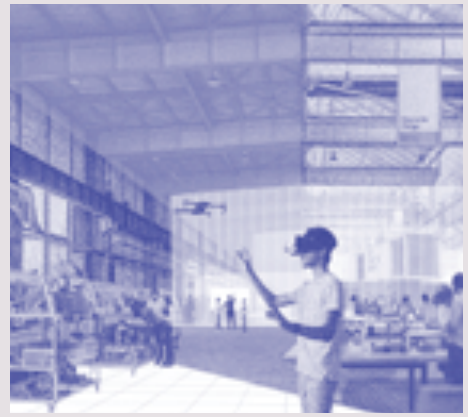
The axis dedicated to augmenting the capacity to create value in the various economic sectors (agriculture, tourism, manufacturing, services, trade, public administration) through technology transfer, digitalisation, automation, cooperation in business networks, the construction of supply chains, process and product innovation and the promotion of the region and its products. It thus aims to augment the number of job and business opportunities and the attractiveness of the Turin metropolitan system for new initiatives and investments.

A greener and more ecological Turin Metropolis

This includes all the actions aimed at augmenting the ecological, environmental and landscape quality of the metropolitan area. These actions aim to reduce its ecological footprint, redefining its metabolic processes in a circular way and thus contributing through local actions to the global challenge of climate change.

A more mobile, accessible and connected Turin Metropolis

This suggests seizing the opportunity of the transformation of remote working commuting routines to improve connectivity and accessibility to and from the metropolitan region. It imagines the augmented metropolis as a '90-minutes metropolis' made up of '15-minute cities', where the ease and comfort of intermodal transport are ensured by an integrated and user-oriented MAAS (Mobility-as-a-Service) model. It promotes a differentiated use of collective transport over medium and long distances and of alternatives to the private car over medium and short distances. It projects connections outside the metropolitan area with the rest of northern Italy and the global world beyond the Alps, making gateways of metropolitan interest more accessible from all points in the region.



A Turin Metropolis that learns more

This axis stresses that it is essential to invest in the structural renewal of the metropolitan school infrastructure, in terms of buildings and the spatial model of education. It proposes seizing the opportunities experienced with distance learning during the pandemic and hybridising them with the quality of traditional teaching. It includes a series of actions aimed at strengthening and innovating vocational training, both at upper secondary school and university level. It emphasises the centrality of vocational degree courses, to be put into a system with proposals for lifelong learning and re-training of the already active workforce. It promotes and disseminates hands-on approaches to teaching, including in non-professional areas, as well as early schooling, with a view to gender balance, experimenting with hybrid forms of decentralised/autonomous management. It promotes relations between schools and the region in all contexts, making the school infrastructure a civic multi-service platform.

A more attractive, fair and equal Turin Metropolis

This aims to promote equal opportunities for personal and community development in the different parts of the region and for the entire population of the metropolitan city, so as to make it attractive again for residents and businesses. It includes actions aimed at introducing and supporting new forms of social housing and community residence, adapted to the specificities of the different local contexts, which can bring new inhabitants to areas with weak demographics, as well as prevent and recover situations of social exclusion. It suggests experimenting with and encouraging dual forms of metropolitan residence to strengthen links between the centre and peripheral areas.

A healthier Turin Metropolis

Starting with the centrality of the new Turin City of Health, investment in an integrated regional system of education, prevention and diagnosis which promotes equal accessibility of the health system throughout the region is proposed. This includes the possibilities of telemedicine and remote diagnostics. Its actions encourage making the environmental quality of the metropolitan city an active public health factor and an enabling infrastructure for a healthy and active lifestyle, as well as promoting health education, supporting active ageing, the social role of the elderly and intergenerational links.

Six axes, 24 strategies and 111 actions in just one region. It is important to underline that the six axes of the MSP refer to a single region: the metropolitan city of Turin; considered as a whole an equal space, but enhanced in its many areas as a place of positive differences. The six axes are implemented in each region but maintain their absolute local and global relevance and contribute as a whole to the single objective of the MSP: to augment Turin.

TRANSFORMATIVE URBAN DESIGN AND LANDSCAPE | OUTCOMES

BOOKS AND BOOK CHAPTERS

Barioglio, Caterina, Daniele Campobenedetto, Marianna Nigra, Michele Francesco Barale, Francesca Frassoldati, and Matteo Robiglio. 2019. *Re-Coding. Ripensare Le Regole Della Città*. Dipartimento Di Architettura E Design - Politecnico Di Torino.

CONFERENCE PROCEEDINGS

Barioglio, Caterina, Daniele Campobenedetto, Marianna Nigra, and Lucia Baima. 2020. 'The Hidden Designer. Rethinking Urban Rules in City Making'. In EAAE-ARCC International Conference. Editorial Universitat Politècnica de València proceedings, Valencia, pp. 622-629.

