

**Iaac**

Institute for  
advanced  
architecture  
of Catalonia

BARCELONA



MASTER IN  
**ADVANCED  
ARCHITECTURE**

BARCELONA 2017 - 2018

2017 - 2019

# MASTER IN ADVANCED ARCHITECTURE

MAA01: 75 ECTS, 1 YEAR

MAA01 + OTF: 100 ECTS, 15 MONTHS

MAA02: 130 ECTS, 2 YEARS

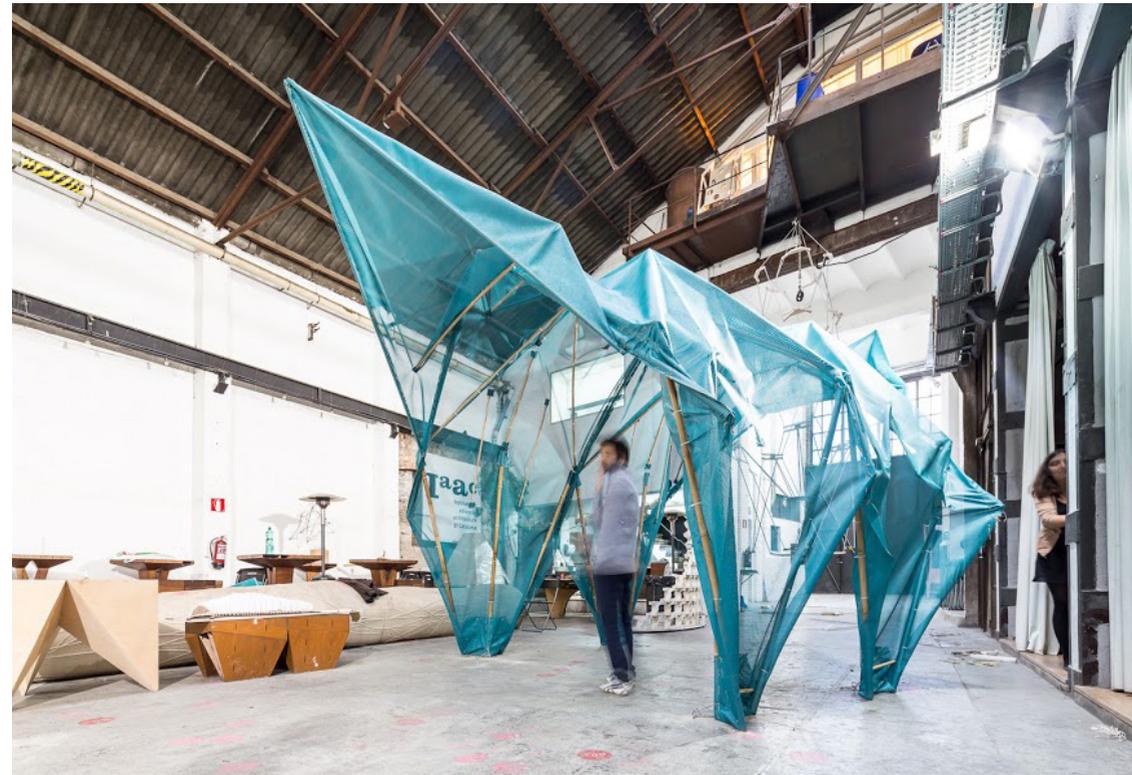
## MULTISCALAR STRATEGY

### INTELLIGENT CITIES // SELF SUFFICIENT BUILDINGS // DIGITAL MATTER //

Architecture is always facing the responsibility of responding to emergent needs, technologies and ever-changing programs. We must ask more of architecture: we as architects should be required to design inhabitable organisms that are capable of developing functions and integrating the processes of the natural world that formerly took place at a distance, in other points of the surrounding territory. The models created for the metropolis of the last century are unable to accommodate new developments linked to contemporary urban lifestyles, which ever more discontinuous in space and time. The building-over of the global landscape requires us to project at the same time the full and the empty, the natural and the artificial, in such a way as to make economic impetus compatible with sustainable development. It is necessary

to generate complex knowledge linked to a multi-layered reading of realities that have traditionally been thought of as separate, such as energy manipulation, nature, urban mobility, dwellings, systems of production and fabrication, the development of software, information networks, etc. This opens up the possibility of generating new prototypes, capable of engaging with complex and changing environments.

Finally, every new urban or architectural production needs to update its materiality and reinterpret construction techniques of the past centuries, which are very directly based on the transformation of locally available materials. It is now time for interaction between disciplines and technologies to engage in a vision that embraces different fields of research.



# PROGRAM ORGANIZATION

The Master in Advanced Architecture is articulated in three different programs: MAA01, MAA01+OTF and MAA02.

During the first year (October 2017 - June 2018) the students enrolled in the programs will work together in a common educational platform, with a common organization and academic structure.

After the completion of MAA01, students enrolled in MAA01+OTF or MAA02 will follow two different organizations and academic structures.

The MAA comprises the following elements:

- |                                |   |
|--------------------------------|---|
| <b>IS.</b> INTRODUCTORY STUDIO | <b>SS.</b> STUDIO SUPPORT SEMINAR           |
| <b>RS.</b> RESEARCH STUDIO     | <b>WS.</b> WORKSHOP                         |
| <b>DS.</b> DEVELOPMENT STUDIO  | <b>LS.</b> LECTURE SERIES                   |
| <b>SO.</b> OBLIGATORY SEMINAR  | <b>RSD.</b> RESEARCH AND DEVELOPMENT STUDIO |
| <b>SE.</b> ELECTIVE SEMINAR    |   |

## MAA01: 75 ECTS, 1 YEAR

FIRST YEAR	October 2017 June 2018
<b>1st TERM</b>	IS and seminars (20 ECTS )
<b>2nd TERM</b>	RS and seminars (19 ECTS)
<b>3rd TERM</b>	DS and seminars (19 ECTS)
<b>FINAL PROJECT</b>	Final project + WS (15 ECTS)

## MAA01 + OTF: 100 ECTS, 15 MONTHS

FIRST YEAR	October 2017 June 2018
<b>1st TERM</b>	IS and seminars (20 ECTS )
<b>2nd TERM</b>	RS and seminars (19 ECTS)
<b>3rd TERM</b>	DS and seminars (19 ECTS)
<b>FINAL PROJECT</b>	Final project + WS (15 ECTS)
OTF SEMESTER	September 2018 February 2019

## MAA02: 130 ECTS, 2 YEARS

FIRST YEAR	October 2017 June 2018
<b>1st TERM</b>	IS and seminars (20 ECTS )
<b>2nd TERM</b>	RS and seminars (19 ECTS)
<b>3rd TERM</b>	DS and seminars (19 ECTS)
<b>FINAL PROJECT</b>	Final project + WS (15 ECTS)
SECOND YEAR	October 2018 June 2019
<b>1th TERM</b>	RDS and SW (20 ECTS )
<b>2th TERM</b>	RDS and SW (19 ECTS)
<b>3th TERM</b>	RDS and SW (19 ECTS)
<b>SCIENTIFIC PAPER</b>	Individual work on scientific paper

\*The following program refers to the Academic Year 2016-2017.  
The program for the Academic Year 2018-2019 may be subject to slight variations



# FIRST YEAR

OCTOBER 2017 - JUNE 2018

MAA01: 75 ECTS, 1 YEAR

MAA01 + OTF: 100 ECTS, 15 MONTHS

MAA02: 130 ECTS, 2 YEARS

## FIRST TERM (20 ECTS CREDITS)

The 10 week introductory term provides a common grounding of knowledge and skills to new IAAC students. It is a formative platform structured by an Design Project and five complementary courses anticipating ideas that will appear during the programme in relation to self sufficiency, design strategies, innovative forms of planning and contemporary culture. A toolbox of both, theoretical and practical skills for further research work

### COURSES AND CREDITS

IS. | INTRODUCTORY STUDIO  
(8 ECTS credits)

SO.1 | DIGITAL FABRICATION  
Introduction to Digital Fabrication (3 ECTS credits)

SO.2 | THEORY CONCEPTS  
Advanced Architecture Concepts (2 ECTS credits)

SO.3 | DIGITAL TOOLS  
Computational Design (3 ECTS credits)

SO.4 | DIGITAL TOOLS  
Produino (2 ECTS credits)

## SECOND TERM (19 ECTS CREDITS)

The second term is an Open Educational Structure where the students attend a Research Studio and 1 obligatory seminar engaged with the studio plus 2 Seminars among 4 Optional Seminars that they choose according to their academic interests. The second term is divided in three different research lines:  
-intelligent cities  
-self-sufficient buildings  
-digital matter

### COURSES AND CREDITS

RS | RESEARCH STUDIO (I-V)  
(10 ECTS credits)

SS.1 | STUDIO SUPPORT SEMINAR 1 (I-V)  
(3 ECTS credits)

SO.5 | OBLIGATORY SEMINAR

SO.6 | OBLIGATORY SEMINAR

SE. | ELECTIVE SEMINAR  
(3 ECTS credits)

SE. | ELECTIVE SEMINAR  
(3 ECTS credits)

*Please note: The distribution of students for the Research Studios and Seminars of the Second Term is done according to their preferences and the obtained grades acquired in the MAA First Term.*

## THIRD TERM (19 ECTS CREDITS)

The third term is an Open Educational Structure where the students attend the Development Studio and 3 seminars: 1 Obligatory seminar in support of the Studio, plus 2 Seminars among several Elective Seminars that they choose according to their academic interests. The third term is divided in three different research lines:  
-intelligent cities  
-self-sufficient buildings  
-digital matter

### COURSES AND CREDITS

DS | DEVELOPMENT STUDIO (I-V)  
(10 ECTS credits)

SS.2 | STUDIO SUPPORT SEMINAR (I-V)  
(3 ECTS credits)

SO.7 | OBLIGATORY SEMINAR

SO.8 | OBLIGATORY SEMINAR

SE. | ELECTIVE SEMINAR  
(3 ECTS credits)

SE. | ELECTIVE SEMINAR  
(3 ECTS credits)

*Please note: The distribution of students for the Elective Seminars is done according to their preferences and grades acquired in the First and Second Term.*

## FINAL PROJECT (15 ECTS CREDITS)

Phase 4 focuses on the extended research of the Development Studio Project of Phase 3 (13 ECTS credits). The students during this period have the opportunity integrate to their projects more in depth issues related to the self sufficiency agenda, as well as the inherent material, organizational and spatial complexities determined by the chosen working scale and the experience gained during the year's programme.

The transversal workshop (2 ECTS credits) offered by the Master programme is a short term intensive experience, in which the students work together on collective projects organized by local or invited international tutors.

# FIRST YEAR

OCTOBER - JUNE

## TERM 1

INTRO STUDIO

- MACHINIC PROTOCOLS
- ANTHROPOCENE LANDSCAPES
- SOLAR ENERGIES

RESEARCH TRIP

OBLIGATORY SEMINARS

COMPUTATIONAL DESIGN

OBLIGATORY SEMINARS

PRODUINO

OBLIGATORY SEMINARS

INTRODUCTION TO DIGITAL FABRICATION

OBLIGATORY SEMINARS

ADVANCED ARCHITECTURE CONCEPTS

## TERM 2

RESEARCH STUDIOS

1 INTELLIGENT CITIES

2nd term - Studio Support Seminar

2 SELF SUFFICIENT BUILDINGS

2nd term - Studio Support Seminar

3 DIGITAL MATTER | INTELLIGENT CONSTRUCTIONS

2nd term - Studio Support Seminar

STUDIO RESEARCH TRIP

OBLIGATORY SEMINARS

COMPUTATIONAL DESIGN

OBLIGATORY SEMINARS

PROCESSING

ELECTIVE SEMINARS

CHOICE OUT OF 4 OPTIONS

ELECTIVE SEMINARS

CHOICE OUT OF 4 OPTIONS

## TERM 3

3rd term - Studio Support Seminar

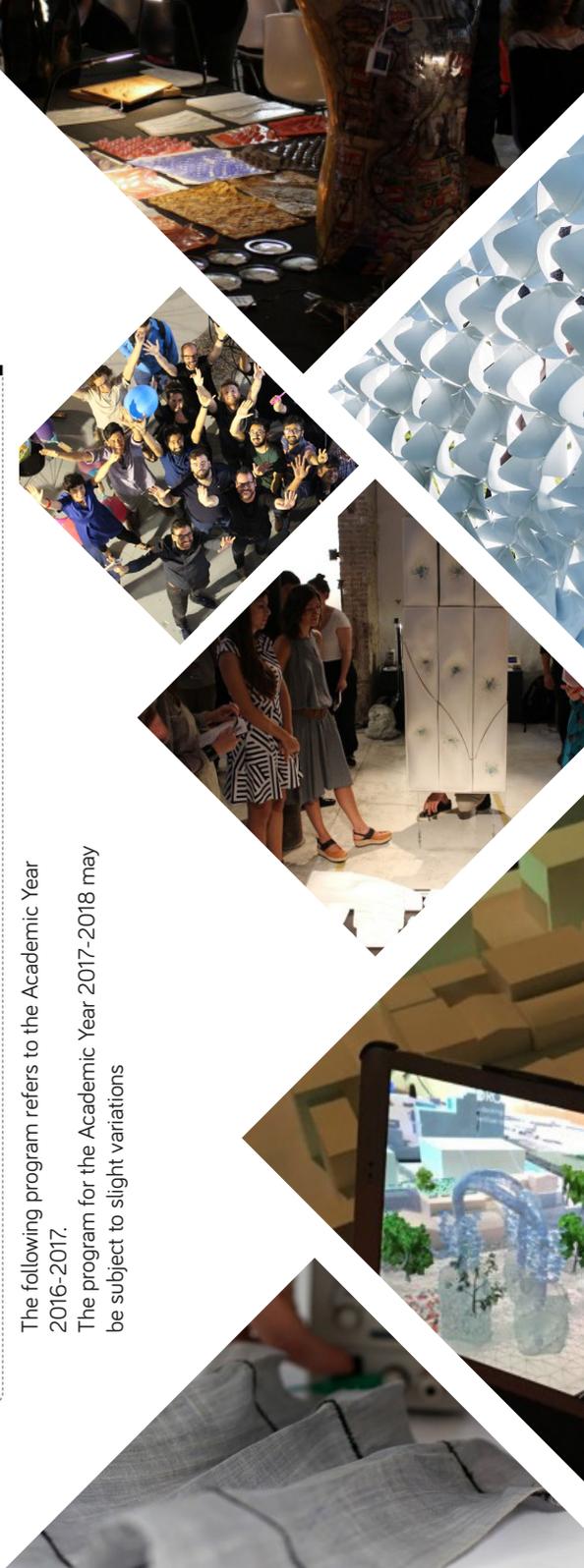
3rd term - Studio Support Seminar

3rd term - Studio Support Seminar

ELECTIVE SEMINARS

CHOICE OUT OF 4 OPTIONS

The following program refers to the Academic Year 2016-2017.  
The program for the Academic Year 2017-2018 may be subject to slight variations



# SECOND YEAR

OCTOBER 2018 - JUNE 2019

MAA02: 130 ECTS, 2 YEARS

## FIRST TERM (19 ECTS CREDITS)

During the first phase of the second year the students are proposing their thesis project, that they are going to develop throughout the year, their strategies in the research and design Project Studio . It is a formative platform structured by a research Design Project and three complementary courses anticipating ideas that will appear during the programme in relation to the research lines of the thesis themes, design strategies, innovative forms of planning and contemporary culture, supporting the theoretical research as well as the practical development of the thesis projects. All classes in this term are obligatory.

