

iaac

Institute for
advanced
architecture
of Catalonia

BARCELONA

IAAC ACADEMY

2012-13
2012-14

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www.iaac.net



THE INSTITUTE

The Institute for Advanced Architecture of Catalonia (laaC) is an international centre for research, education, investigation and development oriented toward architecture as a discipline that addresses different scales of territorial analysis and urban development as well as diverse architectural projects, digital processes and information environments. Located in Barcelona, one of the international capitals of Urbanism, the institute develops multidisciplinary programmes that explore international urban and territorial phenomena, with a special emphasis on the opportunities that arise from the emergent territories and on the cultural, economic and social values that architecture can contribute to society. IAAC sets out to take R+D to architecture and urbanism and to create multidisciplinary knowledge networks, and to this end the institute works in collaboration with a number of cities and regions, industrial groups and research centres, including the Massachusetts Institute of Technology (MIT), the University of Texas, the University of Chicago and many more, developing various research programmes which bring together experts in different disciplines such as engineering, sociology, anthropology, architecture and other fields of investigation. IAAC has made a name as a centre of international reference which welcomes students and investigators from diverse countries, among which are India, Australia, the USA, Poland, Argentina, Ethiopia, Iraq and others.



THE BUILDING

IAAC's Masters programs take place in the Poblenou neighbourhood of Barcelona, in the recently created district known as 22@, a focus for companies and institutions oriented toward the knowledge society. The neighbourhood is close to the historic centre, the seafront, the Plaça de les Glòries and the Sagrera APT station, making it the most dynamic enclave in the city. The IAAC is housed in an old factory building, with 2,000 m² of space for research, production and dissemination of architecture, so that the space itself is a declaration of principles, embodying an experimental and productive approach to architecture. The IAAC premises include a Fab Lab, an architecture- and design-oriented fabrication laboratory which is part of the global network of Fab Labs set up by The Center for Bits and Atoms at MIT. The IAAC is engaged in a variety of research projects as well as workshops and courses, and special summer workshops, open to Spanish and international firms and institutions.



MISSION, VISION, VALUES

BUILDING A NEW HUMAN HABITAT

MISSION

IAAC is an academic and research center of vanguard whose mission is to promote scientific and technological innovation in the conception, design and construction of



VISION

IAAC encourages innovation and construction of the human habitat, offering a working environment in the following areas:

the human habitat at all scales (from bits to geography), integrating technological, social and cultural innovations of our time and contribute to the consolidation of Barcelona as a global platform for the urban habitat.

We work at different scales and disciplines, with a large and complex interpretation of the environment to meet present and future challenges of our local and global context. Criteria:

- Self-sufficient energy.
- Application of ICT (information and communication technologies) at all levels of daily life.
- Contribution to the distributed networks in the conception of the environment.
- Advanced digital design.
- Digital Fabrication.

- Education through academic programs for graduate students and international faculty and students, continuous education programs in design, interaction, architecture, urbanism and landscape.

- Research by developing projects to expand the boundaries of architecture, in collaboration with experts from multiple disciplines.

- The development of innovation projects with companies and institutions that define role models, responding to global realities.

- The promotion of projects through publications, exhibitions and competitions developed physically and virtually.

For all this, IAAC works with local and global organisations participating in multidisciplinary knowledge networks. It promotes the transformation from its humanistic ideology based on learning by doing.



VALUES

Compact. An organisation that is flexible, agile, quick, able to anticipate new challenges of our time.

Independent. Private foundation that collaborates with individuals, universities, companies and public organizations to innovate in the human habitat and interaction.

Global. In thought and action, in the origin of human capital, learning from the diversity of the world, promoting the construction of local realities with very specific identity.

Informational. Recognition of digital systems as a technological base that transform our world today, integration of technologies and processes associated in all the areas of their action.

Natural. Promoting connected self-sufficiency, according to the rules of biological ecosystems, to help build a more ecological and social world.

Holistic. Broad overview of the conception, design and construction of the human habitat, and this works at all scales, in interaction with multiple disciplines.

Social. Important social base, from interaction with individuals, companies and organizations that promote innovation in the construction of the human habitat, prioritizing talent and avoiding social and economic stigmatisation.

OBJECTIVES

Our objectives:

- Consolidate and reinforce our position as a worldwide reference institution by consolidating and expanding current research projects and evolving our academic offering. Expand collaboration with strategic public



and private partnerships nationally and internationally.

- Strengthen the consultancy role by creating specific alliances with industries that promote and support applied research.

- Actively pursue an agenda of activities related to green architecture, sustainability and renewable energies through the Green Fab Lab.

- Enhance current work and profile as a specialised think-tank for innovative strategies of urban planning and urban design within the Smart Cities' challenge.