SCIENTIFIC PAPERS

Barioglio, Caterina and Daniele Campobenedetto. Forthcoming. Coding Tur(i)n. Il potenziale dei codici urbani per le trasformazioni ordinarie a Torino. in «Territorio».

Frassoldati, Francesca and Matteo Robiglio. Forthcoming. Regolare la città per la sua trasformazione. Spunti da un dialogo con la Città di Torino. in «Territorio».

Barale, Michele. Forthcoming. Sguardi sul confine. Le regole urbane sulle aperture dalla Coutume de Paris al Codice Pisanelli. in «Territorio».

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Campobenedetto, Daniele, and Caterina Barioglio. 2020. 'La Trasformazione Ordinaria : Gli Effetti Della Legge n. 106/2011 Sulla Forma Urbana a Torino'. *Territorio*, 125–34.

Mutani, Guglielmina, and Valeria Todeschi. 2020. 'The Effects of Green Roofs on Outdoor Thermal Comfort, Urban Heat Island Mitigation and Energy Savings'. *Atmosphere* 11 (2): 123.

Nigra, Marianna, Valerio Lo Verso, Anna Pellegrino, and Martina Maddalena. n.d. 'Re-Coding Environmental Regulation - Simplified versus Complex Predition Models for Daylighting'. *Energy and Buildings*. (forthcoming)

REPORTS

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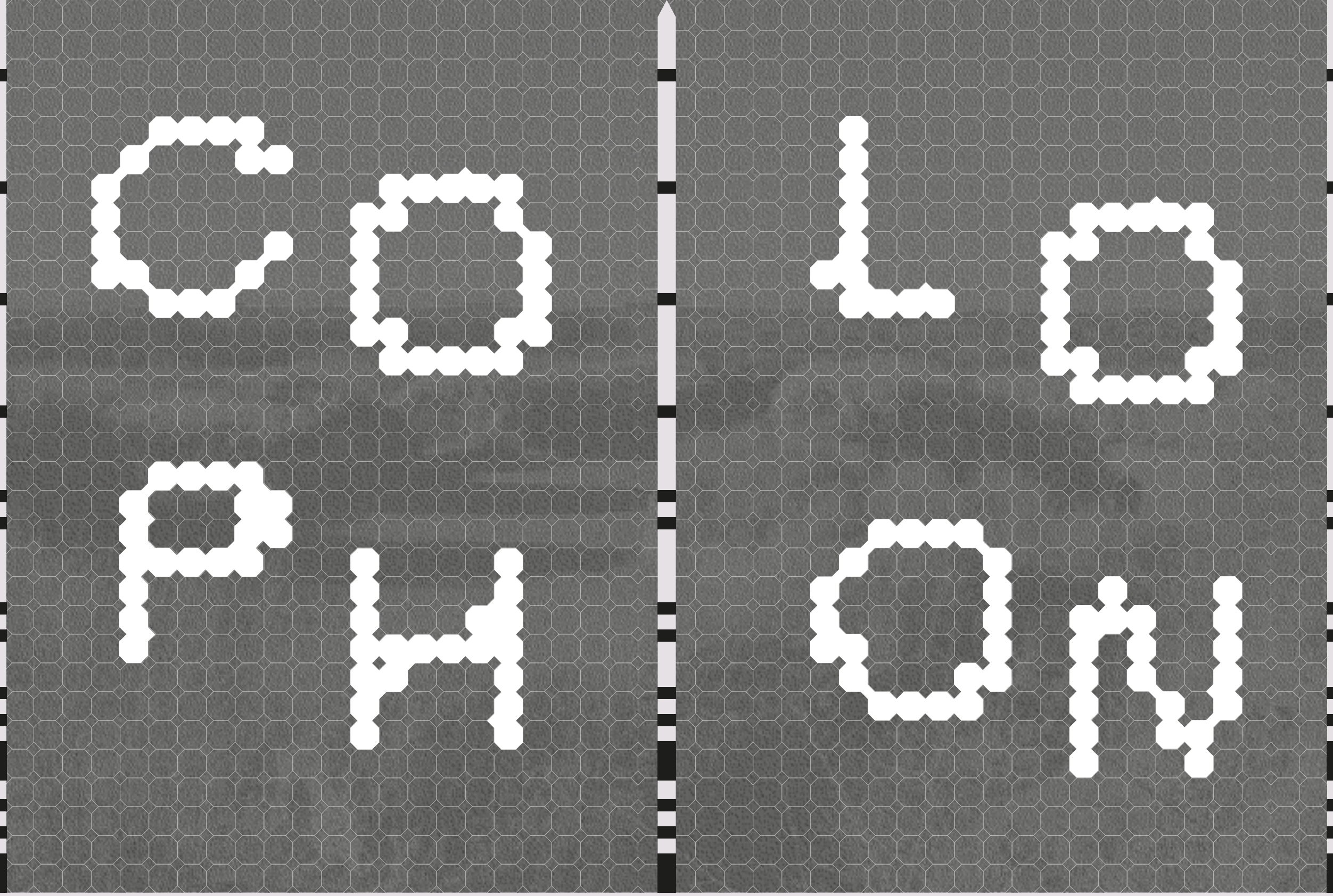
Robiglio, Matteo, Nicola Russi, Francesca Governa, Giuseppe Scellato, Stefania Ravazzi, Matteo Tabasso, Alessandro Portinaro, et al. 2021. 'Torino Metropoli Aumentata. Piano Strategico Metropolitano 2021-2023.' Città Metropolitana di Torino.

