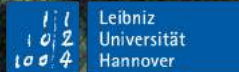


image from <https://pixabay.com/de/photos/bienenstock-bienen-garten-magnolien-3407353/> /elaboration Sabrina Sposito, Federica Ciccone for Creative Food Cycles



# Food Interactions Catalogue

Collection of Best Practices





FOOD INTERACTIONS CATALOGUE  
Collection of Best Practices

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Cover:  
Federica Ciccone  
Sabrina Sposito

Editors:  
Areti Markoupoulou  
Chiara Farinea  
Federica Ciccone  
Mathilde Marengo

Copy-editing:  
Emanuele Sommariva  
Sabrina Sposito  
Silvia Pericu  
Giorgia Tucci  
Mohamad Elatab  
Pierre Martin  
Rodrigo Aguirre

Authors:  
Chiara Farinea  
Emanuele Sommariva  
Giorgia Tucci  
Jörg Schröder  
Manuel Gausa  
Mathilde Marengo  
Nicola Canessa  
Raffaella Fagnoni  
Sabrina Sposito  
Silvia Pericu

Design, settings and litography:  
Federica Ciccone  
Emanuele Sommariva  
Sabrina Sposito  
Giorgia Tucci

Graphic and Coordination:  
Federica Ciccone

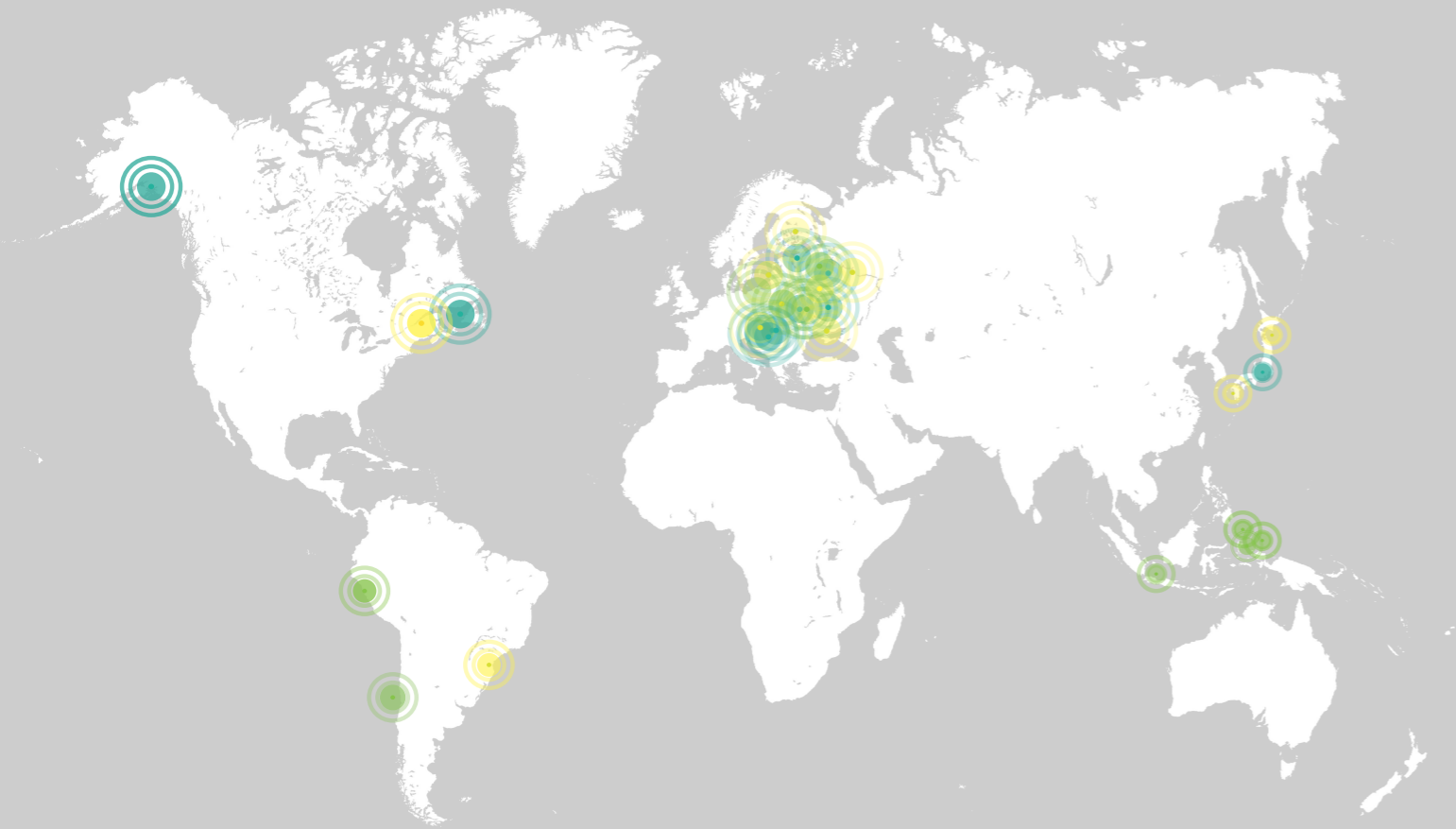
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Institut d'Arquitectura Avançada de Catalunya  
Pujades 102 baixos, Poble Nou  
08005 Barcelona, Spain  
[www.iaac.net](http://www.iaac.net)