THE GREAT PROJECT OF GREEN FAB LAB/Q VALLDAURA

- Can Valldaura will become in the short term IAAC's second campus and is located in Collserola Park, the centre of the metropolitan area. The second campus will be a large park for innova-

tion that will feature the latest technologies in digital fabrication.- IAAC has defined this innovative project as Green Fab Lab, and has the support of the Centre of Bits and Atoms of the Massachusetts Institute of Technology (MIT), the Ministry of Industry, Energy and Tourism and Collserola Park.

- Innovative activities, educational programmes and experiments related to green architecture, nature, sustainability and energy will be held in Valldaura. In addition, the facilities will include a biomass centre, a restaurant and ruins of architectural value.

- In addition, the facilities will include a biomass centre, a restaurant, equestrian centre and architectural ruins. Can Valldaura is currently under construction and will be operational from September 2012.



MASTERS IN ADVANCED ARCHITECTURE

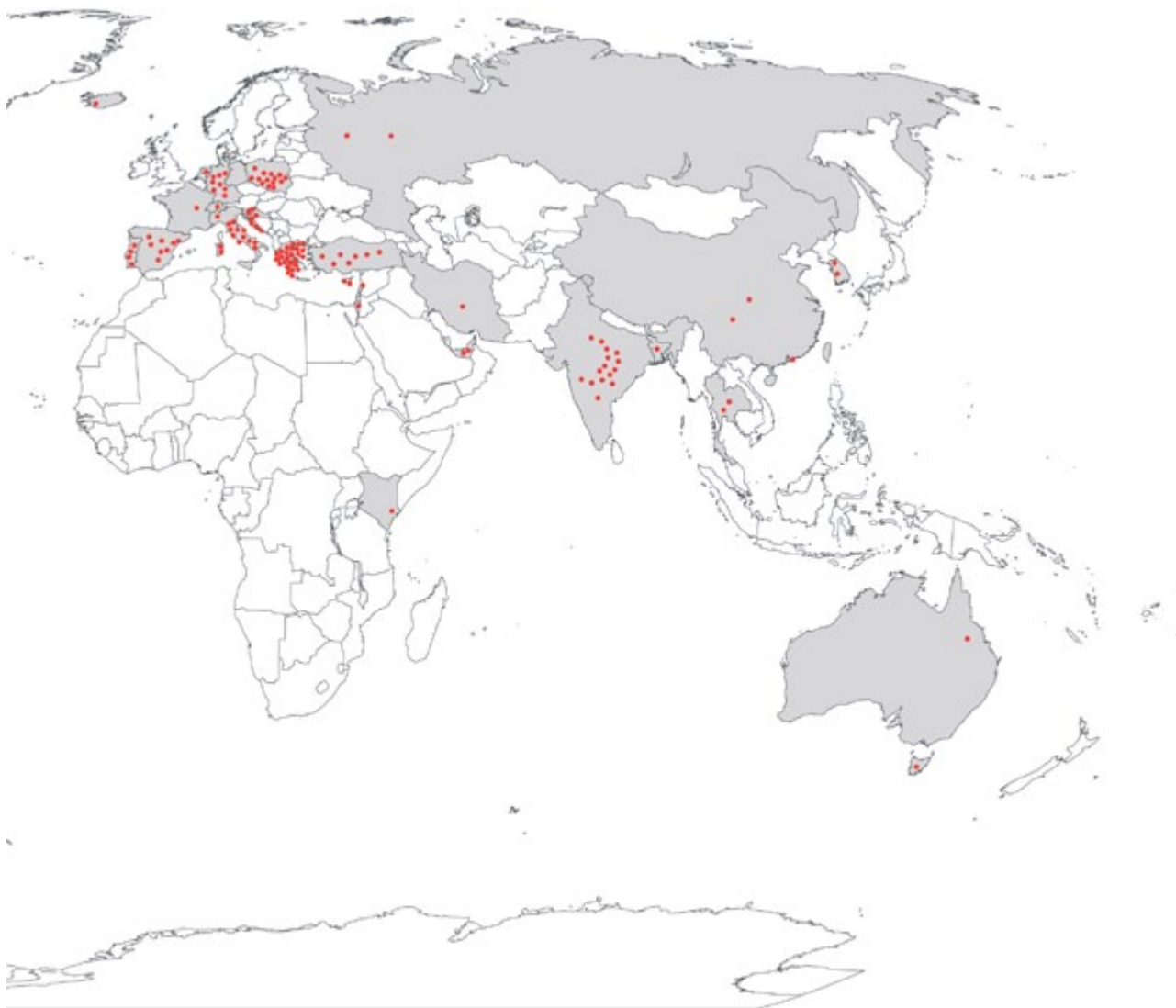
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MAA01: 75 ECTS, 1 year /

MAA02: 130ECTS, 2years
-

The Institute for Advanced Architecture of Catalonia offers a three-term and a six-term Masters programme in Architecture and Urbanism accredited by the Fundació Politècnica de Catalunya. Masters Director, Areti Markopoulou together with Research Line leaders Willy Muller, Javier Peña and Marta Malé-Alemany as well as the teaching staff, are committed to a long-term prospectus of creating an international research and academic centre in Barcelona, bringing together international students, tutors and researchers from different fields in order to materialize experimental forms of communication, inhabitation and planning.