Barioglio, Caterina, Daniele Campobenedetto, Francesca Frassoldati, Marianna Nigra, Michele Barale, Matteo Robiglio. 2020. Ripensare i codici urbani. Comune di Torino.



COLOPHON | BIOGRAPHIES

Project manager

Matteo Robiglio

is an architect and urban designer. He is a Full Professor at Politecnico di Torino. After 20 years of practice in community architecture and urban regeneration with Avventura Urbana, he founded in 2011 with Isabelle Toussaint the office TRA (lit.: in-between). In 2014 TRA and the community foundation Benvenuti in Italia jointly founded the non-profit social innovation start-up HOMERS, recognized as PoliTo spin-off, promoting bottom-up cohousing projects for the reuse of abandoned buildings. He was a member of the Scientific Committee of the Centre for African Studies, of Rebuild and of the recovery project of Giancarlo De Carlo's University Colleges in Urbino of the Getty Foundation. He is a German Marshall Fellow in Urban and Regional Studies. He has also been a visiting lecturer in many universities such as the Carnegie Mellon of Pittsburgh, the Xi'an Jiaotong-Liverpool University in Suzhou, the Technion of Haifa, and the MIT in Boston.

Executive manager

Laura Martini

is an architect PhD, since 2017 she is the executive manager at F*UL*L – The Future *Urban Legacy* Lab. Her research interest lies in the area of urban theories, psychogeography, and urban countercultures. As part of the informal research group luoghisingolari.net and as a PhD candidate at Politecnico di Torino she did field research on the relationships between underground, radical spatial practices, real estate values and metropolitan conflicts.She has co-authored with D. Vazquez, the book: Che cosa è un luogo singolare? Scritti del Centro di Ricerca dei Luoghi Singolari. 2004-2016. 2018, Aracne Ed., Roma.

Deputy project manager

Francesca Governa

is a PhD in Spatial Planning, she is an urban geographer and Full Professor of economic and politic geography. She is part of the Academic Board of the PhD in Urban and Regional Development. She is involved in research activities at national and international level on four main issues: local development processes and policies; urban margins and spatial justice; urban development and the rescaling of the urban realm; Urban China and urbanization processes in the Global South. She has carried on fieldworks in European, North African and Chinese cities.

Scentific Board

Luigi Buzzacchi

is Full Professor since 2000 at the Politecnico di Torino, where he teaches courses in urban economics and industrial organization. He also taught insurance economics and financial markets economics in various universities. His research interests lie in the area of urban and regional economics, insurance and financial markets (in particular, contract theory, ownership structure, venture capital contracts, and innovation incentives), economics of risk and uncertainty, regulation and public policies, firm size distribution and spatial competition, economics of professional sports.

Claudio E. Casetti

is a Full Professor at the Department of Control and Computer Engineering, Politecnico di Torino, Italy.He has published more than 200 papers in peer-refereed international journals and conferences on the following topics: Transport and network protocols in wired networks, IEEE 802.11 WLAN, Vehicular networks, Ad hoc and sensor networks.Also given Tutorials on vehicular networks at major IEEE Conferences, including IEEE ICC, IEEE Globecom, IEEE CCNC and IEEE VTC. He has served in the Technical Program Committees of the main international conferences in the networking field.

Juan Carlos De Martin

is a Full Professor at the DAUIN Department of the Polytechnic of Turin, he co-founded and co-directs the Nexa Center of Internet and Society. Since 2011, he is a Berkman Faculty Fellow at the Berkman Center for Internet & Society of Harvard Universityand Senior Visiting Researcher at the Internet and Society Laboratory of Keio University (Tokyo). It is known for its activities in the Internet and the Society, with particular attention to issues of copyright in the digital age and net neutrality. Often writes in the daily "La Stampa" as a columnist on issues related to digital technologies and their impact on society.

Enrico Fabrizio

a PhD in Energy Technologies at the Politecnico di Torino and at the INSA de Lyon, since 2015 is Associate Professor at the Energy Department of Politecnico di Torino. From 2008 to 2015 he has been assistant Professor at the DISAFA Dept. of the University of Torino. He carries out research activities in the fields of zero-energy buildings performance simulation and optimization, environmental control for animals and plants, impacts of renewable energy technologies and energy poverty issues.