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# Food Interactions Catalogue

Collection of Best Practices



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- Cricket Shelter \_ Brooklyn Navy Yards, New York (USA)
- Urban Farm \_ Tokyo (Japan)
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- Al Aire \_ Venice Biennale (Italy)
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- Nest We Grow \_ Hokkaido (Japan)
- Les Cols \_ Olot (Spain)
- Shape Changing pasta \_ Pittsburgh (USA)
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- Fish Markt \_ Bergen (Norway)
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- Desintagre.me \_ Santiago (Chile)
- MYX \_ Copenhagen (Denmark)
- Green Banana Paper \_ Kosrae (Micronesia)
- Orange Fiber \_ Catania (Italy)
- Apepack \_ Truckee, California (USA) & Altivole (Italy)

More than 30 projects activating food interactions processes all over the world are presented in this Guide.

A voyage through nations and experiences that can design a network of innovative places.



Image of courtesy of Margarita Talep

# O

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# Food waste as resource: new bio-materials

on designing alternative food cycles experiences

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## essay 3.1

author: Giorgia Tucci

### ABSTRACT

*The essay focuses on the dynamics that are shaping the food system. Precisely, it enlightens a growing attention and awareness of society in the food waste problem and an emerging desire to provide innovative solutions aimed at transforming vulnerable points of the agro-food chain into economic and environmental potentials. In recent years, the awareness of industries and consumers, more and more attentive to the social and environmental values of products, to the origin of raw materials and production processes, has encouraged an impetus towards design solutions for the enhancement of waste. This is due, above all, to technological innovations in research and experimentation increasingly oriented towards environmental sustainability. In light of the number and quality of emerging projects, this decade could mark a crucial stage in the development of recycling processes of food waste. An increasingly rising figure, in fact, is that of companies and start-ups that transform their own waste into both a new resource and a market opportunity, adopting the principles of Circular Economy: a strategy put in place by several governments to guide the production system in pursuing environmental improvement actions towards real sustainability goals. Therefore, combining ethics and social responsibility with the legitimate desire of investors to make profits could become reality, as the utopian materials derived from food waste have become real.*

Keywords: biomaterial, food recycle, sustainability, bioplastic, ecotextile, landscape urbanism.

In Europe, 16 tons of materials are currently being used per person and year, of which 6 tons become waste. Total waste production in the EU amounted to 2.5 billion tons in 2010. Waste is defined as a material being discarded, intended to be discarded or required to be discarded by law. Only a limited share is recycled. Nearly one third of waste is still land-filled, leading to immense greenhouse gas emissions and water pollution. Another significant part is burned. According to the "Circularity World Gap 2019" report presented at the Davos Forum, only 9% of the 92 billion tons of raw materials consumed in the world are recovered and reintroduced into the system, following the principles of the circular economy.