The programme is oriented at graduates who wish to commit and develop their design research skills in the context of new forms of practice within architecture and urbanism, ranging from large-scale environments to tectonic details. Over the last three years, the IAAC has received students from more than 30 countries, including China, the UK, the USA, Australia, the Dominican Republic, Mexico, Argentina, Puerto Rico, Ecuador, Peru, Germany, Iraq, Thailand, Turkey, India, Poland, Cyprus, Portugal, Italy, Greece, Spain, Guatemala, Bangladesh, Colombia and Korea, making it an exceptionally international and multicultural place.



MULTISCALAR STRATEGY

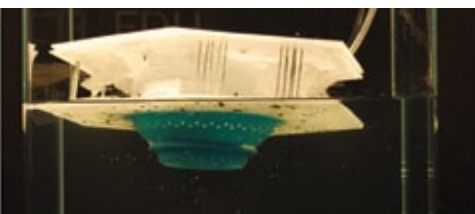
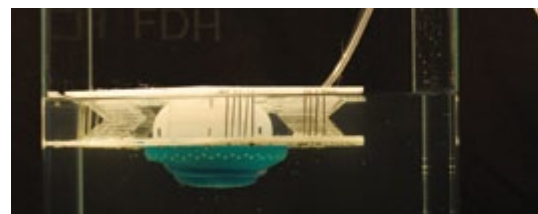
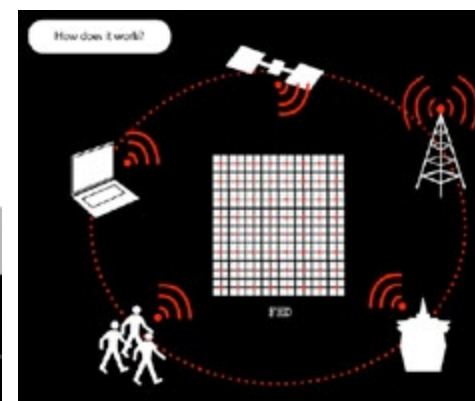
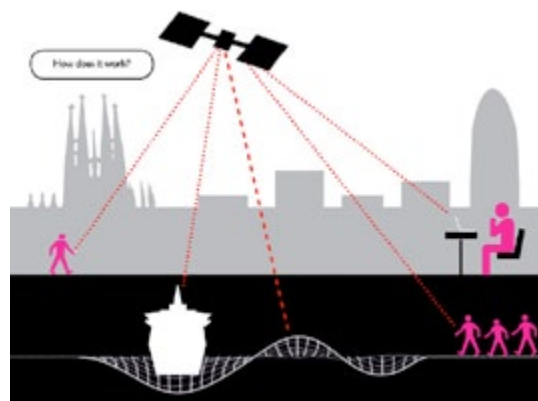
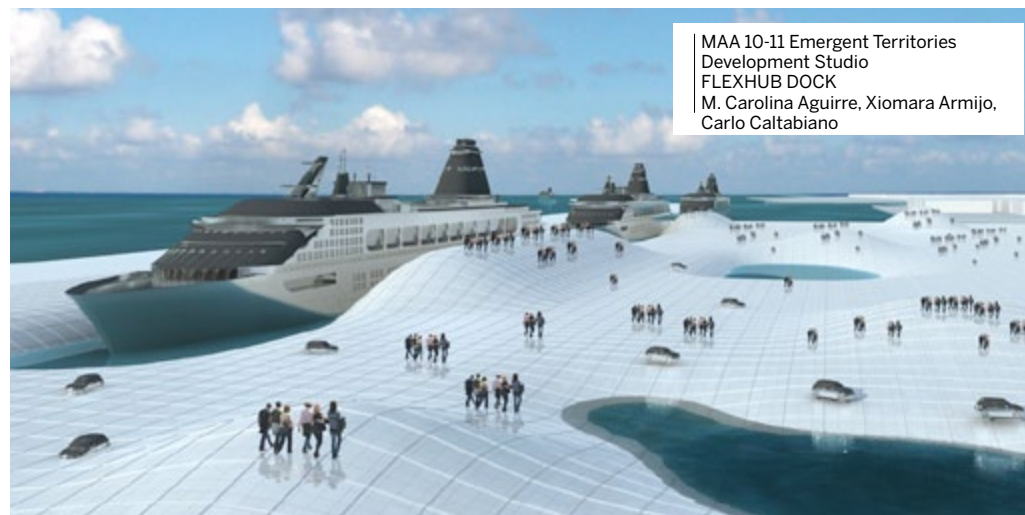
EMERGENT TERRITORIES SELF SUFFICIENT BUILDINGS DIGITAL TECTONICS