### COURSES AND CREDITS

RDS. | Research and Development Studio (I, II, III)  
(10 CREDITS)

WS1. | WORKSHOP (3 CREDITS)

SO.1 | OBLIGATORY SEMINAR 1  
Theory & Methods (3 CREDITS)

SO.2 | OBLIGATORY SEMINAR2  
Theory & Knowledge (3 CREDITS)

SO.3 | OBLIGATORY SEMINAR 3  
Processing (3 CREDITS)

SO.4 | OBLIGATORY DESK CRIT REVIEWS  
Economics & Sustainability (3 CREDITS)

SO.5 | ELECTIVE SEMINAR (3 ECTS credits)

## SECOND TERM (16 ECTS CREDITS)

Phase 6, is a term period structured by the Research and Development Studio and 2 Seminars focused in the 2 main parts of a thesis research: theory and practice in different scales of investigation. All classes in this term are obligatory.

### COURSES AND CREDITS

RDS. | Research and Development Studio (I, II, III)  
(10 CREDITS)

WS1. | WORKSHOP (3 CREDITS)

SO.6 | OBLIGATORY SEMINAR 1  
Theory & Methods (3 CREDITS)

SO.7 | OBLIGATORY SEMINAR2  
Theory & Knowledge (3 CREDITS)

SO.8 | OBLIGATORY SEMINAR 3  
Processing (3 CREDITS)

SO.9 | OBLIGATORY DESK CRIT REVIEWS  
Economics & Sustainability (3 CREDITS)

SO.10 | ELECTIVE SEMINAR (3 ECTS credits)

## THIRD TERM (10 ECTS CREDITS)

Phase 7, is a term period structured by the Research and Development Studio and a Seminars focused in the practice of the investigation. In this term the students are finalizing their proposal and construct prototypes of their thesis projects. All classes in this term are obligatory.

### COURSES AND CREDITS

RDS. | Research and Development Studio (I, II, III)  
(10 CREDITS)

WS1. | WORKSHOP (3 CREDITS)

SO.11 | OBLIGATORY SEMINAR 1  
Theory & Methods (3 CREDITS)

SO.12 | OBLIGATORY DESK CRIT REVIEWS  
Economics & Sustainability (3 CREDITS)

*\*The following program refers to the Academic Year 2016-2017.*

*The program for the Academic Year 2018-2019 may be subject to slight variations*

*Please note: Seminars are subject to change according to faculty availability. Students obligatory need to attend 6 seminars.*

## SCIENTIFIC PAPER (10 ECTS CREDITS)

This phase (summer period) is dedicated to the individual work on the Scientific Paper presenting the Thesis Project to be submitted in September.

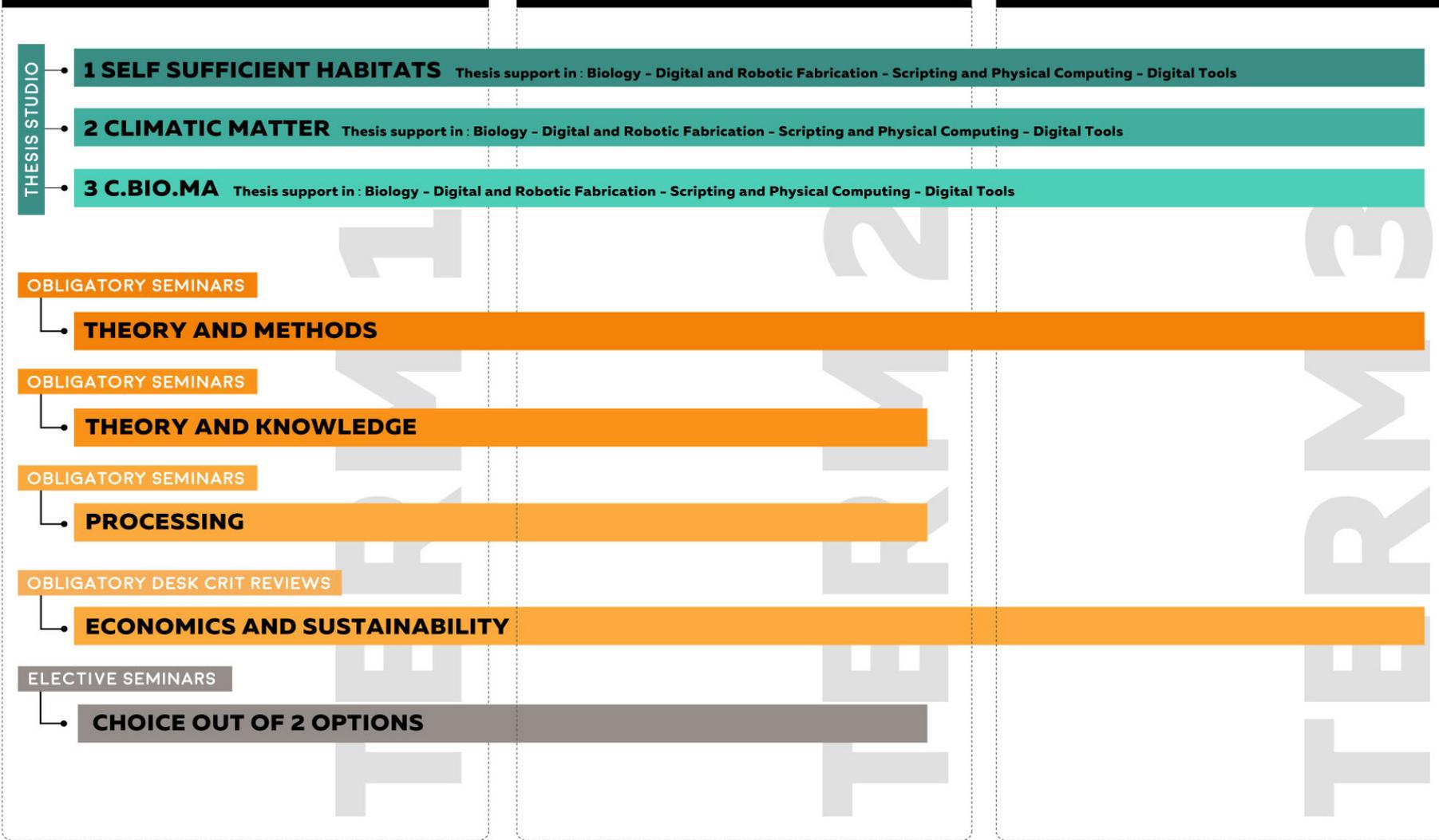
# SECOND YEAR

OCTOBER - JUNE

## TERM 1

## TERM 2

## TERM 3



The following program refers to the Academic Year 2016-2017.  
The program for the Academic Year 2018-2019 may be subject to slight variations



# TUITION FEES

## TUITION FOR STUDENTS ATTENDING MAA01 (75 ECTS: 1 YEAR)

Tuition for the year 2017/2018 is 18.750€. The selected candidates must send to the Institute a scanned proof of a down payment of 2.500€ to confirm participation, maximum 4 weeks after their acceptance. The remaining part of the tuition fee (16.250€) may be paid either in one or two installments, 60% (9.750€), before September 1st, 2017 and 40% (6.500€) before December 1st, 2017.

## TUITION FOR STUDENTS ATTENDING MAA01+0TF (100 ECTS: 15 MONTHS)

Tuition for the year 2017/2018 is 25.000€. The selected candidates must send to the Institute a scanned proof of a down payment of 2,800€ to confirm participation, maximum 4 weeks after their acceptance. The remaining part of the tuition fee (22.200€) may be paid either in one or two installments, 60% (13.320€), before September 1st, 2017 and 40% (8.880€) before December 1st, 2017.

## TUITION FOR STUDENTS ATTENDING MAA02 (130 ECTS: 2 YEAR)

Tuition for the year 2017/2018 is 30.465€. The selected candidates must send to the Institute a scanned proof of a down payment of 2.500€ to confirm participation, maximum 4 weeks after their acceptance. The remaining part of the tuition fee (27.965€) may be paid either in one installment; or divided it into 3 installments: 35% (9.787,75€), before September 1st, 2017; 30% (8.389,50€) before December 1st, 2017 and 35% (9.787,75€) before September 1st, 2018.

**All payments of the selected program must be paid by bank transfer only to:**

**Bank: Santander**  
**Agency: 6784**  
**IBAN - ES55 0049 6784 3226 1615 5632**  
**SWIFT - BSCHEMMXXX**  
**Holder : Institut d'Arquitectura Avançada de Catalunya.**  
**Address: Via Augusta, nº182 (Es 08021 Barcelona)**

Note: Make sure that bank transferring SUBJECT is the applicant's name, and not the person who orders the transfer. Also make sure to select the SWIFT instructions code "OUR" when ordering the bank transfer. This means that you have to pay the transfer charges.

# MAA FIRST YEAR

# INTELLIGENT CITIES

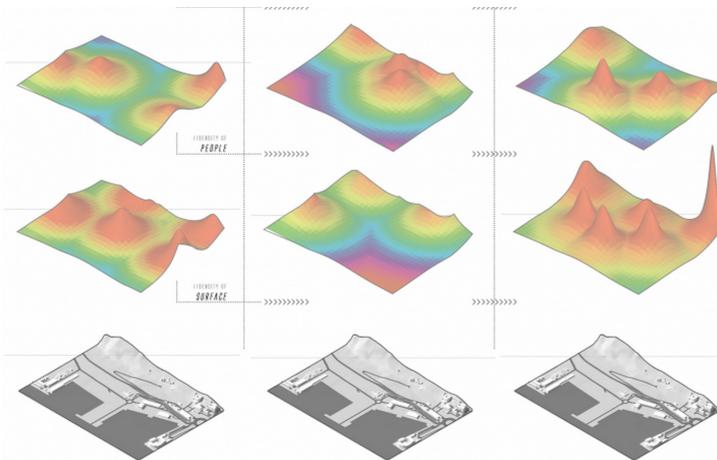
SENIOR FACULTY: WILLY MÜLLER

Intelligent Cities works beyond the conventional scales of territorial design, town planning, building or fabrication in designing a multi-scale habitat. As in the design of ecosystems, each level has its own rules of interaction and relation, and at the same time must comply with certain parameters that pertain to the system as a whole.

The Studio focuses on projects that range in scale from the territory to the neighborhood. The idea of Intelligent Cities is related to two issues: on one hand, the understanding of countries and cities around the world with emerging economies and cultures that, by virtue of their regional or economic position, can contribute value to the planet as a whole. In this sense the Studio seeks to identify

the particular urban and territorial values of these places in order to construct more intelligent territories anywhere in the world, moving on from the Western idea that there is a single model of city (be it European or American) to work on the basis of more complex and more open values.

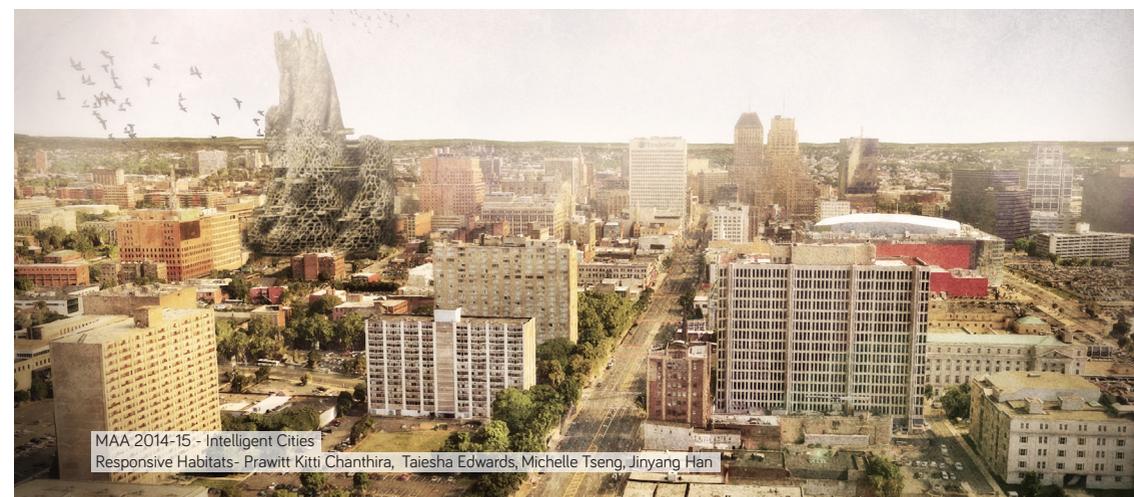
The other issue related to intelligent cities has to do with their creation as intelligent territories that function in a multiscale way, emphasizing the relationship between nature, networks and nodes and promoting the 'emergence' of an urban intelligence through research on the application of ICT (Information and Communication Technologies) in different aspects of the urban infrastructure and public space.



MAA 2014-15 - Intelligent Cities  
TRIPHIBIAN - Ksenia Dyusemabeva - Asya Güney, Edgar Navarrete Sanchez, Diego Ramirez Leon



MAA 2015-16 - Intelligent Cities  
WIND TOWER - Nour Mezher

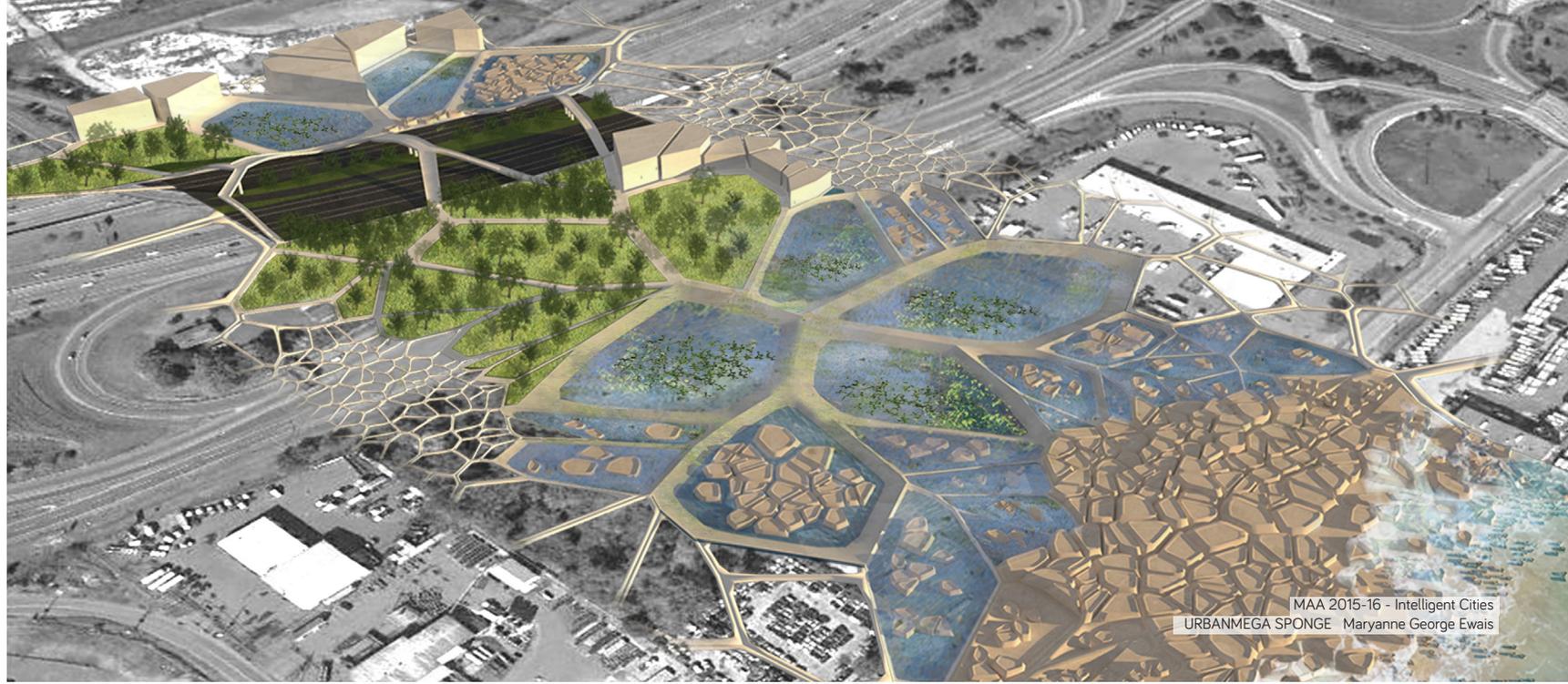


MAA 2014-15 - Intelligent Cities  
Responsive Habitats - Prawitt Kitt Chanthira, Taiesha Edwards, Michelle Tseng, Jinyang Han