Francesca Frassoldati

is Associate Professor at the School of Architecture of Politecnico di Torino since December 2015. From 2008 she has been working at the South China University of Technology. Out of a long-term commitment to understanding processes, tensions, and spatial effects of socio-economic transformations in the habitable world, her major lines of work address rural-urban interaction and urban regeneration processes with particular emphasis on the use of spatial design in public discourse.

Paolo Giaccone

is currently Associate Professor in the Department of Electronics Telecommunications of Politecnico di Torino.Between August 2000 and September 2001 he was visiting researcher in the Information Systems Networking Lab of Prof. Balaji Prabhakar at the Electrical Engineering Department of Stanford University. In February 2002 he obtained the PhD degree at Politecnico di Torino, with a dissertation about “Queueing and scheduling algorithms for high performance routers”.

Marco Carlo Masoero

holds MSc degrees in Civil Engineering from Politecnico di Torino and in Mechanical and Aerospace Engineering from Princeton University. He is a Full Professor at Politecnico di Torino in the Department of Energy “Galileo Ferraris”(1995-1999 and 2012-2015). He is International Faculty Affiliate in the Department of Mechanical and Industrial Engineering of the University of Illinois at Chicago. His teaching, research and consulting activity focuses on two main areas: Energy Efficiency in Buildings and Technical Systems, and Applied Acoustics.

Antonio Santangelo

is a semiologist. He studies the relationship between digital technologies and society. He carries out this research at the Nexa Centre for Internet & Society of the Polytechnic of Turin, together with an interdisciplinary group, composed of computer engineers, lawyers and economists.He teaches Semiotics and Philosophy of Language, Semiotics of Text and New Media Languages at the eCampus Telematics University and Semiotics of Television at the University of Turin.

Giuseppe Scellato

holds a PhD in Economics and is a Full Professor at the Department of Management and Production Engineering (DIGEP) and the Future *Urban Legacy* Lab (F*UL*L) of Politecnico di Torino, where he teaches Corporate Finance in graduate programs and Economics and Management of Innovation in post-graduate programs. During 2015-2018 he has been the Vice Dean of the College of Industrial Engineering and Management. Since November 2018 he is the president and CEO of the Innovative Enterprise Incubator of Politecnico di Torino.

Tiziana Tosco

is an Associate Professor at DIATI - Politecnico di Torino since April 2018 and formerly She was Tenured Assistant Professor in the same department.She is co-responsible of the Environmental nanotechnologies Laboratory at DIATI and the responsible for Internationalization of the Environment and Land Engineering Bachelor and Master programs. She is Professor of the MSc course Reclamation of Polluted sites and in other courses of the MSc of Environmental Engineering and in the Specializing Master Program of Water for Civil and Industrial uses at Politecnico di Torino.

Antonio Vetrò

is Assistant Professor at the Department of Computer and Control Engineering, at Politecnico di Torino. He is also Senior Research Fellow at the Nexa Center for Internet and Society and at the Future *Urban Legacy* Lab, both at Politecnico di Torino. Currently, Antonio is conducting research on how to detect and mitigate potential discriminations deriving from biases in the data and in the algorithms of decision systems.

Giulio Zotteri

is Full Professor at Politecnico di Torino where he currently teaches Distribution Logistics, Marketing, and Urban and Regional Economics. Giulio has published more than 20 articles in international journals on the above topics. Giulio is part of the Consortium on Operational Excellence in Retail and has studied the retail sector for more than 20 years.

Faculty

Edoardo Piccoli

is Associate Professor since 2000 at the Politecnico di Torino, where he teaches courses in urban economics and industrial organization. He also taught insurance economics and financial markets economics in various universities. His research interests lie in the area of urban and regional economics, insurance and financial markets (in particular, contract theory, ownership structure, venture capital contracts, and innovation incentives), economics of risk and uncertainty, regulation and public policies, firm size distribution and spatial competition, economics of professional sports.

Nina Rappaport

is an architectural critic, curator, and educator. She is publications director at Yale School of Architecture and editor of the biannual publication Constructs (numbering 35), the exhibition catalogs (numbering 48), as well as the school’s book series (22 to date). She is the director of the project/think tank the Vertical Urban Factory, which includes an exhibition with graphic design by Sarah Gephart of MGMT Design and the exhibit design by Studio Tractor. The show was most recently displayed at EPFL's Archizoom in Lausanne, and the Gallery at Industry City, in Sunset Park, Brooklyn”.

Nicola Russi

is an architect and Associate Professor at Politecnico di Torino. He studied at TU Delft and at Politecnico di Milano, where he obtained his Phd in 2007. In 2008 he founded the architectural practice Laboratorio Permanente in Milan with Angelica Sylos Labini. He won the international competition for the masterplan of Farini and San Cristoforo railway yards, participated in the 16th and 14th Venice Biennale International Architecture Exhibition and received the Honour Mention for the Golden Medal for Italian Architecture in 2012 with the project "The landscape has no rear".