The Self-sufficiency Agenda establishes the responsibility for confronting the process of global urbanization from multi-scalar operations and through prototypes that promote environmental, economic and social sustainability.

In the early 20th century, the concept of 'dwelling' was defined as a 'machine for living', a reference to a new way of understanding the construction of inhabitable spaces that characterized the Machine Age. Today, a century later, we face the challenge of constructing sustainable or even self-sufficient prototypes; living organisms that interact and interchange resources with their environment, and which function as entirely self-sufficient entities, like trees in a field. In this way, each action on the territory implies a manipulation of multiple environmental forces, connected to numerous flows and networks such as energy, transport, logistics and information, generating new inhabitable and responsive nodes with the potential to use and produce resources. Territorial and urban strategies and building operations must therefore be coordinated processes that extend architectural knowledge to new forms of management and planning, in which a multiscalar thinking also entails an understanding of shifting dynamics, energy and information transmission and continuous adaptation. Architecture is always facing the responsibility of responding to emergent needs, technologies and ever-changing programmes.

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, at other points in 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 are more and 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 with a multi-layered reading of realities that have traditionally been thought of as separate, such as energy manipulation, nature, urban mobility, dwelling, systems of production and fabrication, the development of software and information networks, etc. This will open 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 centuries old construction techniques, which are very directly based on the transformation of locally available materials.

It is now time for interaction between disciplines and technologies with a vision that embraces different fields of research.

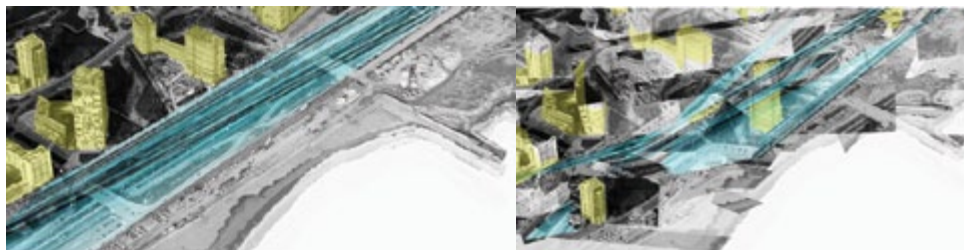


EMERGENT TERRITORIES

The IAAC works beyond the conventional scales of territorial design, town planning, building or fabrication in designing a multiscale 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 Emergent Territories group works on projects that range in scale from the territory

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 emergent territories has to do with the creation of intelligent territories that function in a multiscale way, in order that the relationship between natures, networks and nodes can

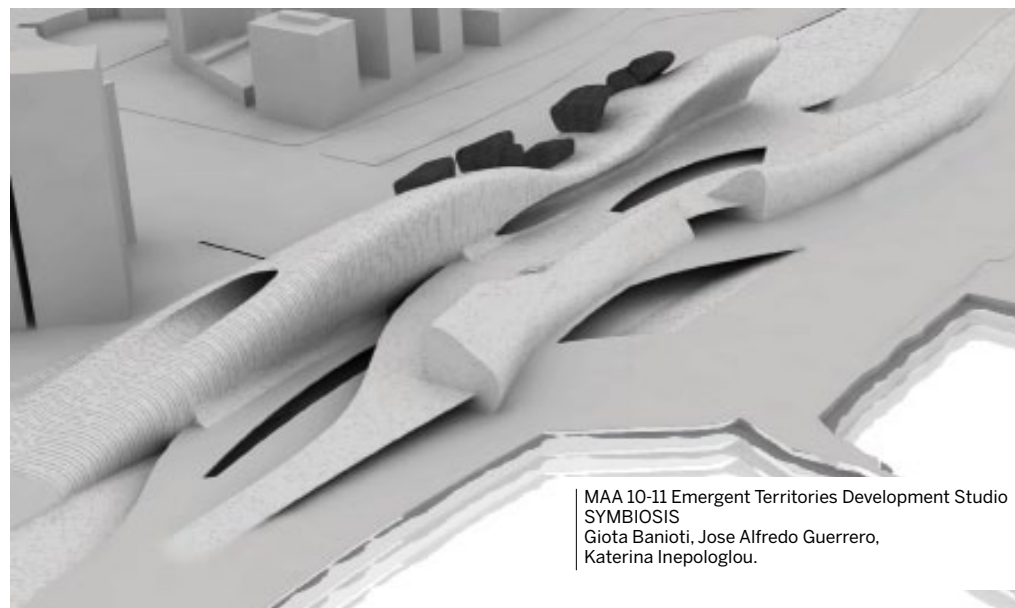
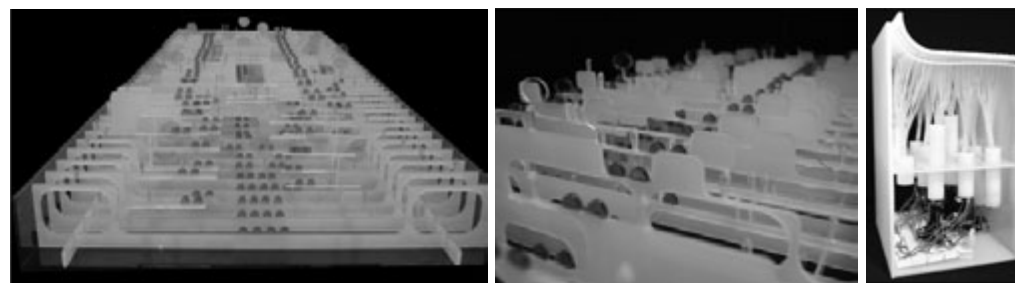