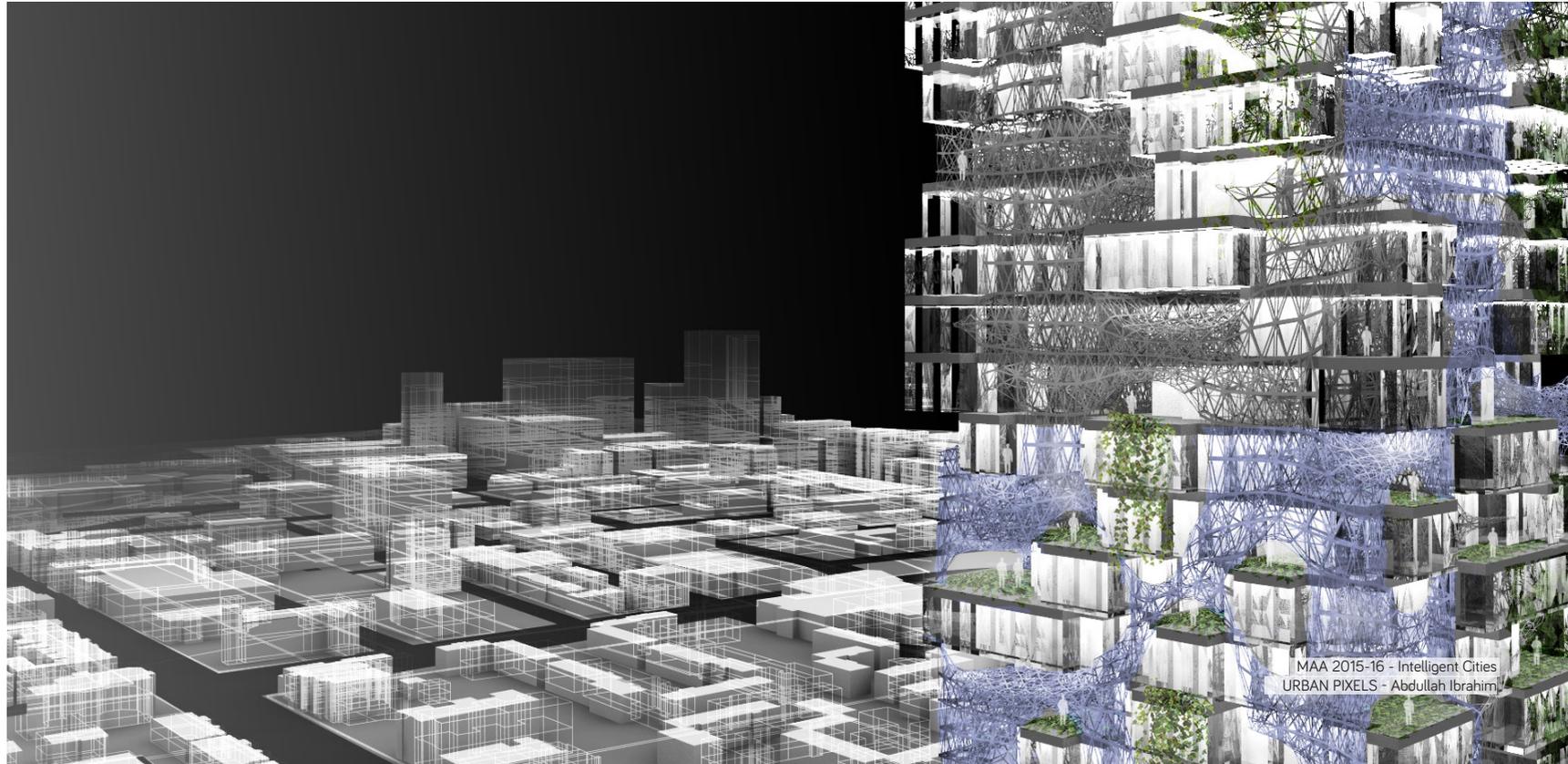
MAA 2014-15 - Intelligent Cities  
LANDSCAPE OF EXPERIENCE - Pia Grobner - Yanna Haddad - Joy Alexandre Harb

According to the National Oceanic and Atmospheric Administration, the global sea level is expected to rise within 0.8-2 meters by 2100, enough to swamp many cities along the U.S East coast. The project seeks to engage the forces of the flooding and make use of it instead of fighting it. The approach of the performative landscape is based on voronoi tessellation, through a series of different iterations the proposed algorithm determines the control parameters of different stages for the arrival of water to the site.



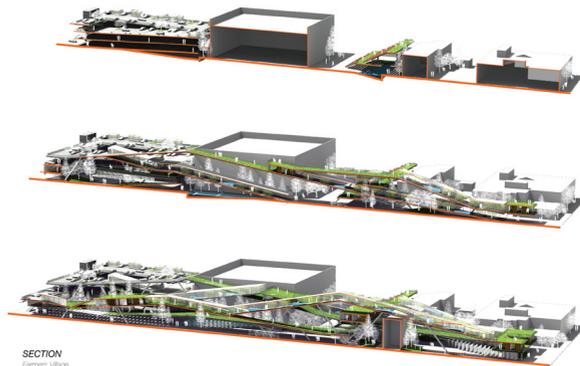
MAA 2015-16 - Intelligent Cities  
URBANMEGA SPONGE Maryanne George Ewais

This project aims to study the local resources and what we can do with these, to produce whatever the city needs. A futuristic, smart, sustainable model of a city is about how we can reduce the amount of money we spend in the importing industries, and starting to produce our own systems where we can make things from our local sources and let the user and the city use them and be part of them.



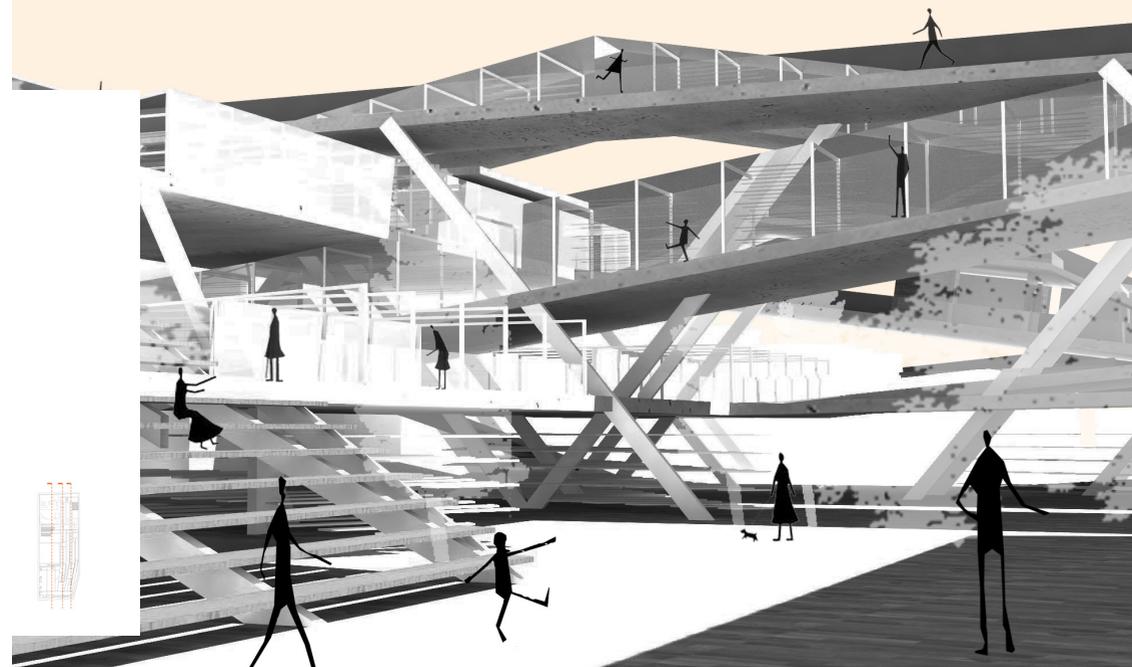
MAA 2015-16 - Intelligent Cities  
URBAN PIXELS - Abdullah Ibrahim

Farmers Village project, the place for build and develop productivity inside Newark by providing urban farming, parking lots as existing site and adding residential and market function. The design is focusing on making effectiveness and efficiency for the circulation inside Farmers Village in order to save energy used, by controlling the different slopes angle and width of the circulation path/ramp for each functions. The idea Farmer Village aimed to become a catalyst for the city and overcome both the major problem and minor problem like unemployment in Newark.



SECTION  
Farmers Village

MAA 2015-16 - Intelligent Cities  
FARMERS VILLAGE - James Nurtanio Njo



MAA 2015-16 - Intelligent Cities  
HYBRITAT - RENATURALIZATION AND METABOLISM Peter Geelmyden Magnus

Hybritat is a proposal for a city system operated by autonomous robots and drones working together in a swarm to provide diverse and balanced conditions for flora and fauna to re establish itself within the urban tissue.

# SELF SUFFICIENT BUILDINGS

SENIOR FACULTY: ENRIC RUIZ - GELI // MIREIA LUZÁRRAGA

Self sufficiency is about consuming just the resources you are able to produce, turning into zero our ecological footprint, or the surface of land that each one needs to live. This scenario is close to the statements that we need to achieve for the 2020 agenda.

At the RSII self sufficiency will be wider concept. Not only we will apply this term when speaking about energy, but also speaking about other issues like water, food, economy, society...

As architects, our role in this new concept of ecology goes beyond buildings, materials, light, space or shape. Our approach to this new way of thinking must be holistic, emphasizing the importance of the wholes, and the interdependence of its parts. Therefore, for us, architecture is about

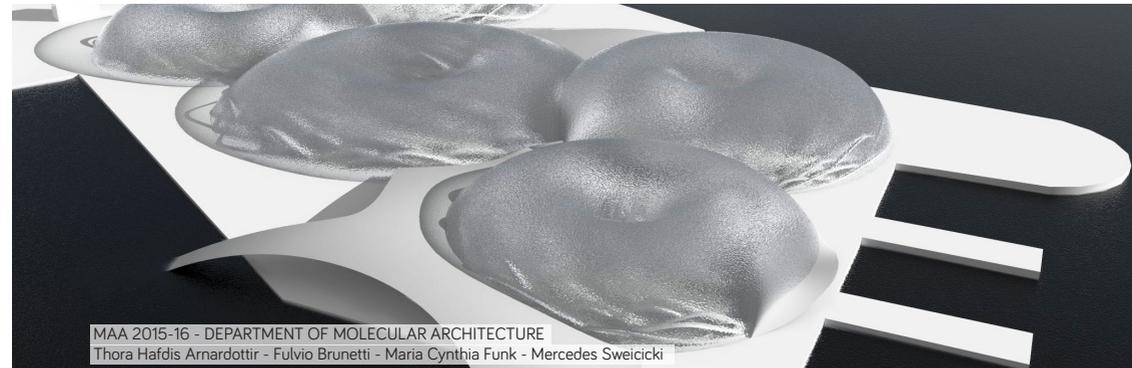
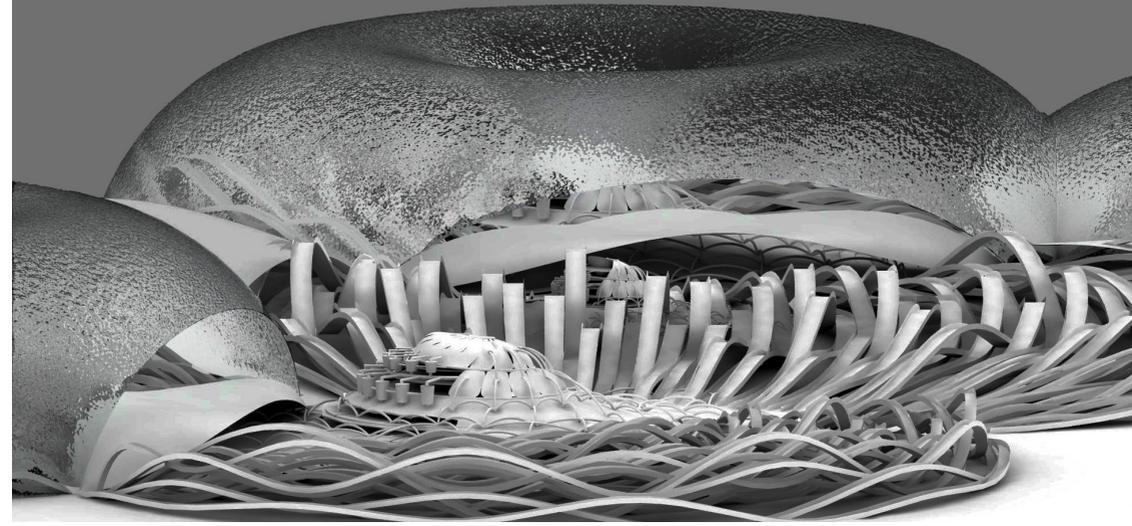
this complex combination of elements and their relations. At the RSII we will read and learn from the people that are already talking about this holistic way of thinking (Rifkin, Braunghart, Mc Donnough, Latour...).

In order to face this holistic way of thinking, architects can not be alone, they must learn to work inside multidisciplinary teams. A starting point will be the scenario of RSII, in which we will work on our projects together with physicists, biologists, economists and designers.

Inside the topic of self sufficiency, in the past three years we have developed projects around the ideas of Factory of the Future, Urban Retrofitting, Factory of Knowledge, and many more.