The gap to be recovered is still enormous, and the urgency to do so is serious. However, this need has started fuelling a new creativity: in fact, already well-established companies or innovative start-ups recognise the opportunity to save the Planet and offer original and sustainable products together with the recovery of waste materials. In recent years, the awareness of industries and consumers, increasingly attentive to the socio-environmental values of products, to the origin of raw materials and production processes, has favoured a vigorous push towards design solutions for waste enhancement. This is typically connected to the advancement of technological innovation in research and experimentation increasingly oriented towards environmental sustainability. Due to the number and quality of emerging projects, this decade could mark a crucial stage in the development of food waste recycling processes. In fact, a growing number of companies and start-ups repurpose their own waste into a new resource and a market opportunity, adopting the principles of the Circular Economy: a strategy implemented by different governments to guide the production system in pursuing environmental improvement actions towards real sustainability objectives.

In a short time, combining ethics and social responsibility with the legitimate desire of investors to make profits could become reality, as the utopian materials derived from food waste have become real.

Among the new materials resulting from experimentations on the second life of agro-food waste, we can include:

**- bioplastics**, derived from artichokes (IIT project), sugar beets (Minerv), shrimp shells (NU, Nile University), cactus (Sandra Pascoe research), but also from potatoes, frying oil, grains, etc. Curiously, bioplastics (PHA) were discovered by the French chemist Maurice Lemoigne in 1925, even before Staudinger formulated his theory of polymers and the development of synthesis methods for early plastics (LDPE, PVC, PS) around 1935. The research and the modern green chemical industry are focusing on the production of PHA due to the versatility of this biodegradable molecule. The data released by the European Commission with the report "A European Strategy for Plastics in a Circular Economy" inform us that every year plastic waste amounts to 25.8 tons, 31% of which is landfilled. One of the most critical issues in terms of environmental sustainability is the remarkably short life-cycle of plastic, a dissipated value that fluctuates, according to estimates, between 70 and 105 billion per year.

The world has produced 8 billion tons of plastic since the 1950s and demand is still increasing. "But we can't go on using fossil fuel-based materials. About 6-7% of every barrel of oil is used to make plastics" said Paul Mines, CEO of Biome Technologies UK (in an interview on <http://biometechnologiesplc.com>), which has spent £5m in the last five years on bioplastics research. Using plant materials is feasible, said Prof Simon McQueen-Mason, at the University of

York, as replacing half of the nation's plastic bottles could be done using just 3% of the sugar beet crop, 5% of wheat straw or 2.5% of food waste.

The total conversion of the fruit and vegetable residue into bioplastics, originating from sustainable sources, represents a perfect example of a circular economy: it creates an alternative, environmentally friendly material that drastically reduces the costs of disposal of the organic residue, and remains attached to its territory to which returns for the easy compostability. To date, the negative aspect is the cost. Producing plastic from fossil sources remains an extremely cheap process. In the world, every year, 250 million tons of conventional plastic are used, while the organic one remains below 1%. Today, the real revolution lies in developing production processes that reduce manufacturing costs and encourage the total replacement of the traditional plastic with biodegradable alternatives.

- **ecotextiles**, derived from oranges (Orange Fiber), pineapples (Piñatex), soy (Soybean Protein Fiber), corn (Corn Fiber), crustaceans (Crabyon), grapes (Winelather), milk (Duedilatte), from apples (Frumat) and natural dyes derived, instead, from white artichoke, coppery onions, pomegranate peel and cherry and olive tree pruning residues. Considering world production of garments is destined to grow by 63% by 2030, the potential of an ecological textile supply chain is enormous, up to representing 20% of the sector's turnover in Italy (currently 4.2 billion). Today, in fact, a t-shirt requires an average of 2,700 litres of water to be produced, generates high CO2 emissions and uses mainly dyes and synthetic fibres. Natural dyes related to the use of plant and animal fibres, from wool to silk, from linen to hemp, can additionally be a valid aid to the increasing problems of allergic contact dermatitis due to synthetic dyes. Recovering plants and cultivation waste for dyeing can help to redevelop

abandoned or degraded areas and consolidate territories, while protecting biodiversity and landscape.