to the neighbourhood.

The idea of Emergent Territories is related to two issues: On the one hand, the IAAC is interested in understanding those 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 recent years we have studied Brazil, Croatia, Taiwan, Romania, Colombia and Tunisia, or in the near future will be studying India and the countries of North Africa, the Persian Gulf and Sub-Saharan Africa. The work done in these countries 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

foment the 'emergence' of an urban intelligence. To this end we are interested in pursuing what we call 'Hyperhabitat' research as a process of developing a general theory of the multiscale habitat that can be applied anywhere in the world and at any scale, as a basis for the construction of complete complex ecosystems.

This group also focuses on Barcelona as a site for ongoing urban experimentation, with a view to contributing to the discussions and reflections in relation to the urban progress of the city.

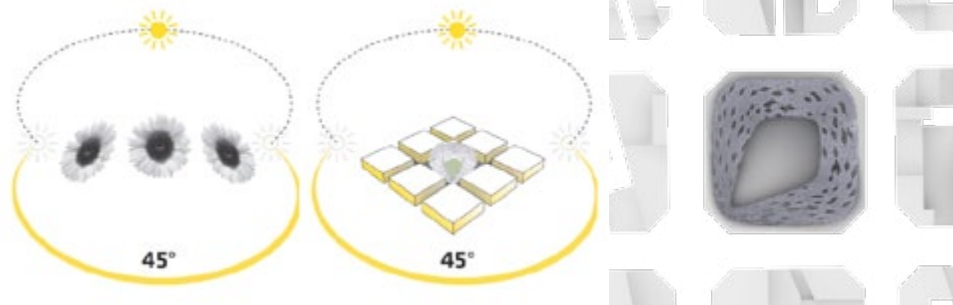


MAA 10-11 Emergent Territories Development Studio
SYMBIOSIS
Giota Banioti, Jose Alfredo Guerrero,
Katerina Inepologlou.

SELF SUFFICIENT BUILDINGS

Architecture goes beyond buildings. A building is a concentration of activities in a particular location which should be responsive to concrete cultural, social, economic and technological conditions. In the