MAA 2014-15 - Self Sufficient Buildings  
RIFKIN - Ahn Vu, Joel Kahn, James Mitchel



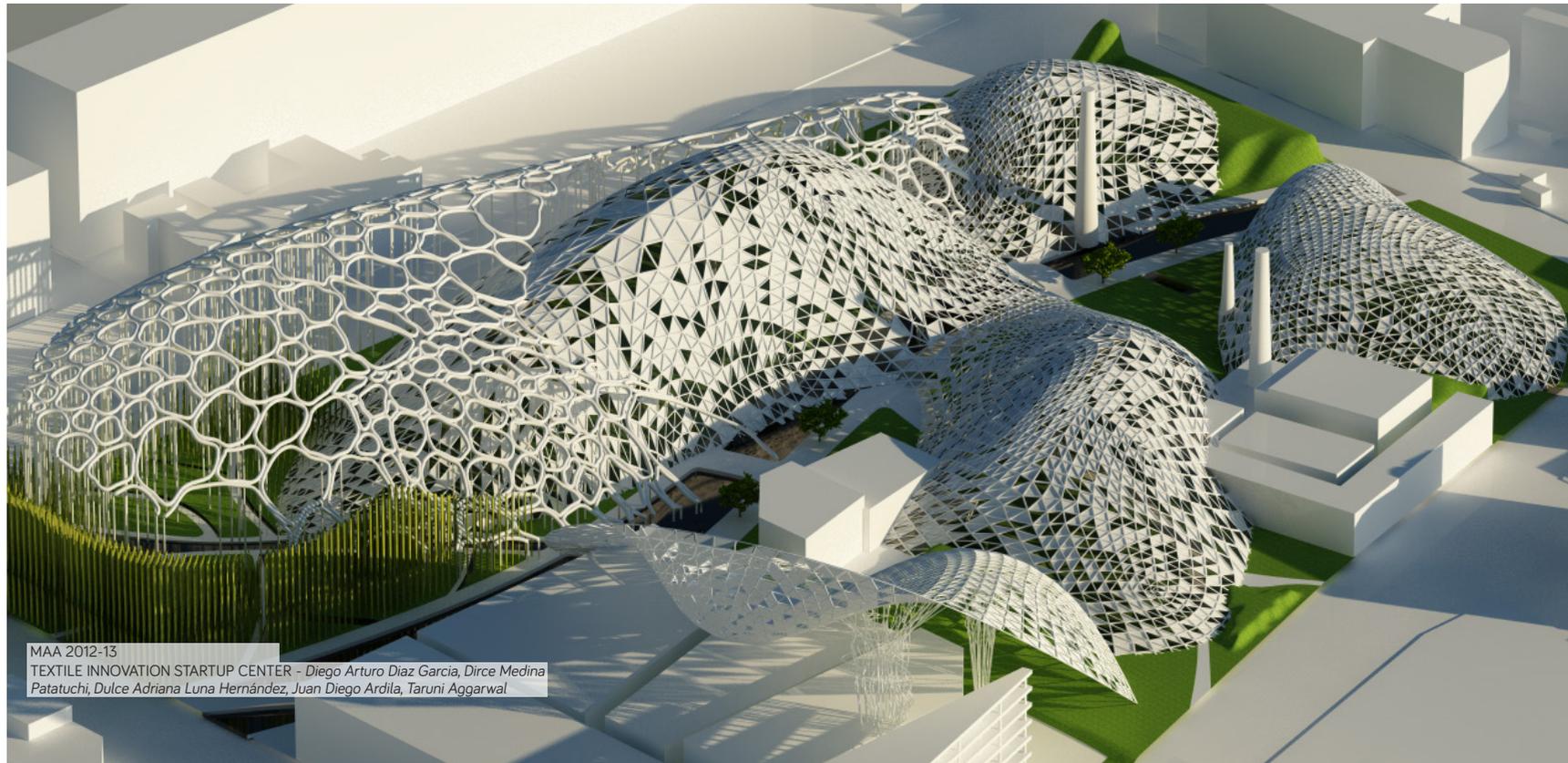
MAA 2015-16 - DEPARTMENT OF MOLECULAR ARCHITECTURE  
Thora Hafdis Arnardottir - Fulvio Brunetti - Maria Cynthia Funk - Mercedes Sweicicki

In this new era, buildings are the result of self-sufficient systems interacting with each other, producing its own energy and food, as the HUMAN NEST does with the help of natural resources such as birds and wind. Recycling water and creating an efficient off-grid student life in the middle of the new Melbourne sanctuary are crucial for the project. The aviary on the roof, becomes a natural pest/parasites control system and a fertilizer generator for the crops and a bird factory for the sanctuary. On the other hand, the energy generated will be distributed within the city, turning this residence on a power plant as well.



MAA 2015-16 - HUMAN NEST  
Carlos Daniel Gómez

Retrofitting the industry, the “Urban Fabric” is a three-dimensional mesh envelope based on cell organisation in plants that combines farming, photovoltaic panels, metal, fibers, water and technology. This modulation from structure to plants, insulated to uninsulated, skin to nature, adapts to the seasons and reflects the environments of future activities. The radical element of the project marks the starting point of a new revolution in this industry.



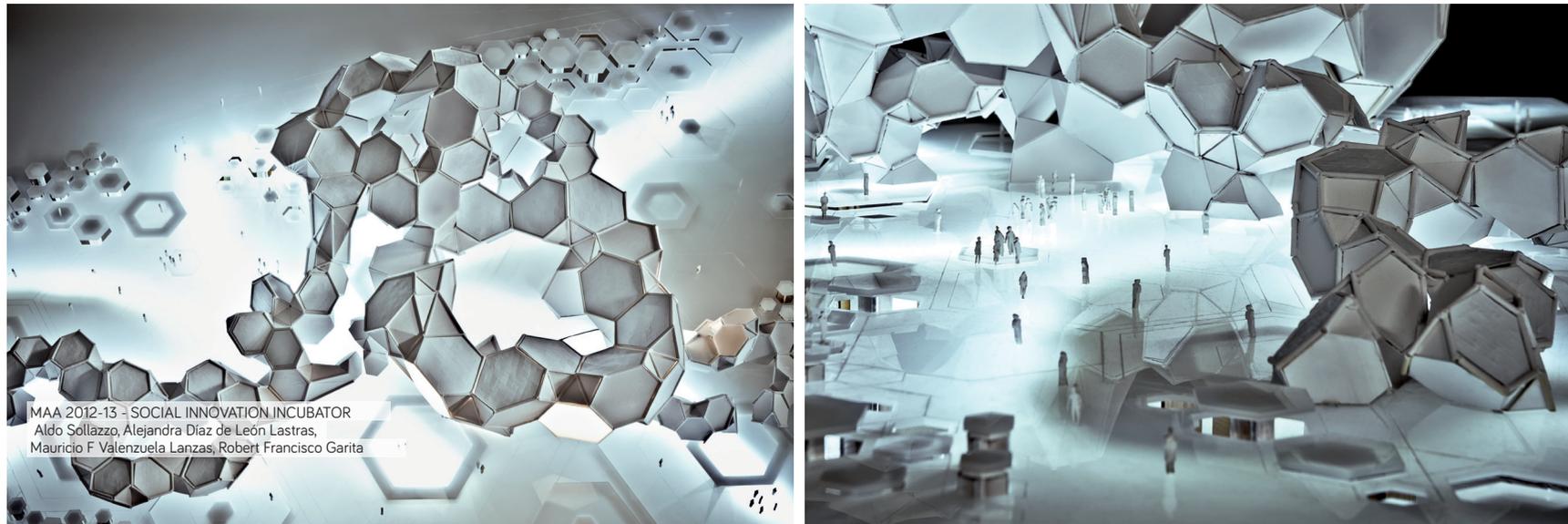
MAA 2012-13  
TEXTILE INNOVATION STARTUP CENTER - Diego Arturo Diaz Garcia, Dirce Medina Patatuchi, Dulce Adriana Luna Hernández, Juan Diego Ardila, Taruni Aggarwal

A cloud problem requires a cloud solution. The jungle senses the cloud of pollution from external sources before reacting, creating a cloud on site that captures pollution. This cloud is then manipulated to rain on site through over seeding, removing the pollution from the air. To create a self sufficient system energy is needed. Algae uses CO2 and waste water creating bio fuel to power the cloud.



MAA 2012-13 - THE JUNGLE  
Dori Sadan, Moritz Begle, Stuart Maggs, Urte Naujekaite

The Social Innovation Incubator performs through the development of an educational path set in a revolutionary environment, giving people a platform where to innovate and find their job opportunities. The building responds to the context and inspires innovation. You are introduced to advanced knowledge, tools and processes, practicing, testing and performing innovative projects. You connect with people in different levels and fields. You come out a seed of innovation in the knowledge community.



MAA 2012-13 - SOCIAL INNOVATION INCUBATOR  
Aldo Sollazzo, Alejandra Díaz de León Lastras,  
Mauricio F Valenzuela Lanzas, Robert Francisco Garita

# DIGITAL MATTER INTELLIGENT CONSTRUCTIONS

SENIOR FACULTY: ARETI MARKOPOULOU

Today, we are facing a change in paradigm in the field of Architecture. Information Era Technologies and their impacts on architecture are drastically changing, and their relationship calls for new or adapted concepts, where physical space seamlessly intertwines with digital content, and where the language of electronic connections tie in with that of physical connections.

We are consequently moving towards a different form of "habitats", where architecture is not merely inhabited, but becomes technologically integrated, interactive and evolutionary. If computers were once the size of buildings, buildings are now becoming computers, both in a performative sense, on I/O Communication protocols, and in a programmable sense, at material-molecule nanoscale; even becoming operational thanks to self-learning genetic algorithms.

The key, thus, to 21st century challenges generated by global urbanization, economic instability and particularly the increasing awareness related to the environmental crisis will be the development of high efficient "products" with increasing levels of functionality. Architecture following every stage of life will have to address and respond to both challenges and advancements. Our buildings and cities will need new interfaces to communicate with the environment and embedded systems of performance that do not rely on existing urban infrastructures. Active and bio-materials will play a critical role in this development, forcing architects to get free from mechanical actuators or computing devices and integrate into their designs the inherited functions that "smart materials" present on a molecular scale. At the same time, advanced

digital manufacturing techniques contribute to digitally fabricate new material systems and building components with varied properties of density, translucency, elasticity and much more. This brings another level of sustainability awareness, one that questions concepts of durability or longevity and brings forward concepts of dynamics, adaptability and metabolism.

Understanding the significant need of generating the production of non-rigid, responsive and multi-functional material and construction systems, the Digital Matter Research Line develops case studies on digital and computed matter, exploring intelligent construction systems to be applied at architectural scale. The projects implement active materials, information, digital content and fabrication foreseeing an engineered architectural future of intelligent responsiveness and adaptation.

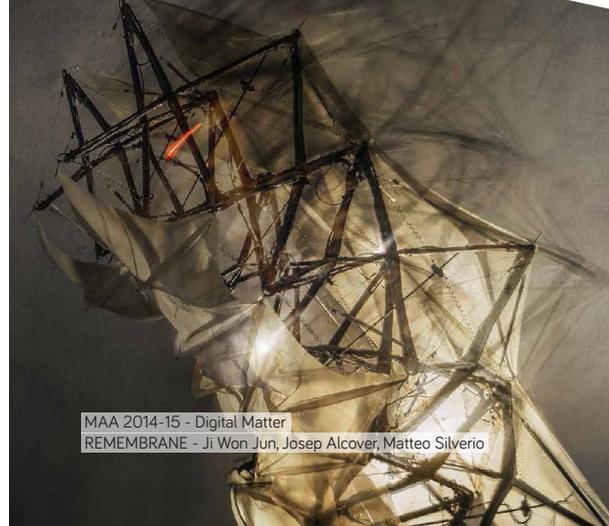
Should we continue constructing rigid and fixed structures?  
Or can buildings and cities begin to think?

Digital Matter Research line will be generating an architecture that is not just mimicking the living but is roaring into life. The method of investigation follows a rigorously experimental approach and progresses in complexity from small scale material sampling to the production of 1:1 scale architectural components and prototypes.

With the collaboration of



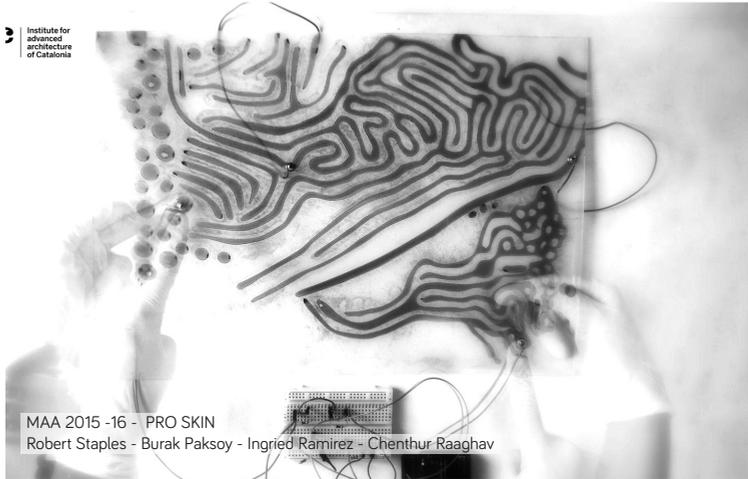
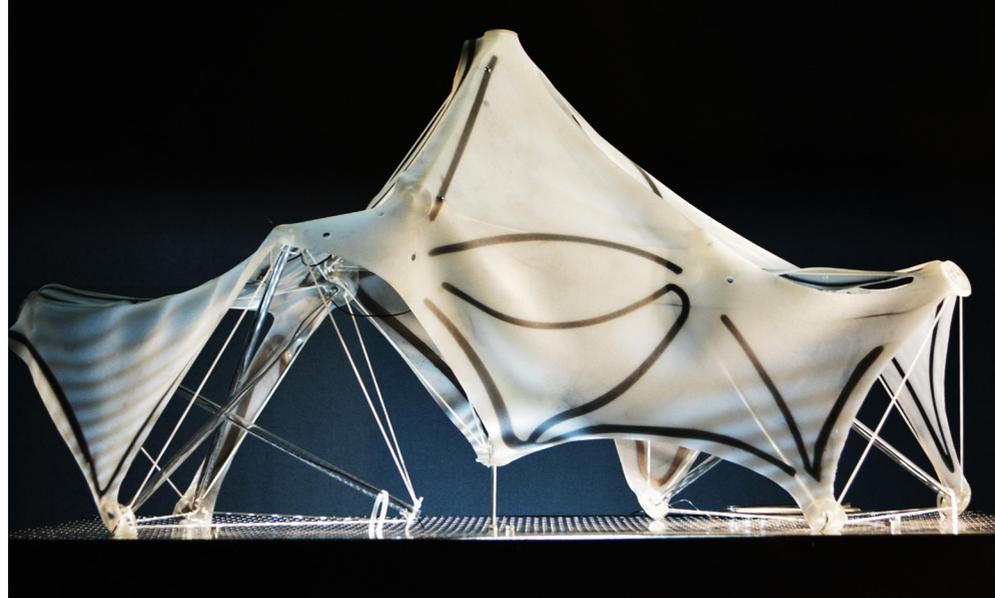
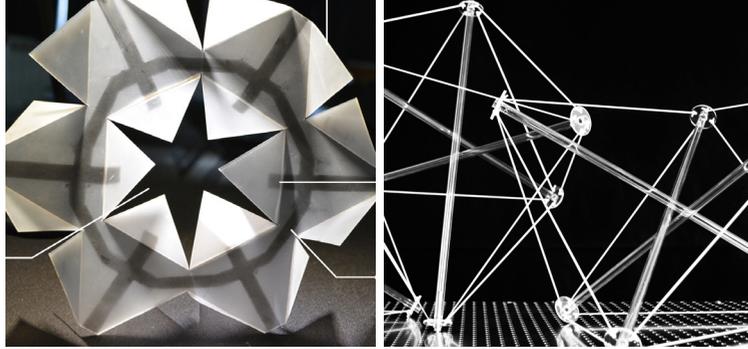
MAA 2013-14 - Digital Matter  
TRANSLATED GEOMETRY - Eleni Baseta, Ece Tankal, Ramin Shambayati