- **green paper**, derived from banana (Green Banana Paper), oranges (Crush), apples (BioMela), grapes (Cartiera Favini and Ludovica Cantarelli project) and hazelnut shells (EcoPaper). The residues of citrus fruits, grapes, cherries, lavender, corn, olives, coffee, kiwi, lentils, beans and almonds are the main natural raw materials that, saved from the dump, are used for the production of these new papers. However, the greatest amount of paper and cardboard remains in packaging, which has become a critical factor for our economy. The demand is constantly increasing, driven for example from purchases and shipments to online e-commerce, but at the same time, functional requirements has become increasingly complex, both in the field of protection, information display, product encoding or convenience. The realization of more sustainable packages constitutes an urgent task to meet these rising trends. Consumer demands and environmental needs represent the leading drivers for developing sustainable packaging, and increasing the use of recycled material is one of the key approaches to a sustainable economy. The vegetable by-products previously treated as waste become a functional part of the packaging for the final foodstuffs. Conventional wood-based fibres are replaced, protecting natural resources and increasing the proportion of recycled material in the carton. Thus, the food parts of the plant reconcile with the inedible parts, adding economic and ecological value to the entire production chain and to the consumer's ultimate product.

According to a Eurostat study entitled "Environmental economy statistics on employment and growth", in the last 15 years, the wealth produced by the



green economy in EU member countries has increased from 135 to 290 billion euro, with an impact on the product gross domestic product (GDP) which, over the same period, grew from 1.4% to 2.1%. In terms of turnover, according to the Eurostat survey of 2018, the green economy has grown exponentially, reaching a turnover of 700 billion euros, while at the employment level, green jobs have now gone from 1,4 million to 4,1 million people across Europe.

Not only in the European Union, but at a global level, the Sustainable Development Goals - Agenda 2030 (SDGs) of the United Nations promote and face the global challenge of the green economy. Such a challenge can no longer be delayed given the unsustainability of the current model, by fighting climate change and decarbonising the system, with the aim of guiding a transition to sustainability that includes the transition from a linear economy to a circular economy, the correction of imbalances in our food system, the energy of the future, buildings and mobility.

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# Profiles

Team and contributors

## CREATIVE FOOD CYCLES

**Creative Food Cycles** (CFC) is a project co-funded by the **Creative Europe Programme of European Union** with the aim of developing a cultural and holistic approach, joining all the aspects of Food Cycle: from production to distribution (phase 1), from distribution to consumption (phase 2) and from consumption to disposition (phase 3).

This means also to stimulate with an open and inclusive approach a deeper interconnection among cultural creators, cultural professionals, institutional stakeholders and active urban society.

### **Leibniz Universität Hannover**

LUH, Chair of Regional Building and Urban Planning, Hannover

Urban design and planning for Building Culture, Future Habitats, and Urban Metabolism are in the focus of the Chair's research and teaching, developing novel concepts for territorial resilience, social innovation and circular economy.

The Chair is part of the Faculty of Architecture and Landscape Sciences of Leibniz Universität Hannover and has broad experience in cultural, communicative and scientific projects with international and local initiatives and institutions.

[www.staedtebau.uni-hannover.de](http://www.staedtebau.uni-hannover.de)

### **Jörg Schröder**

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Architect and urban planner. Full Professor and Chair for Regional Building and Urban Planning a Leibniz University Hannover, Dean for Research of the Faculty of Architecture and Landscape.

Focus on design research, sustainable urbanism, strategic planning, territorial innovation and resilience. Graduated with Technische Universität München (TUM) in 1998; University Researcher and Lecturer with TUM from 2002-10, Director of the research group AlpHouse 2010-12. Recent R&D projects: Rurbance—Rural-Urban Inclusive Governance Strategies and Tools for Sustainable Development, funded by ERDF; AlpBC—Capitalising Knowledge on Alpine Building Culture, funded by ERDF; Regiobranding, funded by BMBF German Federal Ministry of Education and Research. Recent publications: "Foodscapes: Architectures of Food for the Metropolis Hamburg" (with S. Hartmann, in: Food Revolution 5.0, 2017); Scenarios and Patterns for Regiobranding (with M. Ferretti, 2018), Dynamics of Periphery (ed. with M. Carta, M. Ferretti, B. Lino, 2018), Creative Heritage (ed. with M. Carta, S. Hartmann, 2018).



### Emanuele Sommariva

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Architect, PhD, University Researcher and Lecturer at the Institute of Urban Design and Planning of Leibniz Universität Hannover, since 2012. Visiting scholar at Technische Universität München (2011) and Universiteit Antwerpen (2018). In 2017 obtained the Italian Academic Qualification – Associate Professorship for Academic Recruitment Field: 08/F1 Urban and Territorial Planning and Design and 08/D1 Architectural Design.