Luigi Sambuelli

took service as a Full Professor of Applied Geophysics at the Università di Cagliari and in November 1995 he moved to the Politecnico di Torino with the same role. From April 2015 he is full Professor of Applied geophysics at the Politecnico di Torino. His main interests are the application of geophysics to archaeology, architecture, tunneling, geotechnics and hydrogeology.

Nannina Spanò

is Associate Professor in the discipline 08-Civil engineering and architecture / 04: Geomatica from 2014, at Politecnico di Torino - Department of Architecture and Design. He teaches several courses in the I, II and III level programs in Architecture (bachelor course) and Architecture for sustainable design (Master of science course) and Geomatics for Architectural and Landscape Heritage (doctoral course); since 2007 he has been a member of the board of Professors of the PhD program in Architectural and Landscape Heritage.

Elena Vigliocco

is an architect, Phd in Theories and Construction of the Architecture (2005), since 2017 she is Assistant Professor in Architectural and Urban Design at the Politecnico di Torino. In 2019 she is Visiting Professor at the Pontificia Universidad de la Javeriana in Bogotà. Her research interests are focused on issues concerning adaptive reuse of cultural heritage. As architect, she is author of the renovation of the Astra Theatre and of the Paideia Centre both in Turin.

Research fellow

Federico Accorsi

is an environmental engineer specialized in the field of reclamation and monitoring of contaminated sites. He acquired a high level of technical / commercial knowledge, holding positions of responsibility for projects located throughout the national territory and for each phase of the project: sizing, reclamation, offer formulation, personnel supervision and management of construction site, communication with Italian / foreign customers. He focuses on: integration of the remediation processes in the architectural restoration project, monitoring and modeling of biogas emissions into the atmosphere.

Adriano Aimar

is an architect graduated from the Politecnico di Torino and Politecnico di Milano as an alumnus of the Alta Scuola Politecnica. His master thesis has been developed within F*UL*L and it explored the non-spatial relationships among urban venues based on the analysis of Instagram social urban data. His research work has been focusing afterwards on data analysis for urban and regional development. He is currently an MBA fellow at the Collège des Ingénieurs in Turin.

Lucia Baima

is an architect, PhD and Research Fellow at F*UL*L - Politecnico di Torino.
She holds a PhD in Architecture, History and Project. Her research activities investigate the role of Intensity as a dynamic parameter able to reveal the potential of spaces and projects to catalyze multiple uses and kinetic processes. Her doctoral dissertation and forthcoming book explore the concept of Intensity within the city of New York City. She collaborated as a teaching assistant in architectural and urban design studios at the Politecnico di Torino where she has graduated after a period of studies in Barcelona. Previously she worked with several architectural offices. For six years she has been a part of MARC Michele Bonino e Subhash Mukerjee Architects as project manager for several awarded projects. With MARC she participated at the 12th and 13th Biennale of Architecture in Venice. She is the author of several articles and publications on Intensity issues and co-curator of the special issue of UrbanisticaTre *Sharing of public spaces* (2015).

Caterina Baroglio

is Assistant Professor at the Department of Architecture and Design of Politecnico di Torino. She earned a PhD in History of Architecture and Urban Design in 2016 with a dissertation carried out between Turin and Columbia University in New York City. Bridging history and design, her research relates to urban regeneration processes, with a main focus on the spatial effects of urban rule and socio-economic transformations. From 2016 to 2018 she worked for the masterplan project of the Politecnico di Torino. Since 2018 she has been editor of the ARDETH - *Architectural Design Theory* magazine.

Angelo Caccese

is an architect. He graduated at Politecnico di Torino after a period of studies between Turin, Buenos Aires and Madrid. His master thesis, entitled *The Airbnb effect: architecture and urban consequences of a new way of trading homes* was carried out during a period of seven months as visiting student at School of Architecture of Madrid (ETSAM). He collaborated with several architectural offices and formed part of the research group LoCUS from the Universidad Politecnica de Madrid. He currently collaborates with F*UL*L and he is a freelance architect.

Daniele Campobenedetto

is an Assistant Professor in Architectural and Urban Design at Politecnico di Torino. He holds a PhD in History of Architecture and Town Planning from Politecnico di Torino and in Architecture from Université Paris Est. His research activities investigate especially the role of rules and bureaucracies in urban transformation. He has been part of the PoliTo Masterplan Team and he is a funder and an editor of the journal ARDETH - *Architectural Design Theory*.

Federico Coricelli

is an architect graduated from the University of Florence. He holds a PhD from Politecnico di Torino. He is the author of various articles and publications on housing issues. During the past years he worked for several architectural offices and collaborated independently in several competitions, some of them successfully awarded. He collaborated as teaching assistant in architectural design studios at the University of Florence and Politecnico di Torino. Since 2017 he is partner at UHO, an architectural office based in Paris.