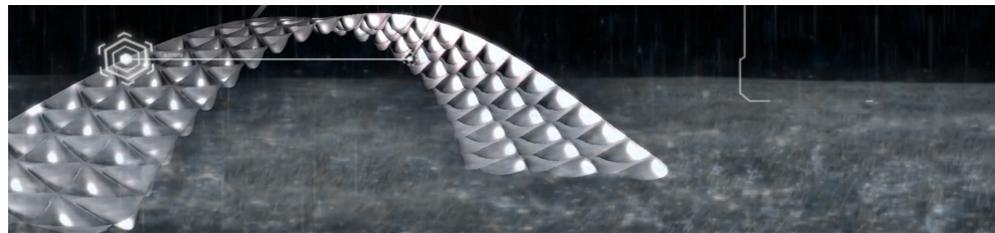
MAA 2014-15 - Digital Matter  
REMEMBRANCE - Ji Won Jun, Josep Alcover, Matteo Silverio



MAA 2014-15 - Digital Matter  
HYDROMEMBRANE - Luisa Roth



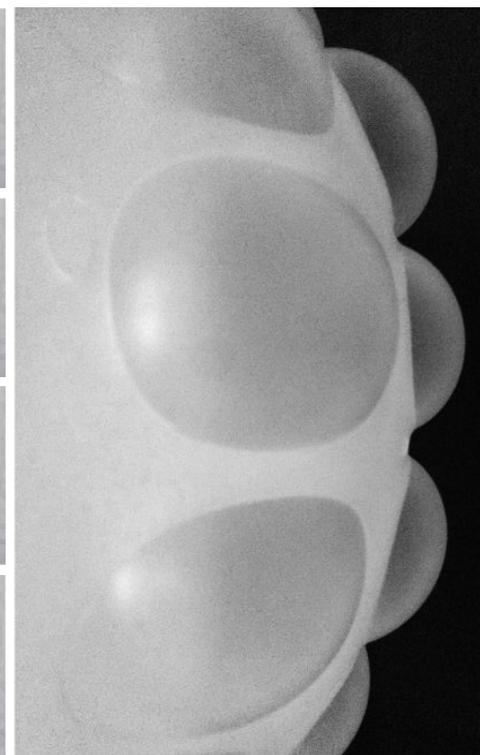
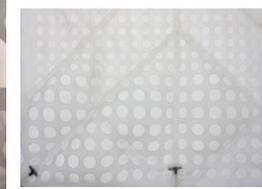
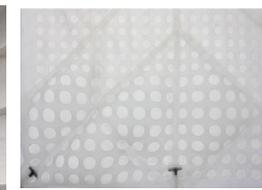
MAA 2015 -16 - PRO SKIN  
Robert Staples - Burak Paksoy - Ingrid Ramirez - Chenthur Raaghav



The project seeks to create a responsive facade that on the one hand protects the people from environmental conditions and on the other hand becomes part of the public space. In this sense the project is able to interact and correspond to the peoples needs and activities with respect to the context they inhabit.

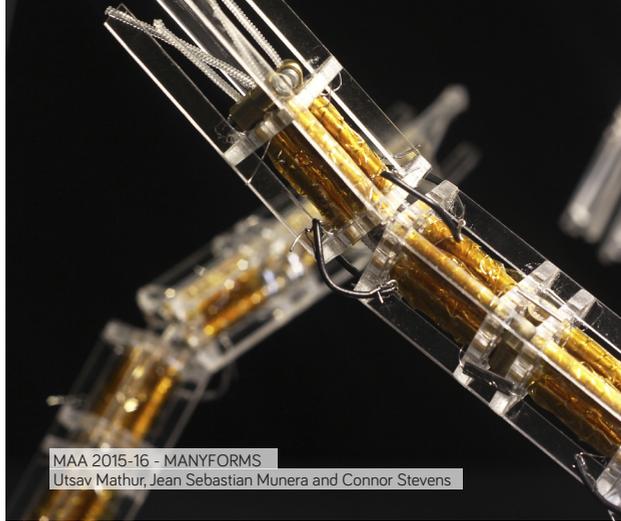


MAA 2014 -15 - SOFT SKINS  
Lubna Alayeli, Nina Jotanovic, Ceren Temel, Farah Alayeli



A project that investigates possibilities of using air inflation in architecture, as an active response to constantly changing parameters in environment: the Skin is a new composite material made of thin layers of flexible silicone rubber and elastic fabric. Series of inflatable cells combined in groups can be inflated or deflated to change form and appearance: a tunable topography responding to real time data of wind and light. The responsive facade protects the people from environmental conditions and becomes part of the public space.

MANYFORMS, or manipulated nylon forms, explores the idea of employing a unique smart material that can be created out of easily sourced nylon fishing line, into an architectural system that can be easily replicated anywhere on site. When heated to a temperature between 60-75°C, tested nylon muscles contract by up to 10% and are capable of carrying significant weight. As one of the preconditions for actuating the muscle is a calibrated amount of tension, MANYFORMS explores systems that work with a careful counterbalancing of forces.



MAA 2015-16 - MANYFORMS  
Utsav Mathur, Jean Sebastian Munera and Connor Stevens



By combining the evaporation property of the hydrogels with the thermal mass, and humidity control property of clay ceramic and fabric, a composite material responsive to heat and water was created. The proposed solution is a passive evapotranspiration system able to lower the temperature of an interior space. With the help of accurate energy and thermal analysis of today's technology, hydroceramic's passive system can effectively keep the balance of the humidity and temperature inside the human comfort-zone.

MAA 2013-14 - HYDROCERAMIC PASSIVE COOLING FACADE  
Akanksha Rathee, Elena Mitrofanova, Pongtida Santayanan



# INTRODUCTORY STUDIO

CLAUDIA PASQUERO // CARMELO ZAPPULLA // EDOUARD CABAY

JAVIER PENA // JONATHAN MINCHIN

In the framework of learning by doing, the Introductory Studio gives students the opportunity to fully explore and apply the various tools and techniques assimilated during their 1st Term at IAAC. From the examination of space understood as layers of activities and interactions, to the design and simulation of their behaviors, animated through performative models; or the profound understanding of mechanisms of local

energy, food and bio-materials production in dense urban environments, contributing to the urban morphogenesis of contemporary cities; all developed with the support of digital fabrication and parametric design.



MAA 2015-16 - IS Tutors: Edouard Cabay  
GLORIES REGENERATIVE SYSTEMS Peter Geelmuyden Magnus, Utsav Mathur, Tobias Deeg, Martin Hristov, Rana Abdulmajeed, Nour Mezher, Jean Sebastian Mùnera, Lili Tayefi



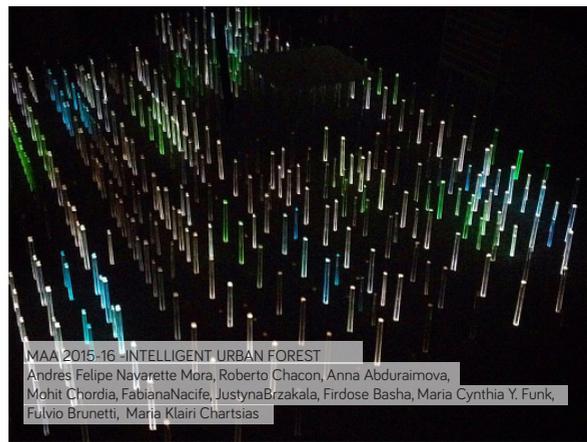
MAA 2015-16 - IS Tutors: Claudia Pasquero, Carmelo Zappulla  
BIO\_RECLAIM- Andre Resende - Mohamad Atab - Hsin Li  
Stefan Fotev - Sureshkumar Kumaravel - Yasamin Khalilbeigi



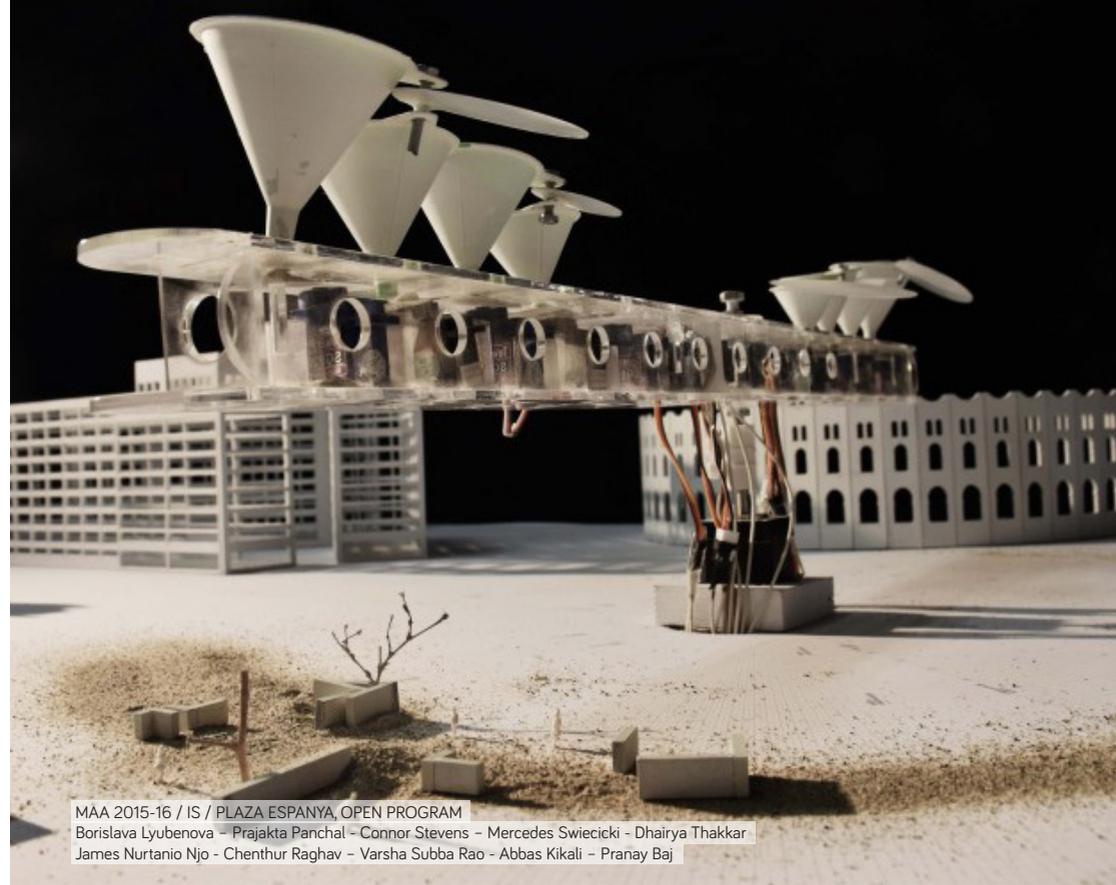
MAA 2015-16 - IS Tutors: Claudia Pasquero, Carmelo Zappulla  
BIO\_RECLAIM- Lalin Keyvan - Christopher Wong - Robert Staples  
Abdullah Ibrahim - Luis Bonilla - Jonathan Irawan



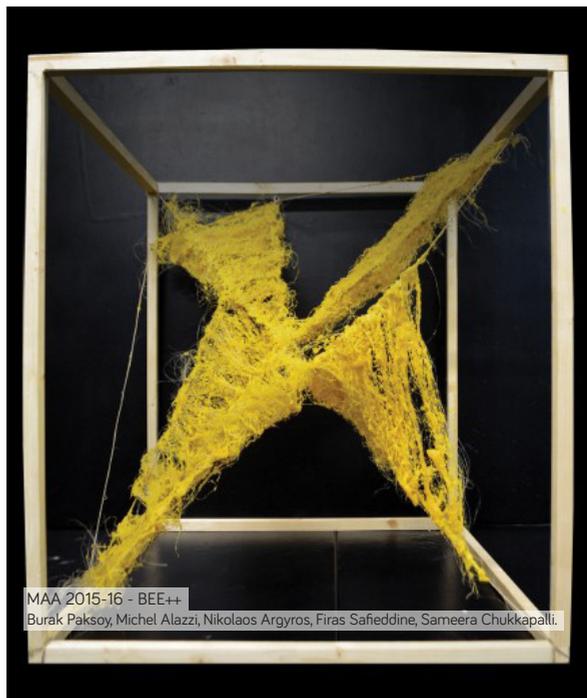
MAA 2015-16 / IS - DYNAMIC URBAN FOREST  
 Dirk van Wassenaeer - Lina Salamanca - Levit Arroyo - JengRung Hong  
 Catherine Simakova - Sidharth Kumar - Goutham Santhanam - Khushboo Sonigera  
 Vishnu Jadia - Naitik Shah



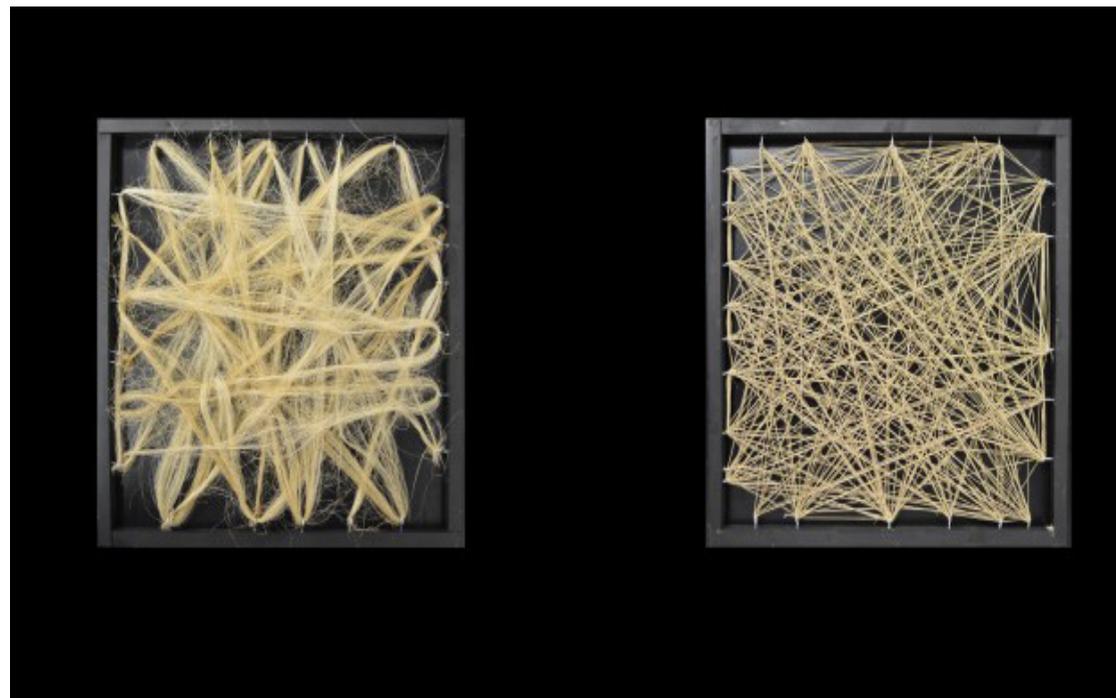
MAA 2015-16 - INTELLIGENT URBAN FOREST  
 Andres Felipe Navarette Mora, Roberto Chacon, Anna Abduraimova,  
 Mohit Chordia, FabianaNacife, JustynaBrzakala, Firdose Basha, Maria Cynthia Y. Funk,  
 Fulvio Brunetti, Maria Klairi Chatsias