His research interests include landscape evolution, sustainable planning, and the relationship between agriculture and the city. Scientific manager of the Creative EU 'Creative Food Cycles' (2018-20) the BMBF research Regiobranding (2017-19). Member of the PRIN Recycle Italy (2012-16). Since 2009, at the Department of Architecture and Design of the University of Genoa, he has contributed to teaching and collaborated for research projects (COST Urban Allotment EU 2012-16; EU MED 2011-13; Interreg-Maritime INNOLABS 2011). Recent publications: *Creating City. Urban Agriculture. Strategies for City Resilience* (Trento, ListLab, 2015); 'Cultivar Ciudades' in: *Ecologías Emergentes* (Santiago de Chile, SaCabana 2016); 'Urban Productive Landscapes' in: *Neo-liberalism and the Architecture of the Post- Professional Era* (Basel, Springer, 2018); Sommariva E. *Rural Response to Migration: New Integration Models for Abandoned Villages in Italy* (Graz Architecture Magazine n.15 'Territorial Justice' 2019).

### Sabrina Sposito

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Territorial Planner, PhD. Researcher at the Institute of Urban Design and Planning of Leibniz University Hannover within the framework of Creative EU 'Creative Food Cycles' (2018-20).

Focus on resilience and circular urban metabolism, hydro-based scenarios, culture-led urban regeneration. Graduated cum laude (2011), PhD in Urban Design and Planning (2016) at the University of Naples Federico II; Visiting at the University of Southern California in Los Angeles (2015-16); Postdoc Research Fellow at IAS-STS in Graz (2016-17); DAAD Research Grant holder for Postdoc Scientists (2017-18). Selected for the research award 'AESOP 2019 Young Investigator Training Program, Regional Planning and Design, from Theory to Practices'. Previous research teams: PRIN 'Recycle Italy' (2013-16) and International Workshop and Exhibition 'Roma 20-25. New life cycles of the metropolis'. Selected publications: 'Transformative futures: Water in the City to come' in: *Creative Heritage* (Berlin, Jovis Verlag GmbH, 2018); 'Culture-led regeneration for urban spaces. Monitoring complex values networks in action' (with: M. Cerreta and G. Daldanise, *Urbani izziv / Urban Challenge journal*, Vol. 29, supplement, 2018); 'Strategie e tecniche di "drossmapping": applicazioni nella città Domizio-Flegrea' in: *Drosscity. Metabolismo urbano, resilienza e progetto di riciclo dei drosscape* (Rovereto (TN) e Barcellona, Listlab, 2016).

### **Institut d'Arquitectura Avancada de Catalunya**

IAAC, Institute for advanced architecture of Catalonia, Barcelona

Intelligent cities, self-sufficient buildings, digital matter, design with nature and advanced interaction form IAAC's research lines. IAAC expertise in Information and Communication Technologies (ICT) deals with: real-time data capture; energy generation, storage and reuse; material adaptability; parametric design; real-time management of time-uses and citizen (space) interaction.

[www.iaac.net](http://www.iaac.net)

### **Areti Markopoulou**

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Areti Markopoulou is a Greek architect, researcher and urban technologist working at the intersection between architecture and digital technologies. She is the Academic Director at IAAC in Barcelona, where she also leads the Advanced Architecture Group, a multidisciplinary research group exploring how design and science can positively impact and transform the present and future of our built spaces, the way we live and interact. Her research and practice seeks to redefine architecture as a performative "body" beyond traditional notions of static materiality, approximate data, or standardized manufacturing.

Areti is founder and principal of the multidisciplinary practice Design Dynamics Studio, and co-editor of Urban Next, a global network focused on re-thinking architecture through the contemporary urban milieu. She is the project coordinator of a number of European Research funded Projects on topics including urban regeneration through technologies and multidisciplinary educational models in the digital age. She has also served as a curator of international exhibitions such as the On-Site Robotics (Building Barcelona Construmat 2017), Print Matter (In3dustry 2016), HyperCity (Shenzhen Bi-city Biennale, 2015) and MyVeryOwnCity (World Bank, BR Barcelona, 2011).