Marco Cappellazzo

holds a master's degree in Architecture Construction and City with a thesis project developed on the areas of Parco di Porto Conte in Alghero. The purpose was to describe, through GIS and rapid mapping technologies contribution, the municipality's territory, leaving out the usual glance of coasts confined only for seaside tourism, and rethinking the legacy of military architectures from the IIWW as hubs to further new strategies of development both for tourism and for residence. He cooperates with lab G4CH and F*UL*L. His research deals with geo-spatial science techniques for the documentation of Cultural Heritage by use of GIS mapping and data analysis approach.

Luca Galleano

is an architect. He has graduated at Politecnico di Torino with a thesis entitled "Designing with autonomous relationship properties of complex systems: a parametric approach to achieve building sustainability". He is specialised in computational design and sustainability architecture, indeed is also a WELL AP and LEED Green Associate. He collaborated with several architectural offices, and he currently collaborates with F*UL*L as part of the WHO Covid-19 Helpdesk project and he is a freelance architect.

Antonio De Marco

is Assistant Professor at the Department of Management and Production Engineering (DIGEP) and the Future *Urban Legacy* Lab (F*UL*L) of Politecnico di Torino, holds a PhD in Economics and Complexity at Collegio Carlo Alberto and a M.Sc. in Management Engineering at Politecnico di Torino. In the last few years he has been involved as Research Assistant in a number of projects funded by the European Commission, gaining an in-depth knowledge of advanced methodologies for patent data-mining and technology intelligence.

Marianna Nigra

is a Research Fellow at Politecnico di Torino. She is an experienced Architect with a demonstrated history of working in the research industry and a PhD focused in Management, Production and Design from Politecnico di Torino. She has strong International experience, developed by collaborating with The Melbourne University, Australia; The Vrije Universiteit, Amsterdam; and Strathclyde University, Glasgow, Scoltand, and a number of French architectural practices in Paris, France. Her work focuses on the management of complexity in sustainable architecture, encompassing concepts of economy, building physics, and architectural design. She has collaborated with a number of Institutions in support of the definition of policies and strategies to enhance the sustainable development of the built environment. She is currently collaborating with the World Health Organization (WHO) to support the research against the diffusion of covid-19 in health infrastructure and public spaces.

Andrea Pollio

holds a PhD in Economic Geography and Urban Studies from the Institute of Culture and Society, Western Sydney University. His research interests coalesce around the relationship between urban economies and technological innovation in African cities. Andrea is currently Marie-Sklodowska Curie Fellow (grant no 886772) jointly at the Future *Urban Legacy* Lab (through DIST) and at the African Centre for Cities, at the University of Cape Town. His project addresses the impact of private Chinese finance on the transformation of African cities that lie on the 21st century Maritime Silk road.

Caterina Quaglio

is a doctoral student in "Architecture. History and Project" at the Politecnico di Torino. She graduated in architecture in Italy in 2015, spending two years abroad for exchange programs in Brussels and Madrid. Since her master thesis and during an internship in Chile, she has worked on the issue of public housing. Her PhD research is focused on the policies and practices of public housing urban regeneration, studied through in-depth analysis of three European case studies.

Maria Paola Repellino

graduated in Architecture in Politecnico di Torino and then obtained a PhD with a thesis on the dynamics of transformation of industrial heritage into creative places in Contemporary China. Since 2016 she is a post-doc researcher at the Polytechnic of Turin, where she coordinates a research in collaboration with Tsinghua University and EPFL dedicated to the Chinese new towns: within the program she curated the exhibition-seminar at the Beijing Design Week 2016 and the cycle of conferences on the new Chinese urbanization along the new Silk Road.

Giulia Sammartano

is architect and PhD in Geomatics. She cooperates with lab G4CH and F*UL*L. The research interests in geo-spatial science born in the Geomatics techniques for 3D documentation of Cultural Heritage by use of multiple digital approaches: 3D modelling by LiDAR, SLAM mapping, close-range and UAV photogrammetry, data analysis and GIS mapping. She is part of DIRECT Team Polito for emergency surveying, and 2016 Polito Task Force post-eartquake mission. She participates at PRIN 2015 and takes part in the Italian Archaeological Mission in Hierapolis of Phrygia in Turkey (2015, 2017, 2018).

PhD candidate

Silvia Cafora

is a Phd researcher at Politecnico of Turin where she is working on new radical approaches to collaborative housing. She studied Architecture between Milan (Politecnico) and Valparaiso in Chile. She early developed an interest in the right to the city, focusing on the abandon of public spaces in urban areas and their informal re-use by citizens. She led a research at PUCV Escuela de Arquitectura y Diseño in Valparaiso, Chile with the theme Obra Habitada, *housing from everyday life*, creating international symposiums in Paris (ENSCI), Santiago de Chile, Milan. She collaborates with Feltrinelli Foundation in Milan in the Housing research team. As a professional she worked at the first co-housing projects in Milan, and she is now part of Homers in Turin.