MAA 2015-16 / IS / PLAZA ESPANYA, OPEN PROGRAM  
 Borislava Lyubenova - Prajakta Panchal - Connor Stevens - Mercedes Swiecicki - Dhairya Thakkar  
 James Nurtanio Njo - Chenthur Raghav - Varsha Subba Rao - Abbas Kikali - Pranay Baj



MAA 2015-16 - BEE++  
 Burak Paksoy, Michel Alazzi, Nikolaos Argyros, Firas Safieddine, Sameera Chukkappalli



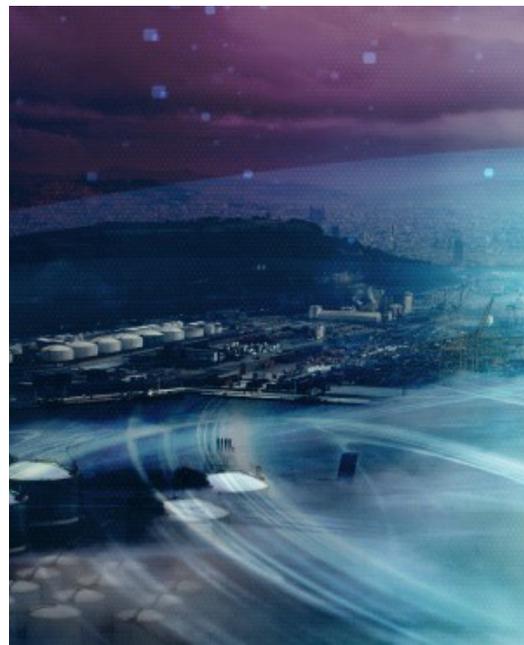
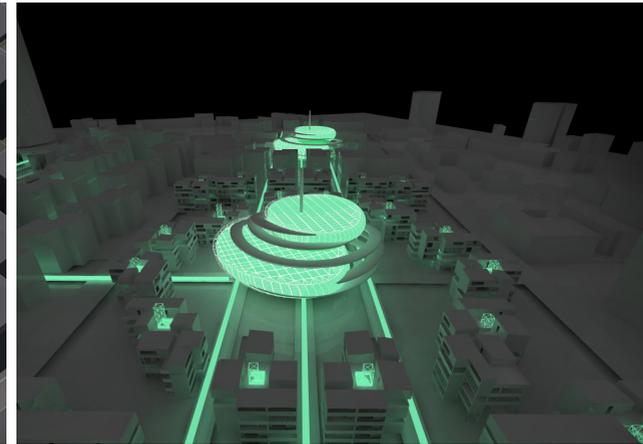
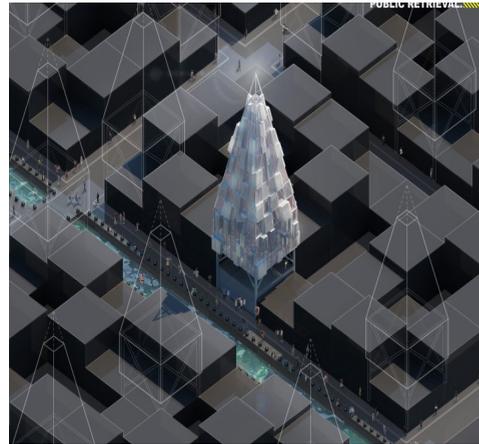
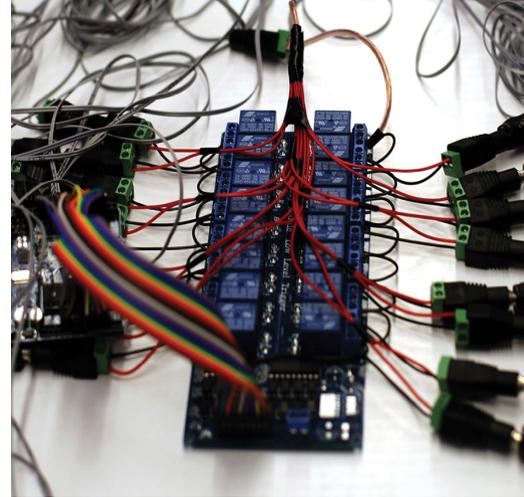
# SEMINARS AND WORKSHOPS

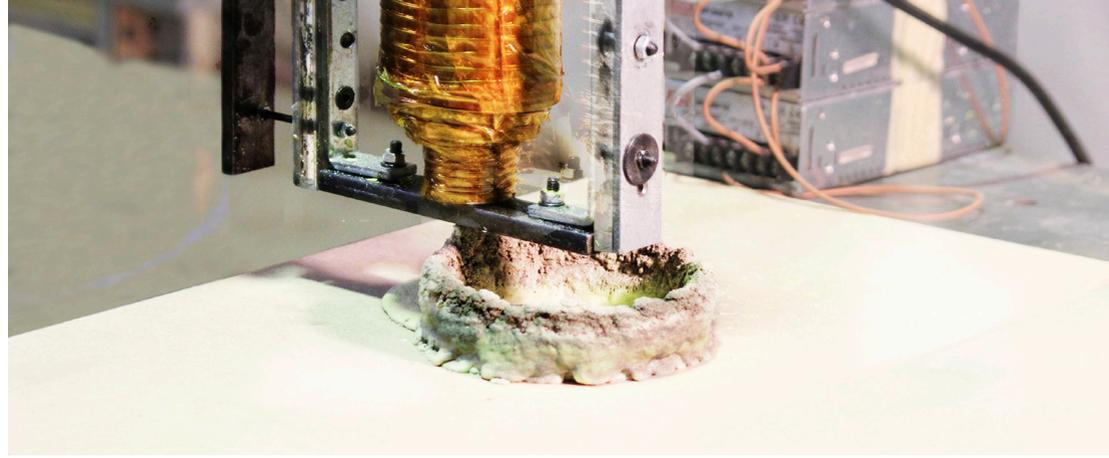
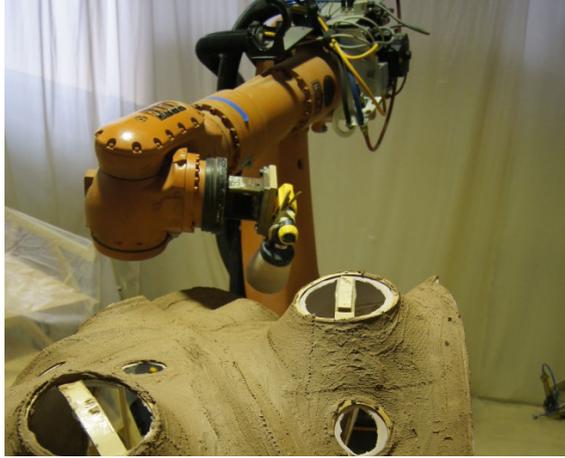
Through select elective and obligatory seminars, the academic curriculum explores diverse fields of Advanced Architecture:

- DIGITAL FABRICATION
- COMPUTATIONAL DESIGN
- THEORY OF ADVANCED ARCHITECTURE
- URBAN SCIENCE
- PHYSICAL COMPUTING
- EXPERIMENTAL STRUCTURES
- PROCESSING

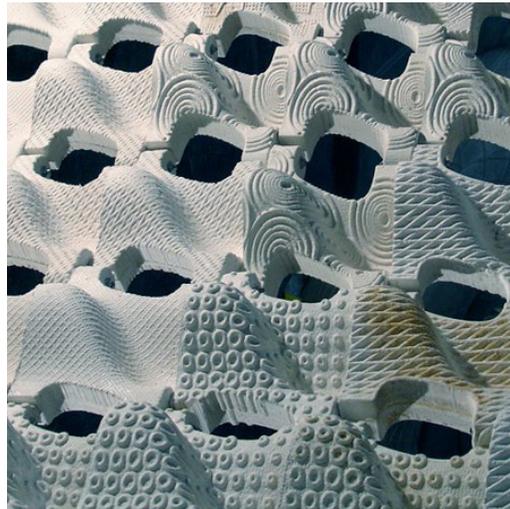
Some of the renowned laaC Seminar faculty are: Vicente Guallart (Architect), Maite Bravo (Architect), Enrico Dini (Engineer), Silvia Brandi (Architect), Tomas Diez (Urbanist), Edouard Cabay (Architect), Manja van de Worp (Engineer), Lluís Viu Rebés (Architect), Jordi Pages Ramon (Architect), Josep Mias (Architect), Fabian Scheurer (Computer Scientist), Alexandre Dubor (Architect), Anastasia Pistofidou (Architect), Ricardo Devesa (Architect), Marc Viader (Architect, Computer Scientist), David Dalmazzo (Computer Scientist), Valérie Bergeron (Architect), Victor Arribas (Material Engineer), Spyros Stavoravdis (Architect), Gonzalo Delacámara (Economist), Mathilde Marengo (Architect), Neil Leach (Architect), Pablo Ros (Architect), José Ballesteros (Architect), George Jeronimidis (Architect), Tom Pawlofsky (Architect), Petr Novikov (Architect), Saša Jokic (Architect),

Dave Pigram (Architect), Iain Maxwell (Architect), Cristobal Castilla (Designer), Gerard Passola (Ecologist, Biologist), Julian Vincent (Biologist), Pierre Belanger (Architect/Urbanist), Dennis Dollens (Architect), Michel Rojkind (Architect), Michael Knauss (Architect), Cristina Sendra (Chemical Engineer), José Pérez de Lama (Architect), Nikos Salingaros (Mathematician), Salvador Rueda (Biologist), Andreu Ulied (Engineer), Christine Otto Kanstinger (Engineer), Aaron Betsky (Architect)





MAA - DIGITAL FABRICATION  
Introduction to Digital Fabrication



MAA - DIGITAL FABRICATION  
Robotic Fabrication



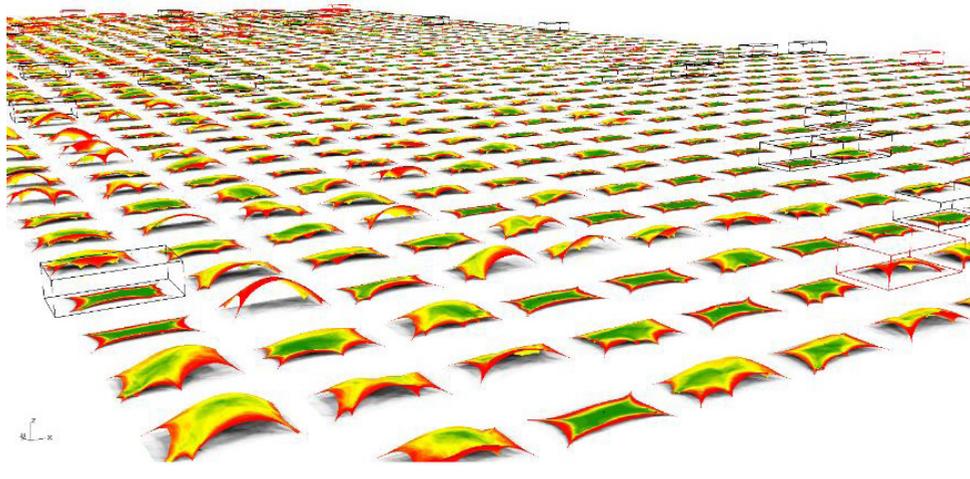
MAA - DIGITAL FABRICATION  
BiFurcation



### DIGITAL FABRICATION

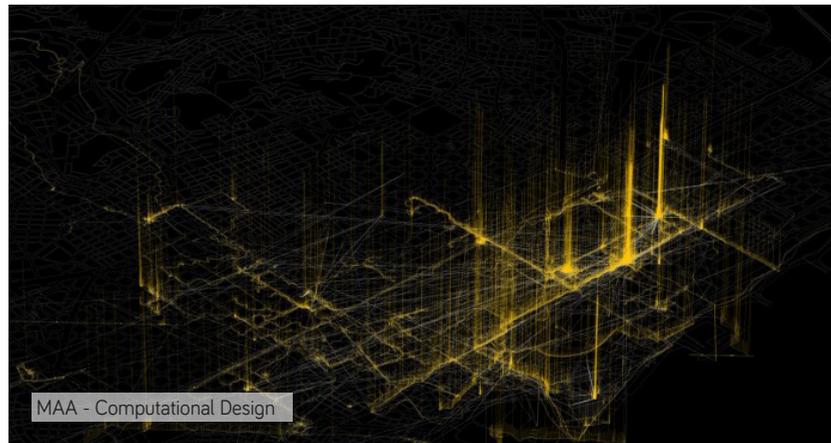
The Digital Fabrication seminars explore different scales of production of architecture using Digital and Robotic Fabrication techniques such as: CNC cutting (laser), 3D printing, CNC milling, molding and casting and composites, design and fabrication.

One of the goals is to introduce the thinking around the function, by following the evolution of the design through iterations of production as a workflow.

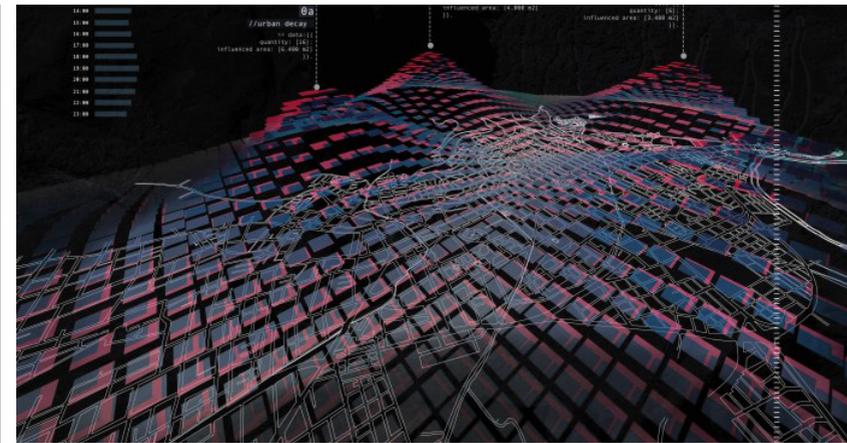


### COMPUTATIONAL DESIGN

In computer science, algorithms are habitually defined as fixed and often finite procedures of step-by-step instructions understood to produce something other than themselves. Structures of logics interfacing with Data, sourced from any computable phenomena. Computational Design Seminars focus on emergent design strategies based on algorithmic design logics. From the physical spaces of our built environment to the networked spaces of digital culture, algorithmic and computational strategies are reshaping not only design strategies but the entire perception of Architecture and its boundaries.