### Chiara Farinea

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Architect, PhD, Head of European Projects at the Advanced Architecture Group Department at the Institute for Advanced Architecture of Catalonia (IAAC). Coordinator and scientific personnel in several EU projects targeted at education, research, development and implementation. Contract Professor of Urban Planning at the Department of Architecture and Design of the University of Genoa (2015-16).

She founding partner at Gr.IN Lab art group, exhibiting installations in 2015 at Venice Arsenale and Turin for the Italia-China Art Biennale.

Chiara Farinea is currently Head of European Projects at the Advanced Architecture Group Department at IAAC, her position includes being a coordinator and scientific personnel in several EU projects targeted at education, research, development and implementation and being faculty in IAAC educational programs.

Her previous work experience includes being Project Manager at D'Appolonia (Genoa), where she developed International Cooperation Projects, Smart Cities Initiatives and EU financed Research Projects targeted at Sustainable Development. She has been Project Manager/Senior Architect at Open Building Research architectural office in Genoa (2007-09) and Junior Architect at KSP Engel und Zimmermann architectural office in Berlin (2004-06).

### Mathilde Marengo

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Mathilde is an Australian - French - Italian PhD Architect whose research focuses on the Contemporary Urban Phenomenon, its integration with technology, and its speculative implications on the future of our planet - or the next. She is currently the Head of Studies and Faculty at the Institute for Advanced Architecture of Catalonia's Advanced Architecture Group, as well as being a PhD Supervisor within the InnoChain EU research project. She won a research grant co-financed by Compagnia di San Paolo for the "Atlante Med-Net" project, and in support for the development of her PhD research, developed both at the PhD School of Architecture and Design at the University of Genoa, XXVI cycle, and the Universitat Politècnica de Catalunya. She obtained her International PhD title in April 2014, with "Multi-City Coast. The evolving forms and structures of the Mediterranean multi-city. New models of urban thinking and perspective." During her academic career, she collaborated on several research projects investigating territorial and contemporary urban transformations. She was also a part of the Inter-University Research team for the PRIN 2010-2011 managed by Ministry of Education, University and Research - RECYCLE research project, focusing on urban recycling as the generator for new infrastructure and creativity in urban contexts. Her work has been published internationally, as well as exhibited, among others: Venice Biennale, Shenzhen Bi-City Biennale, Beijing Design Week, MAXXI Rome.



### Federica Ciccone

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Architect, graduated with honour in 2015, developing a final research thesis regarding Strategic Plan Proposals for critical landscapes, rural and peripheral areas. She obtained a Master in City & Technology at IAAC in 2017, winning the "Digital Citizens & Empowerment Award" with a strategic mobility plan, and participating in several research projects related with information and communication technologies in the urban environments. She is currently European Projects Assistant and Coordinator at the Advanced Architecture Group Department at the Institute for Advanced Architecture of Catalonia. Her research interests include strategic and sustainable planning, environment and landscape architecture and public spaces activation strategies. Federica collaborated on various projects, research and studies' experiences of Design, Sustainable Planning, Landscape Architecture and Research, with different partners and Institutions; among others: University of Thessaly, UCL DPU.S.Lab of Bartlett, University of Applied Arts of Wien and Unirc. Since 2016 she collaborates with Noumena design. research. education s.l. and she was part of the team of IAAC Visiting Programmes, as coordinator of Global Summer School 2017. Graphic Developer and Artistic Director for the IAAC research "Rome Agri/Fab City" at the International Exhibition "Rome 20-25, New life cycles of the metropolis", MAXXI Rome (2015).

### Mohamad El Atab

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Mohamad El Atab is a Lebanese Architect; whose focus is on computational design and digital fabrication in diverse fields. He holds a Bachelor of Architecture and a Master in Advanced Architecture. He is part of Advanced Architecture Group within the European projects team at the Institute for Advanced Architecture of Catalonia. He is a researcher, looking into implementation of natural - based solutions in cities, such as biophotovoltaic systems, urban farming, hydroponic cultivations, mushrooms cultivation experimental structures. Mohamad takes part in the Theory of Advanced Knowledge Seminar/ Advanced Thinking and Theory Studies. He is faculty of Digital Bio System - Digital fabrication and biological synthesis for circular design, a seminar aims to explore how digital and biological fabrication techniques can be combined to produce complex architectural systems, enhancing urban metabolism and environment. He is collaborating with the Fabtextiles - open sourcing fashion production for a global innovation ecosystem, which focuses on the combination of textile and advanced digital techniques through soft fabrication, aiming to develop and implement a new approach on to how create, produce and distribute fashion elements, by using distributed manufacturing infrastructures and knowledge networks.