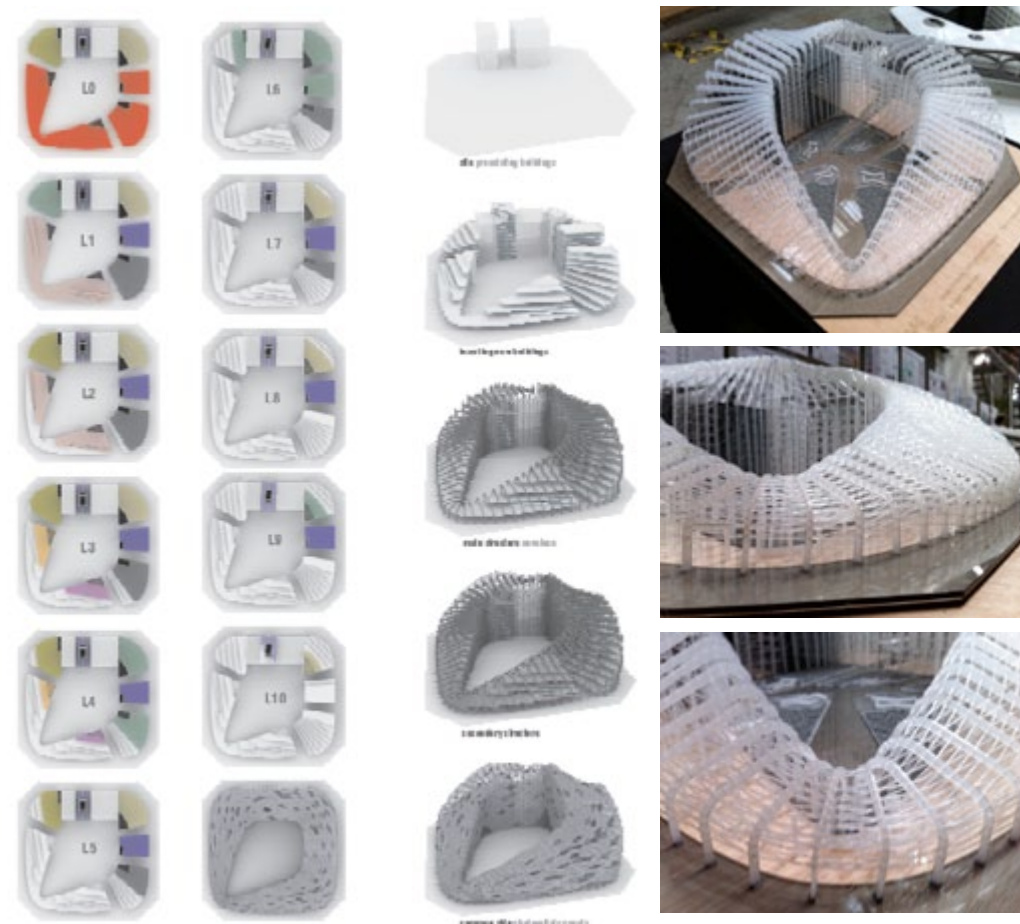
goes beyond being a mere interface for the economic activities it houses to being an environment that stimulates its inhabitants and functions as an active part of the ecosystem in which it is inserted. Buildings



21st century, the buildings are more than machines for dwelling in. They should be living organisms, capable of interacting with their environment, following the principles of ecology or biology rather than those of mere construction. In effect, a building should be like a tree, which is able to rooting itself in a particular place, generating its own energy, interacting with the natural networks around it and creating complex ecosystems and landscapes together with other trees.

also need to respond to specific cultural conditions, and the multicultural global vision that the laaC represents allows can be applied, via debate and research, to architecture projects anywhere in the world. This group devotes special attention to housing and the new forms of social organization of our time, by way of buildings with shared spaces, or macrobuildings that incorporate all the functions of a city. This group is working to introduce innovative techniques such as local energy generation, the development of self-sufficient buildings, the incorporation of hydrogen into the building and the use of new materials, responding to each situation with ad-hoc techniques and principles.

The Self-Sufficient Buildings group works on scales that range from the macro-building to the individual home developing principles and techniques that serve to organize the materialization of programmatic nodes of activity based on natural rules and principles. As a result, the building