Matteo Gianotti

is a PhD researcher working on urbanization in developing countries. He studied architecture and urban planning at Politecnico di Torino, Università IUAV di Venezia and Chalmers University of Technology (Gothenburg). His Master's thesis focused on urban development strategies in response to climate change. He worked in the Urban Planning Unit at UN-Habitat (Nairobi) and with Subhash Mukerjee architectural design studio (Turin).

Elena Giudetti

is a PhD Candidate in Architecture, History and Project and a PhD fellow at F*UL*L. Her research focuses on the *transformative potential* in existing buildings. Until 2018, she was a freelance architect and a teaching assistant at UniFe, taking part in the organization of two international workshops in Sarajevo. During 2017 she worked in Zimoun Contemporary Art Studio in Bern. In 2017 she graduated at the Faculty of Architecture of Ferrara, with a thesis focused on adaptive reuse of a post-industrial site in Porto, in collaboration with the FAUP.

Chiara Iacovone

is an urban geographer with a background in architectural studies. She holds a BA at Roma Tre University and a MA at Politecnico di Torino both in Architecture; she graduated with a research thesis on the urban transformations in Berlin. She continued her career mostly oriented on urban studies, experimenting with different tools and media to investigate space. Her interests concern with questioning urban dynamics and looking at contemporary cities through different lenses. She has collaborated with art galleries across Europe with visual research projects. From November 2017, she became part of F*UL*L.

Francesco Milone

is an engineering and Management student at Politecnico di Torino. Interested in Economics, Strategy, Innovation and new Business Model Development. Worked as an assistant research scientist about economics and management field. The focus of this research is on "Platform business models". As case study, a particular attention is kept on Airbnb. In order to perform this analysis this research needs an important effort as data analytics due to the greater amount of data that have to analyzed,all results are elaborated in a simple visual way and in detailed reports.

Valerio Palma

holds a master's degree in Architecture and Urban Design from the University of Roma Tre (2016). He has been a research fellow at the ReLOAD Lab of the University of Padova (2016-2017), dealing with interoperable digital models for architectural cultural heritage. His work at F*UL*L focuses on the use of quantitative models and digital tools for urban design and the analysis of urban transformations.

Marco Rapelli

was born in Turin (Italy) on December 5th, 1992. He got his B.Sc. in Telecommunications Engineering (2015) and his M.Sc. in Computer And Communication Networks Engineering (2017) both at Politecnico di Torino. He then joined F*UL*L (Future *Urban Legacy* Lab), an inter-disciplinary center of Politecnico di Torino, where, in November 2018, he started his PhD under the supervision of Prof. Casetti. As main research interests, he is working on mobility studies and large-scale urban traffic simulators.

Ludovica Rolando

is an architect and PhD student in Architecture History and Design at Politecnico di Torino. She studied Architecture between Politecnico di Torino and UCL Université Catholique de Louvain. She collaborated with TeamMinus, Beijing (2016) and Miralles Tagliabue EMBT, Barcelona (2019/2020). She is now focusing on Contemporary Housing Models and she recently joined F*UL*L.

Agostino Strina

is an architect and a PhD Candidate in Urban and Regional Development at Politecnico di Torino. He holds a master's degree in Architecture for the Sustainability Design with a thesis focused on the internal areas of Sardinia, with the aim of rethinking some trajectories of regional development. His research deals with theories and cultures of contemporary urban design, with a particular focus on the relation between urban and rural, investigating the role of production landscapes and infrastructures. On these issues, since November 2020, he is conducting his research at F*UL*L. He is also member of Politecnico's research group China Room, as junior fellow, and teaching assistant in Urban Planning at Politecnico di Torino.

Roberta Taramino

is a M.sc in Engineering and Management at Politecnico di Torino.Her research grants to provide information to public institutes in order to improve the commercial system of cities. Understanding how consumers and close commercial environment react to a large-scale supermarket opening, using an innovative method to measure the impacts and studying the business model for the reuse of historical buildings in the urban landscape are two of the issues I've dealt with.

Valeria Todeschi

graduated in Regional, Urban and Landscape-Environment Planning at the Polytechnic of Turin in 2016, with a thesis on "Energy sustainability at the urban scale. Energy consumption models of buildings in Turin and potential development of the district network". She started a PhD in Energetics on F*UL*L project "Smart Energy Solutions for Sustainable Cities and Policies" at Polytechnic of Turin in 2018. The PhD aim is to drive smarter use of energy, matching it with the available energy renewable sources on the territory to help policy makers in defining effective policies adapted to the real energy-use.