### Rodrigo Aguirre

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Rodrigo Aguirre is a Nicaraguan architect specialised in the fields of parametric tooling, digital fabrication and manufacturing. He obtained his bachelor in architecture at UAM (American University) in Managua, Nicaragua and completed the two-year Master in Advanced Architecture at the Institute for Advanced Architecture of Catalonia (IAAC) in Barcelona, Spain.

His ongoing collaboration with the Institute's REsearch + DEvelopment department and IAAC special projects have involved advanced form finding and computational methods related to generative design. He is a principal member of the computational faculty and has acted as studio instructor for the master's programmes in 2014. His work as a 'Tallerista' has led to his involvement with workshops related to the translation of computational protocols to the fabrication of physical prototypes. From 2013-15 he has coordinated international workshops in Brazil and Nicaragua related to digital tooling and participated as faculty in multi-scalar design workshops in Egypt and China, the latter of which focused on the production of 1:1 scale construction.

Rodrigo has also been involved with the last three editions of IAAC's Global Summer School (GSS), acting as a tutor in 2012-13, and coordinator of the affiliated Global School in St. Petersburg, Russia during the 2014 session. He continues his involvement in the 2015 edition as a coordinator, tutor and manager of communications and digital media.

### Università degli Studi di Genova

UNIGE\_DAD, Department of Architecture and Design, Genoa

Didactic and research activities related to product / event design for Inclusive citizen participation and Co-creation actions are among the most significant expertise of DAD-UNIGE. The Department collaborate since years with local communities, associations and municipalities in the re-activation on public spaces, organization, communication of urban events and performances.

[www.unige.it](http://www.unige.it)

### Manuel Gausa

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Architect, PhD. Full Professor of urbanism and landscape architecture at the Department of Architecture and Design of the University of Genoa (UNIGE\_DAD). Founding Member (2000) and Principal Advisor (from 2008) of Actar Publishers and Actar Arquitectura, office of architecture, landscape and urban design. From 2017 he is Full Professor of Urban Design and from 2014 to 2017 he was Full Professor of Architecture and Landscape Design at UNIGE\_DAD, where he is also Director-Coordinator of the ADD (PHD Program in Architecture and Design) and Director of GICLab (Genoa Intelligent Contexts Laboratory). From 2012 to 2015 he was Dean of the IAAC (Institut d'Arquitectura Avançada de Catalunya, Barcelona) centre where, as Co-founder and Senior Professor, is now Lead Professor in Theory and Advanced Knowledge and Member of its Scientific Committee.

His research projects have included: MED.NET.COAST: Network identity of Mediterranean cities; RE-CYCLE: Reactivation Strategies and Urban Landscape (2012-16); LANDSCAPES INFRASTRUCTURES: Infrastructure Osmotic Over Sector Policies (2012-13); RESILIGENCE: Intelligent cities, resilient landscapes (2015-2018).

In 2000 he was honoured with the Médaille de l'Académie d'Architecture de France.

### Raffaella Fagnoni

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Architect, Associate professor in design and chair of the master's programme in product and event design, Department of Architecture and Design, DAD, University of Genoa. She is also deputy coordinator of PhD course in architecture and design, and coordinator of the PhD curriculum in design. She is member of the governing council of the Italian Design Society SID, since 2014. Her research interests focus on social design, working on different topics, from cultural heritage to health and environment, urban life, reuse and re-cycle. She obtained her diploma from the University of Florence.

Selected publications: 'Design and New Behaviors' in: Strategic Design Research Journal (2009); 'Core Values For Re-Cycle Social Innovators', in: Towards Pro-Active Manifesto (Roma, Aracne 2016); 'The Future is Backwards. Re-Cycle as Destiny', in Project anticipation. When Design shapes futures in architecture and urban design, (Rimini, Maggioli 2017); 'Crossing Boundaries' in: Dynamics of Periphery (Berlin, Jovis 2018); About wine. Design, tourism and territories, in Area 157 (2018).