MAA - Computational Design



### EXPERIMENTAL STRUCTURES

Experimental structure courses are aimed at pushing the limit of constructions, combining physical experimentation and digital simulations, in order to discovery new structural paradigms based on the concepts of lightweight, bending, tension, aggregation and components, as well as setting the logics behind these. 1:1 structures are tested through various media, materials, programs and scales, concluding with the construction of a large scale demonstrative prototype.

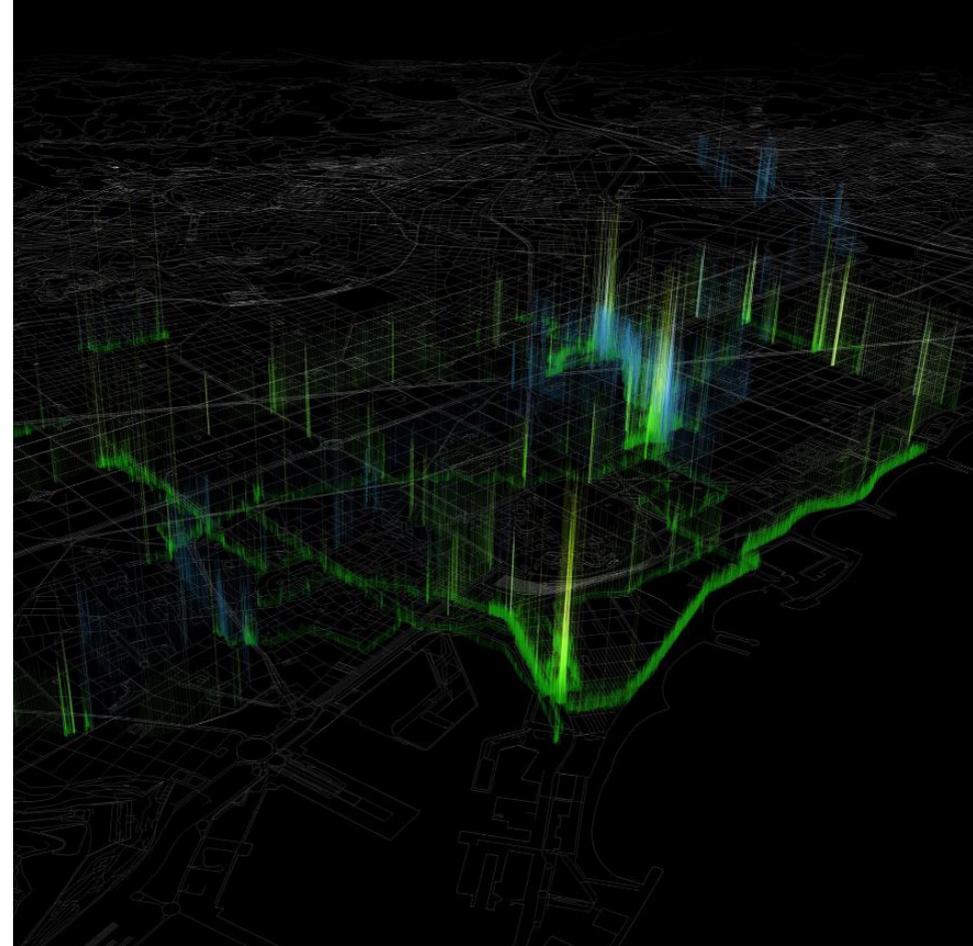


MAA - Experimental Structures



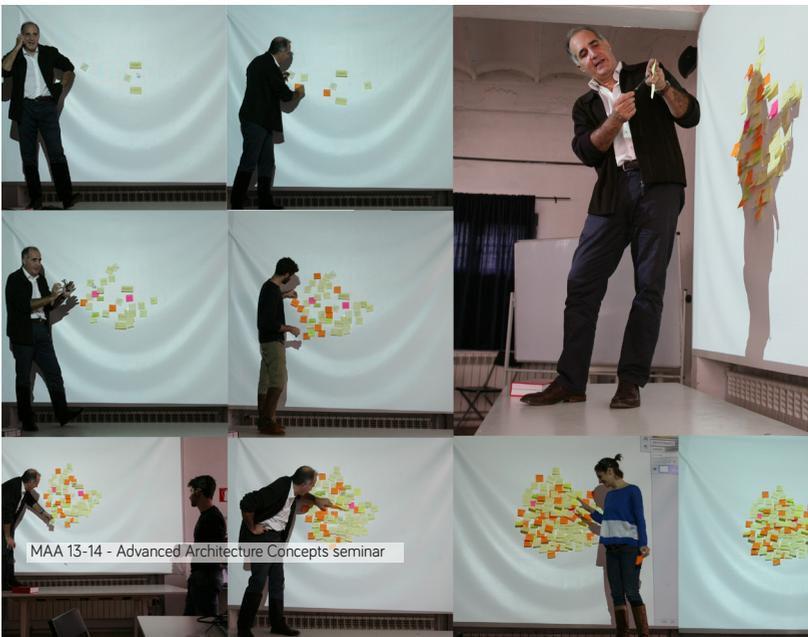


MAA02 - [INFOSTRUCTURE]  
Borislav Schalev



### URBAN SCIENCE

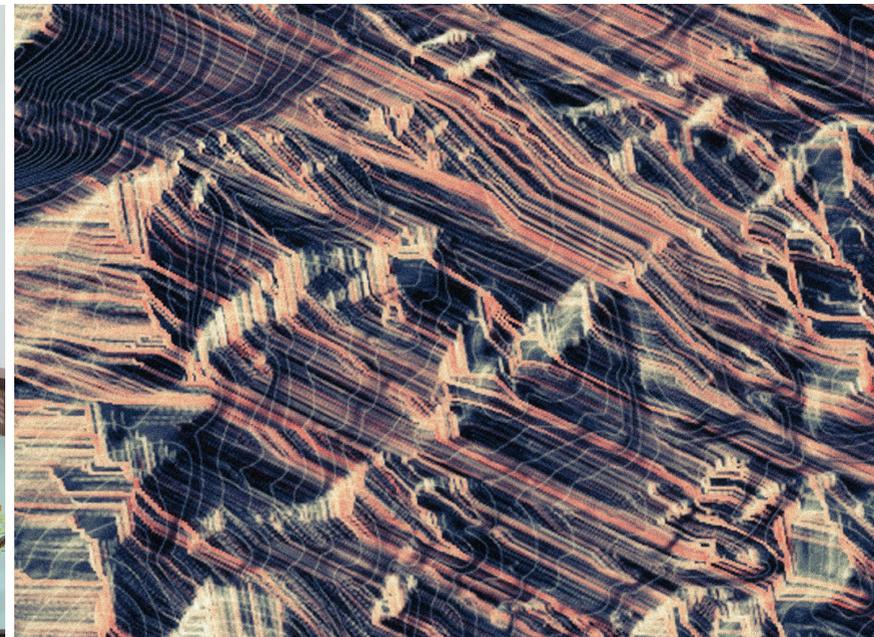
Since the emergence of the Third Industrial Revolution, Urban Sciences are facing major challenges: how do we respond to the shift from an industrial society to an informational society?  
In fact the space we inhabit today was basically constructed at the start of the Industrial Revolution, the Information Society is now bringing to bear new principles and technologies with which to rethink the functioning and structure of the city, and how its citizens interact with it.



MAA 13-14 - Advanced Architecture Concepts seminar

### THEORY OF ADVANCED ARCHITECTURE

Based on the term "Advanced Architecture" coined in 2003 by the Metapolis Dictionary of Advanced Architecture, this course aims to establish some theoretical principles around 3 Conceptual Frames:  
[Frame 1] Systems/Strategies — Transversal Logics: information - cities [Frame 2] Systems/ Environments — Relational Logics: cities - natures [Frame 3]- Systems/Process — Digital Logics: natures - information.



MAA  
SECOND YEAR

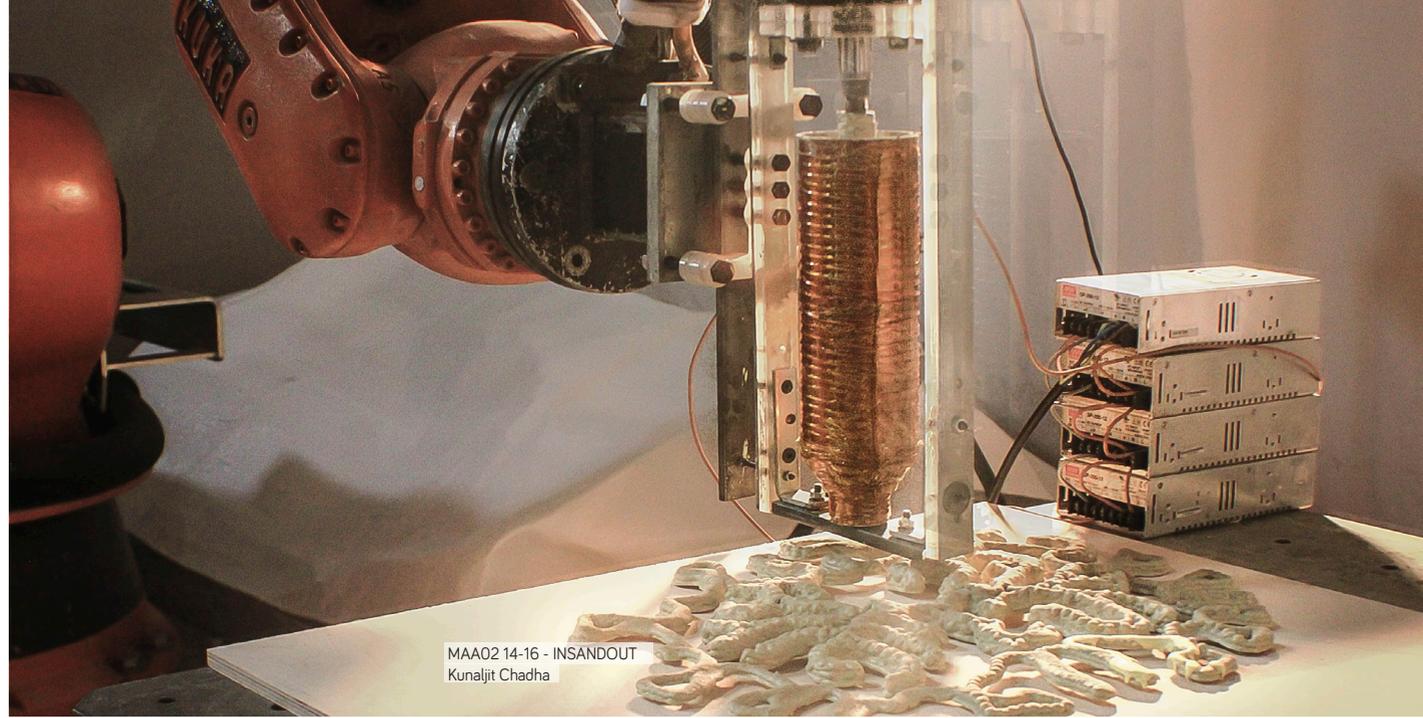
# INDIVIDUAL MASTER THESIS PROJECT

## FROM BITS TO GEOGRAPHIES

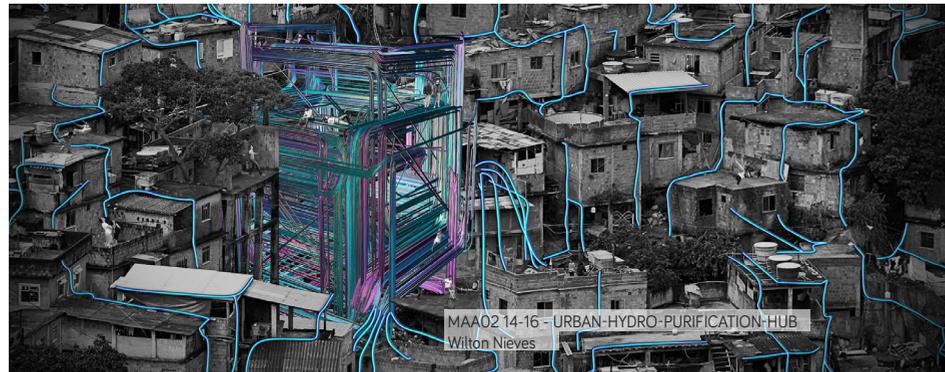
During the second year of the Master in Advanced Architecture Students have the opportunity, and the necessary support from a series of experts in various fields, to develop an in depth and individual research agenda. Students propose a thesis project, that they are going to develop throughout the year, and are allocated an Individual Thesis Advisor who is specialized in the topic proposed.

MAA02 is a formative platform structured by a research Design Project and three complementary courses anticipating ideas that will appear during the programme in relation to the research proposals of the thesis themes, design strategies, innovative forms of planning and contemporary culture, supporting the theoretical research as well as the practical development of the thesis projects.

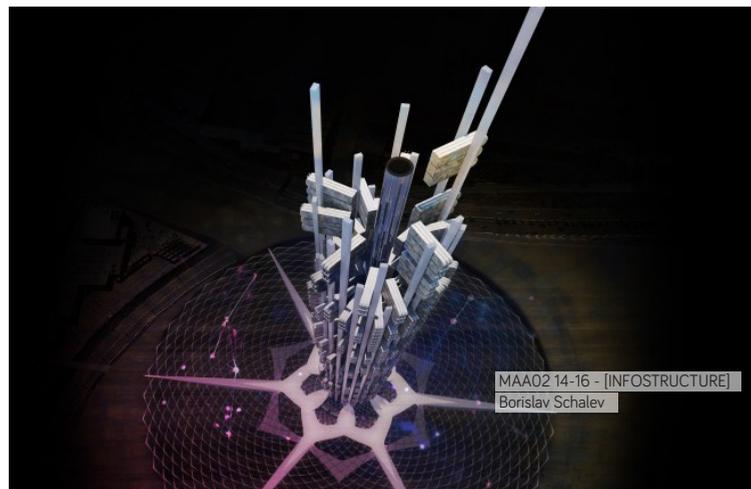
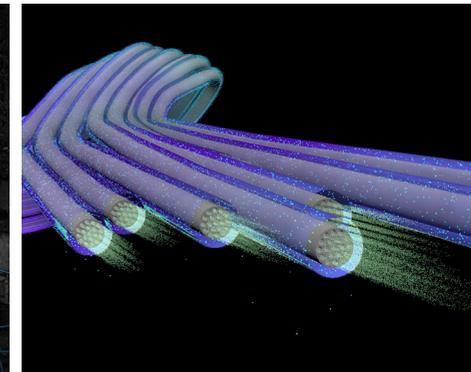
On top of this, the MAA02 students have the opportunity to work alongside the IAAC team in the development of a series of 1:1 scale projects and prototypes to be deployed throughout the city of Barcelona.



MAA02 14-16 - INSANDOUT  
Kunaljit Chadha



MAA02 14-16 - URBAN-HYDRO-PURIFICATION-HUB  
Wilton Nieves



MAA02 14-16 - [INFOSTRUCTURE]  
Borislav Schalev



# INDIVIDUAL MASTER THESIS PROJECT

THESIS ADVISOR: MARCOS CRUZ

C-Biom.A  
Computation, Biomaterials and Architecture

C-Biom.A is an innovative design research group at the IAAC focused on developing new bio and environmentally integrated designs strategies. Students explore advanced computational models and simulations that are applied to building prototypes made of new material composites that are either bio-inspired or bio-integrated. Many of the proposed objects and components aim to stimulate natural growth of bacteria, fungi, algae, and higher plants and the integration of these species in buildings.