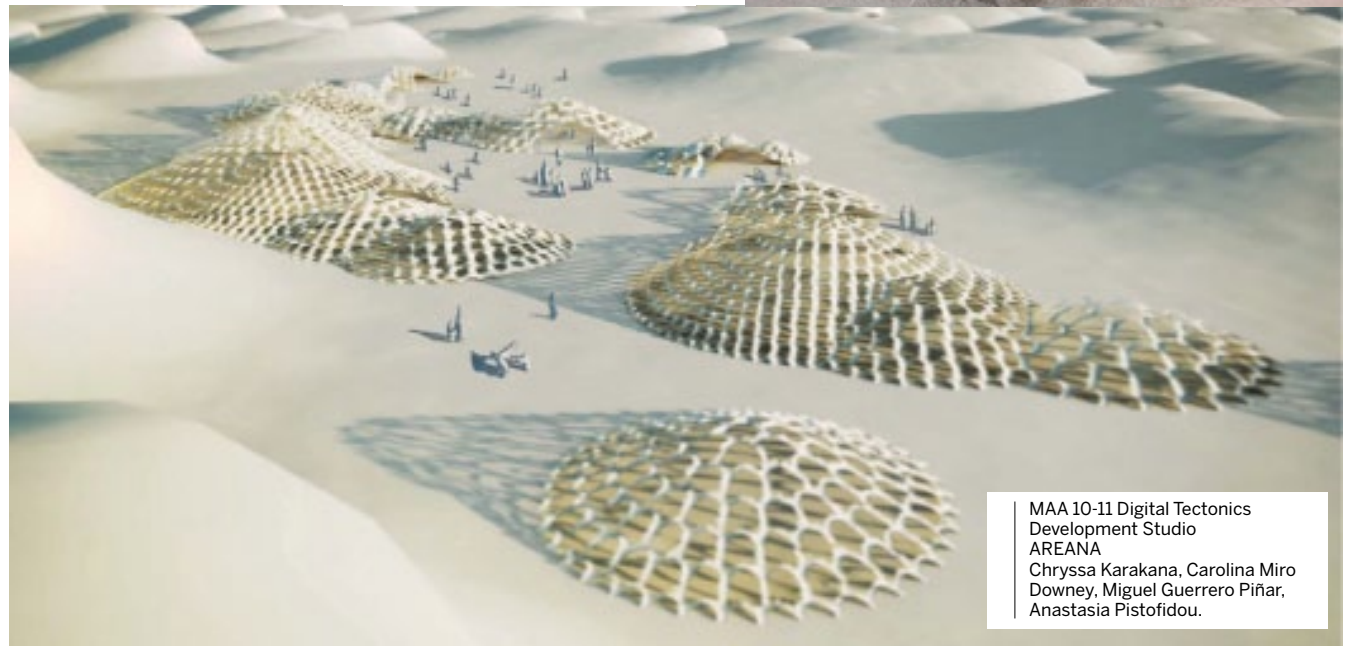
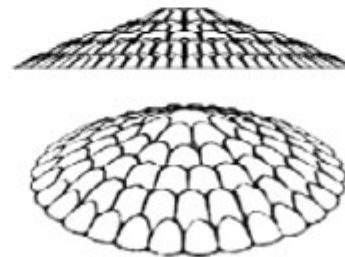
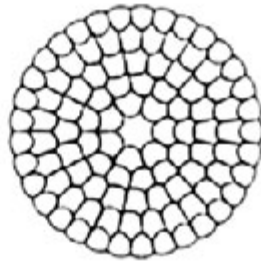
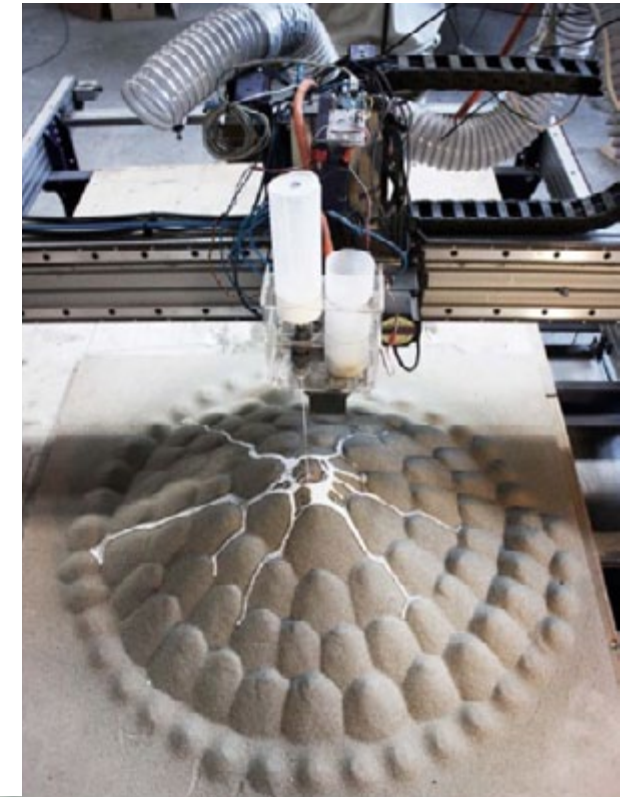


DIGITAL TECTONICS

With the advent of the information society, architecture is no longer built but manufactured. The techniques of digital production have put the architect back to the centre of the construction process because the information generated in the design process is literally used to manufacture the various parts of a building. Digital technology has thus gone beyond the representation stage to take its place precisely in the production phase of architecture. In the light of this, parametric design makes it possible to approach the architecture project in an open fashion, integrating algorithms and dynamic formulations in the project-design process itself.

With the development of new software, scripting techniques can now be integrated into architectural design, transforming the old plastic principles by the insertion of mathematical logics into the project. In order to experiment with these project design processes, digitally controlled machines are used to produce scale models of the designs and prototypes of projects at 1:1 scale.

The IAAC has a workshop for the production of full-scale prototypes equipped with digital fabrication machines, including a 320 x 120 cm CNC cutter, a laser machine, and 3D printer.



MAA 10-11 Digital Tectonics
Development Studio
AREANA
Chryssa Karakana, Carolina Miro
Downey, Miguel Guerrero Piñar,
Anastasia Pistofidou.