### Silvia Pericu

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Architect, PhD, University Researcher and Senior Lecturer in Product Design at the Department Architecture and Design, Università di Genova UNIGE, since 2013. Her research interests focus on design's capabilities to contribute to territorial development and transformation in relationship to health, safety and sustainability.

Main issues in the research are active and healthy ageing, adaptation of the urban environment to changing needs through a user-centered approach and co-design strategies for social innovation. On this topic she coordinated in the last two years the partnership activity of the University of Genoa, in the URBACT III Action Planning Network: '2nd Chance. Waking up sleeping giants, for a sustainable urban development' and she Scientific manager of the Creative EU 'Creative Food Cycles' (2018-20) for University of Genoa research team.

Recent publications: 'A quality label for temporary reuse. Co-design practices' (PAD Magazine n.13, 2016); 'Gli obiettivi di Ri-Fiuto' in: Ri-Fiuto. Occasioni e azioni di ricerca (Genova UniPress, 2017); Waking up the sleeping giants. An action format (Genova UniPress, 2018).

### Chiara Olivastri

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Architect, PhD. Research Fellow in Service Design at the Department of Architecture and Design of the University of Genoa (UNIGE\_DAD). Adjunct professor in product and event design since 2016 at University of Genoa.

In 2018 obtained the National Prize "Innovative PhD research on urban regeneration" promoted by Directorate General of Contemporary Art and Architecture. Her research interests include service design strategies applied to circular economy, social innovation and bottom up processes.

Recent publications: Con-Temporaneo. Design per il riuso di spazi abbandonati (Roma, Gangemi 2018); 'Le misure dei servizi' in: Design su Misura (SID annual conference, 2018); 'Reagente. A label for social innovation' in: XII EU academy of Design Conference (London, Routledge 2017).

### Giorgia Tucci

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Phd Architect in Architecture and Design at University of Genoa – DAD, Department of Architecture and Design, XXXI cycle. Her research rethinks about the identity of coastal rural cities into the Mediterranean area and about the relationship that links the rural landscape with the city itself, through territorial strategies (economic, energetic, environmental, cultural and social), integrated with the application of new technological systems and innovative planning approaches. One of the outputs of her research is an open source website 'MedCoast-AgroCities', focus on Mediterranean Coastal Agricultural Cities, which is intended to become a usefull tool for experimentation and cultural disseminating (agrocities.com).

She carried out a period of doctoral research at the ETS, Escuela de Arquitectura en Málaga (2017-2018). About urban planning, she worked on the drafting of the PUC for the Municipality of Lecce, and within the scientific field she worked with the Centro Studi CSAC of Parma and the Leibniz Universität of Hannover, thanks to the DAAD programs and European Projects (Creative Food Cycles, CFC). Author of numerous national and international articles, author of the book Albenga, GlassCity, she continues her scientific production within the GicLab research group in Genoa.

### Nicola Canessa

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PhD in Architecture at ADDgenova \_ Graduate School of Architecture and Design at the University of Genoa, since April 2012. Theme of the thesis is "The Mediterranean City",

analysis of the changes taking place on the Mediterranean coasts and the factors that affect the intercontinental inhabit the coastal territory.

Adjunct Professor in "Theories of urbanism" at the the Degree in Architecture, Department DAD, University of Genoa (Italy) For the academic year 2015/16/17/18 Adjunct Professor at the Degree in Product and Event Design and at the Degree in Architecture.

He is coordinator, since 2009, of the GIC-LAB, the research team created and directed by prof. Manuel Gausa He has participated in several academic research including some of the research CRUIE, MEDNET research on the transformation of the Mediterranean coast, with particular attention to the Italian situation, and the case of Liguria, the PRIN RECYCLE, BCN / GOA research of models of strategic renewal as reactivators urban on the Barcelona's Eixample and the Genova's Foce, ECOUNIVERCITY research as interpolation of the growth of the city of Genoa and growth of the University.

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**Department of Architecture, Università di Genova (UNIGE) - [www.unige.it](http://www.unige.it)**

MORE information:

<https://creativefoodcycles.org/>

contact:

[info@creativefoodcycles.org](mailto:info@creativefoodcycles.org)