In a time in which more people are living in cities, the ultimate aim of the group is to develop a radically new sensibility of understanding of architecture where climate and nature, as well as new sense of materiality is the driving motif for design. There is a high level attention given to the use of new digital tools and fabrication techniques through which more complex and highly differentiated responses can be given to our rapidly changing urban environment.

Students in C-Biom.A develop an individual Thesis that is composed of a written and illustrated portfolio, as well as substantial models and prototypes that are shown in a final exhibition designed by the students.



MAA02 14-16 - Nina Jotanovic  
RESPONSIVE MANIFOLDS



MAA02 14-16 - Yessica Mendez  
DESIGN FOR AGEING BUILDINGS



MAA02 13-15 - Tobias Grunstrup  
BIO CONCRETION

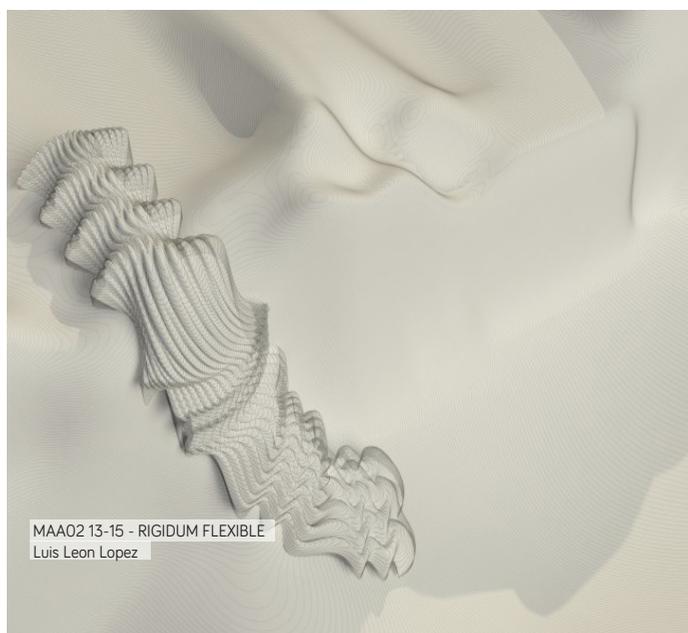
# INDIVIDUAL MASTER THESIS PROJECT

THESIS ADVISORS: JORDI PAGES // LLUIS VIU

Rather than to frame architecture as an energetic or a geometric issue we aim at problematizing architecture's physical materiality. We believe that it is within the depths of matter and its internal consistency, within the realm of pure organization buried in atomic aggregates, in a space devoid of cultural interferences, metaphors and meanings and where beauty is not taken into account, that one can focus on strategies to develop novel proposals for architecture. We aim at abandoning the glitz of the surface, abandoning the visible and its panoply of image simulators, and overturning the experiment into an operative and performative act: we aim at developing, testing and building Climatic Matter®.

Over the years teaching at IAAC we have developed a speculative and opportunistic agenda that embraces architecture's contemporary paradigms, sustainability and object oriented programing, and synthesized them into an operative method that purposely avoids metaphors. We aim at implementing systematic and methodological processes that imbricate the ecological and the digital, a consistent palimpsest of environmental and parametric design. Through this dynamic and unstable material aggregates, made out of climate and algorithms, architecture surfaces as Climatic Matter®.

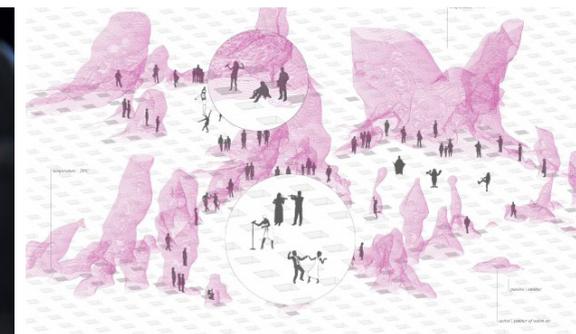
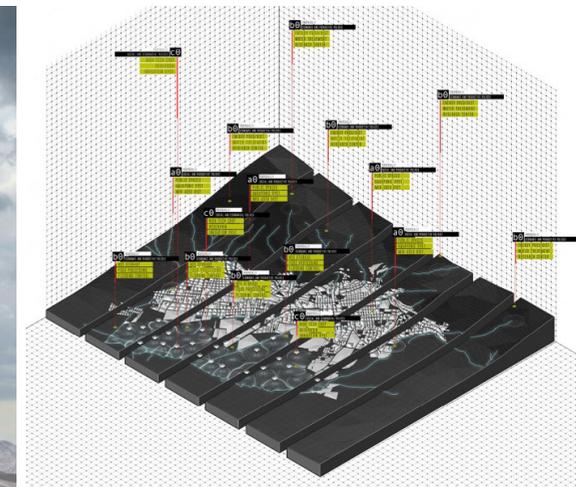
Our agenda is pure process, our language is geometry and abstraction is the means to achieve and develop Climatic Matter®



# INDIVIDUAL MASTER THESIS PROJECT

THESIS ADVISOR: VICENTE GUALLART //  
EULALIA MORAN

The large majority of the global population lives in urban environments and the predictions are that by 2050 more than 80% of the world's population will be living in cities. It is because of this that it's important to understand how cities function as a productive system that acts as a key part of the global economy. Today's large cities deal with issues like climate change, uneven growth, centralization of management, lack of sustainable large scale retro-fitting strategies and many more. To attack these issues a holistic strategy is needed, one that combines new technologies, cities and the social layer. It is not a question if the decisions taken should be bottom-up or top-down, but more of how to make the two work together as they are both necessary for the implementation of a successful model. The alignment of the projects, layers of investigation and big scale initiatives, coordinated generally by the government and large corporations and the development of bottom up projects, generally driven by the civil society and the small business owners is crucial for the implementation of an innovative project within fertile grounds. One crucial step is empowering the population that shapes the city in order for them to take charge of their own destiny, without being dependent on economical and political conditions that resulted out of the globalization process. Second is the development of an ecological model that responds to the climate change issues by needing far less energy to function, it uses the local resources and keeps the production on a local scale. The focus is on strategical plans, sectorial plans and scientific knowledge to better understand and improve the construction of social communities in the cities and to be able to upgrade them through the filter of information technology as technology has always been a resource that boosted the changes in civilizations and improved in a big way the quality of life of the population.



FACULTY

# FACULTY



**ARETI  
MARKOPOULOU**

ACADEMIC DIRECTOR  
MAA\_DIGITAL MATTER STUDIO  
OTF\_IAAC BUILDS



**EDOUARD  
CABAY**

MAA\_INTRODUCTORY STUDIO



**MIREIA  
LUZÁRRAGA**

MAA\_SELF SUFFICIENT  
BUILDING STUDIO



**MATHILDE  
MARENGO**

ACADEMIC COORDINATOR  
MAA\_URBAN SCIENCES



**SILVIA  
BRANDI**

COMMUNICATION DIRECTOR  
MAA\_EXPERIMENTAL  
STRUCTURES



**MANUEL  
GAUSA**

MAA\_THEORY OF  
ADVANCED KNOWLEDGE



**WILLY  
MÜLLER**

MAA\_INTELLIGENT  
CITIES STUDIO



**JORDI  
PAGÉS**

MAA02\_THESIS ADVISOR



**MARCOS  
CRUZ**

MAA02\_THESIS ADVISOR



**LUIS  
FRAGUADA**

MAI\_ADVANCED  
INTERACTION DIRECTOR



**CLAUDIA  
PASQUERO**

MAA\_INTRODUCTORY  
STUDIO



**JAVIER  
PEÑA**

MAA\_INTRODUCTORY  
STUDIO



**ALEXANDRE  
DUBOR**

OTF\_IAAC BUILDS  
MAA\_DIGITAL FABRICATION



**RODRIGO  
AGUIRRE**

MAA\_COMPUTATIONAL  
DESIGN



**RODRIGO  
RUBIO**

MAA\_INTRODUCTORY STUDIO  
SEMINAR FACULTY



**ENRIC  
RUIZ GELI**

MAA\_SELF SUFFICIENT  
BUILDING STUDIO



**VICENTE  
GUALLART**

MAA02\_THESIS ADVISOR



**MARCO  
INGRASSIA**

MAA01\_COORDINATOR  
MAA\_URBAN SCIENCES



**LLUIS  
VIU**

MAA02\_THESIS ADVISOR



**CARMELO  
ZAPPULLA**

MAA\_INTRODUCTORY  
STUDIO

# FACULTY



**MAITE  
BRAVO**

MAA\_THEORY OF  
ADVANCED KNOWLEDGE



**SPYROS  
STRAVORADVIS**

MAA\_COMPUTATIONAL  
DESIGN



**DJORDJE  
STANOJEVIC**

MAA\_DIGITAL FABRICATION



**JORDI  
VIVALDI**

MAA\_INTELLIGENT  
CITIES STUDIO



**ALFREDO  
BRILLEMBOURG**

MAA\_URBAN SCIENCES



**MARK  
BURRY**

MAA\_DIGITAL FABRICATION



**MANJA  
VAN DE WORP**

MAA\_EXPERIMENTAL  
STRUCTURES



**EULALIA  
MORAN**

MAA02\_THESIS ADVISOR



**GUILLEM  
CAMPRODÓN**

MAA\_PHYSICAL  
COMPUTING



**ANGELOS  
CHRONIS**

MAA\_Processing



**MARIA  
KUPTSOVA**

MAA02\_COORDINATOR  
MAA\_INTRODUCTORY  
STUDIO COORDINATOR



**NURIA  
CONDE PUEYO**

MAA02\_BIOLOGY



**ORIO  
CARRASCO**

MAA\_INTRODUCTORY  
STUDIO



**ALDO  
SOLLAZZO**

HEAD OF VISITING SCHOOL  
MAA\_COMPUTATIONAL DESIGN  
INTELLIGENT CITIES SEMINAR



**ANGEL  
MUÑOZ**

MAA\_PHYSICAL  
COMPUTING



**PABLO  
ROS**

MAA\_URBAN SCIENCES



**JONATHAN  
MINCHIN**

MAA\_INTRODUCTORY  
STUDIO



**RICARDO  
DEVESA**

MAA\_THEORY OF  
ADVANCED KNOWLEDGE



**STEPHANIE  
CHALTIEL**

MAA\_DIGITAL FABRICATION



**ANASTASIA  
PISTOFIDOU**

MAA\_DIGITAL FABRICATION

# GENERAL INFORMATION

## GENERAL INFORMATION

# APPLICATIONS, GRADING SYSTEM AND MORE

## APPLICATIONS

To apply for IAAC, please fill out and submit the online applications form ([www.iaac.net/iaac/apply](http://www.iaac.net/iaac/apply)) for the programs: MAA01, MAA02, MaCT, MAA01 + OTF, OTF.

For the online application, the following required documents should all be submitted in English, with the exception of the undergraduate diploma that needs to be translated into Spanish. (All documents must be uploaded onto the designated space on the online application form in PDF format).

- A letter of intent expressing the reasons for which you wish to attend the chosen master – maximum two A4 pages in PDF.

- Curriculum vitae and portfolio showing samples of your work – A4 format maximum 10MB in PDF.

- Two letters of recommendation (from professional or academic referees), in PDF, with the corresponding referee contact information.

- Legalized copy of previous architecture degree\* or other related professional degrees. Please make sure that you arrange the legalization of your diploma as required depending on your country of origin. More info about degree legalization here. In the case of this document is not available at the moment of the application, please contact us.

- An official translation into Spanish of your diploma\* (if the diploma is not in Spanish already). More info about official translations here.

- A copy of a valid passport (copy of valid I.D. is accepted for citizen of member states of the EU)

- Non-refundable application fee to be paid to the bank information mentioned at the end of this page under the section titled “Bank Information”.

\* If you have not yet graduated, but will be graduating before the commencement of the academic year to which you are applying at IAAC, you are eligible to apply. However, to complete the application process, will need to ask you to provide us with a provisional certificate from your University, in English, stating that you will graduate this year.

If you have any questions or doubts with regards to the application process, please feel free to contact us at [applications@iaac.net](mailto:applications@iaac.net)

## GRADING SYSTEM

Class attendance is obligatory for studios and seminars. In both cases, courses are graded as follows:

- **0–4.9** Fail (this means that the student is not going to get his/her Master Degree, this grade will be justified and well explained)
- **5.0–6.9** Pass
- **7.0–8.9** Good
- **9.0–10** Excellent/Distinction

- Under no circumstances will students be excused from presenting their design work at the final review of a project.

- Diplomas will not be delivered to students with an incomplete in their final grades. In addition to the above, Midterm Reviews will be held with the members of the faculty in order to inform each student briefly of the general feelings of the faculty about his or her work. Suggestions may be given on how to prepare for the Final Review

## STUDENT FEEDBACK AND EVALUATION

The usual procedure IAAC uses for the collection and analysis of information to ensure the quality of the program is the student surveys and evaluation reports. IAAC performs two different types of surveys: one survey is specific for each course, and is being made immediately after a course finishes, and the second survey is a general survey, which is conducted at the end of the academic year. Course Survey: The surveys contain questions related to course content and structure of the class, the methodology used and the level of facilities where the course has been conducted. There are also questions about the faculty, allowing the student to evaluate the faculty's communication capabilities, the capacity of synthesis and organize the content structure as well as the faculty's competence in assessing and explaining the results obtained. The survey also include questions about the relevance of the class with respect to the students own interests and the relevance with the general research agenda of the Master program. Students are also asked within this survey to suggest improvements in the courses that IAAC takes into consideration for the future editions. General Survey: The general annual survey refers to the overall management of the program and the efficiency of the entire organization. It includes questions of whether students had difficulties in the application and admission process, whether they had problems in acquiring all necessary certificates and/or other documents and more. It also includes question of satisfaction in relation with the efficiency level of IAAC staff, whether faculty and content have met

their expectations, and whether they were satisfied with the level of access to facilities and material resources at the Institute. Also, students are asked what course or activities considered more interesting and relevant to the program and they are also asked to express ideas for overall improvement.

## STUDY EXPENSES

Study-related expenses such as the purchase of books, graphic reproduction, printing and modeling are not included in the tuition fee. For field trips and excursions an individual financial contribution may be required.

## MATERIALS

Students are expected to bring their own a laptop computer no more than two years old, with the following specifications:  
PIV at 2.4 GHz (or similar in the case of an AMD processor).  
1024 Mb RAM.  
WIFI internet connection.  
1280 x 1024 screen display resolution

## NON EUROPEAN STUDENTS

Non European students accepted to the program are advised to contact the nearest Spanish Embassy to start the Visa procedure. Be aware that the application procedure for a Student Visa can take up to 3 months.

## MEDICAL INSURANCE

Participants are responsible for their own health insurance and other personal insurance. It is mandatory to acquire a Medical Insurance to cover your stay here in Barcelona. The Catalan Public Health System does not cover students, and will charge you for any visit or consultation. Please note that the IAAC is not liable for loss or damage to personal belongings.

## ACCOMMODATION

IAAC does not provide accommodation for students, although can provide information and assistance related to rental procedures.

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