Ilaria Tonti

is an architect and a PhD researcher working on reconstruction design tools post-earthquakes emergencies. She studied architecture between Piacenza (BA-Politecnico di Milano) and Turin (M.Sc. - Politecnico di Torino). Her Master's thesis focused on the regenerative value of residual urban spaces and adaptive strategies for Turin. During 2019, she followed the research "FARB 2016 - Learning from catastrophes: methods, tools and techniques for the realization of resilient settlement systems " of the Politecnico di Milano. With her PhD research, she became part of two Interdepartmental Centre of PoliTo: F*UL*L and PIC4SeR.

Past fellow

Didem Turk

is a city planner and PhD candidate in the Architecture History and Project at Politecnico di Torino. Her background is urban planning and urban design. She received her bachelor's degree in Middle East Technical University (METU) from the City and Regional Planning Department. She pursued her Master degree in Urban Design at METU in the context of post-conflict urban areas. In the meantime, she followed studio related to parametric design. She is currently conducting a research on comparative urban morphology at F*UL*L in collaboration of Transitional Morphologies Research Unit. Her field of interest is urban morphology, comparative urban morphology studies, and parametric design.

Alberto Valz Gris

works as a geographer. He holds an M.Sc. In Architecture (Politecnico di Torino) and an MA in Fine Arts (Sandberg Instituut, Amsterdam). Combining theoretical reflection and on-field research into textual contributions and audiovisual productions, his work aims at transforming the relationship that humans entertain with the surrounding biosphere.

Emilio Abbate PhD candidate

cooperates with lab G4CH-Laboratory of Geomatics for Cultural Heritage at PoliTo and F*UL*L-Future *Urban Legacy* Lab. He researches tools and survey methods for identify and implement HBIM model applied on Cultural Heritage, for monitoring, conservation, restoration and Finite Element Analysis (FEM). His interests are focused on the generation of BIM models from Point Clouds: modelling BIM from laser data and photogrammetric using object-oriented parameterization.

Louis Andrianaivo Research fellow

is a *research fellow* from the department of Computer Science of Polytechnic University of Turin. He has graduated from the department of Mathematics, University of Roma Tre. His topic is the application of parallel programming in cryptography, statistical simulation and machine learning. Currently, his main contribution with Future *Urban Legacy* Lab is the use of machine learning algorithms in the field of Architecture and Urban design. He is working under the supervision of Professor Claudio Casetti.

Michele Barale PhD candidate

is a journalist and a PhD candidate in Architecture, History and Design. He graduated in Architecture at Polytechnic of Torino, with a master thesis concerning typo-morphology research developed at Forma Urbis Lab in Lisboa (FAUL). Since may 2018 he is editor of In_bo journal (University of Bologna). Active in dissemination of local, architectural and urban culture, he worked as journalist and he is member of local organisations.

Natalia Bonilla Research fellow

finished her major in Architecture at the Universidad de Costa Rica, Natalia gained experience for two years in design and construction as a junior architect in the San José based firm Grupo Térraba. In 2015, she undertook the masters joint programme PLANET Europe, part of Erasmus+, between Radboud Universiteit (Netherlands) and Cardiff University (United Kingdom) in European Spatial Planning and Environmental Policies.

Caterina Montipò PhD candidate

is an architect and PhD She graduated from Politecnico di Milano in 2013, and earned her PhD from Politecnico di Torino in 2019 with the thesis "Loft Working. Urban manufacturing spaces in North American cities." She has a rich and diversified international experience developed both as a student as well as a professional between Spain (Universitat Politècnica de València), Chile (Pontificia Universidad Católica de Chile), and USA (Carnegie Mellon University). She has been collaborating with different architectural studios and engineering companies between Chile (2013-2014) and Italy (2015-current).

Maicol Negrello Research fellow

is an architect and research fellow at F*UL*L and DAD (Politecnico di Torino). Graduated in Architecture after two international experiences at TTÜ Tallinn and at the CCA (Montréal), he holds a PhD at Politecnico di Torino with the thesis "Architecture for urban agriculture". He is currently involved in studying the different forms of integration of nature in the city in the research NUI- Nature as Urban Industry.

Emanuele Protti PhD candidate

is an architect and PhD student in Architecture History and Design at Politecnico di Torino. He collaborated with Carlo Ratti Associati, Plateau Collaboratif, UdA Marcante-Testa. In 2016, he won in collaboration with Plateau Collaboratif the international competition for the redevelopment of the industrial sector Pasubio in Parma. He lives and works in Turin.

Elisa Sirombo Research fellow

architect, leed ap bd c, o m, itaca protocol expert Since 2011 he has been a consultant on energy-environmental sustainability issues and on the LEED and Itaca certification processes and since 2014 he has been collaborating with Macro Design Studio. Since 2013 research fellow at the Department of Energy of the Polytechnic of Turin, he carries out research in the field of sustainable construction. Author of several technical and scientific publications.

COLOPHON

The Future *Urban Legacy* Lab
A report. 2017–2021

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