MASTERS IN ADVANCED INTERACTION

02

MAI: 75 ECTS, 1 year

The Masters in Advanced Interaction is an international program to explore creative uses of technology for experimental and practical purposes. Our learning-by-doing research integrates methods used in design, programming and social sciences to produce projects prototypes and products that will define the outer limits of what is possible to do imaginatively with technology today.

Our approach is playful and exploratory; we encourage experimentation and thus the necessary iterations and failures that accompany it. We strongly believe that taking risks is the only way to create something outstanding, innovative, relevant and that will contribute meaningfully to society.

We are looking for students from different walks of life, with an interest in developing and improving how we communicate through technology. The nature of the program is collaborative and interdisciplinary so we expect well-rounded individuals that are open to sharing and contributing to the development of projects of others.

With access to the IAAC Studio working space and its prototyping fabrication lab, students have the opportunity to be part of a highly international group, including faculty members, researchers and lecturers. They are encouraged to develop collective decision-making processes and materialize their project ideas. The aim of the Institute is to prepare graduates who, after the completion of the program, will be able to develop their acquired skills in a diversity of professional environments.



WHY BARCELONA

Barcelona, the city that has historically been recognized as an international benchmark for design, architecture and urbanism, now stands as the world capital of the mobile. Our city is creating a multi-disciplinary ecosystem of companies that favors cross-industry collaboration in the development of innovative solutions and provides them with the resources necessary for them to deploy their mobile strategies in Barcelona. Mobile World Hub, industrial heart of the MW Capital, will be where this ecosystem takes shape. It will channel the different mobile solutions of the mProgram structured initially around five domains in which the mobile can play a decisive role: mWallet, mSmart City, mHealth, mTravel and mContent.

Barcelona is going to turn into a mobile research and innovation hub encompasses: supporting entrepreneurs in this area; creating innovation clusters; looking for talent; serving as a legislative model and unifying mobile processes and licenses around the world, and developing applications that make the lives of citizens easier by enabling them to pay using their mobiles, deal with health issues and organize their travel, as well as offer better transport content.

In this urban laboratory, our students will be able to live and to experience big technological advances based in:

- The interaction between the citizenship and the urban studding with the aim to turn the cities into more comfortable and efficient environments;

- The improvement of the experience of the user, across the mobile, in activities of leisure and the entertainment by means of the access to real time information;

- The establishment of mechanisms of follow-up and real time information of the persons' transport and goods;

- The mobile technologies like elements of improvement of welfare and sanitary services.

IAAC is based in the 22@Barcelona district which integrates the different agents constituting the system of innovation -cutting edge companies, universities and training centers, and centers of research and transfer of technology - with different agents of promotion that facilitate interaction and communication among them.

The coexistence of innovative and dynamic companies with local district ones -shopping, small workshops, service sector- configure a rich productive fabric. This environment favors the synergy in pro of knowledge and the processes of innovation and allows the improvement of the competition as business group and the quality of life of the citizens that live and work in the 22@Barcelona district.



WHY IAAC

WHY THIS NEW MASTER IN ADVANCED INTERACTION AT IAAC?

The Institute for Advanced Architecture was founded with the idea of creating new paradigmas for the design of the human habitat, acting in a multiscalar approach, from Bits to Geography. In the first edition of the Master in Advanced Architecture, with Massachusetts Institute of Technology in Boston, UPC, and i2CAT in a large project: The Media House. This project promoted the creation of environments that were less technologically cluttered, more beautiful and more meaningful, that help people shape their environments and connect to others. Media House is not "a house with a computer"; instead, the house is the computer. As Neil Gershenfeld -director of the MIT- said: architecture will never be inert again.

After finishing the project of the Media House, IAAC continued its research trying to find nets of connection among the physical world and the digital world; the technologies of the information, the ecology and the architecture. We produced Hyperhabitat: Reprogramming the World, a research project that explores the potential of information technology to reorganize the habitability of the world. For the development of the project IAAC created a task force integrating companies, and research centers, to address the various aspects of the proposal. Hyperhabitat, reprogramming the world was the biggest Internet Zero network ever built.

In 2011, the group under the leadership of Nuria Diaz, that created the first Master of interaction design in Spain in the year 1994, and has produced some of the best interactive application in Spain, joined IAAC in order to bring forward the potentials of integration between space and new technologies.

In 2011 we launched together with Idat and Fab Lab, an international competition "1st design contest: The Internet of things".

As a result of these 10 years of research and with the conviction of which the paradigms of the design, the architecture, society and the environment are changing in a very intensive way; the IAAC wants to penetrate into the search of new solutions launching the New Master in Advanced Interaction.

The new Master in Advanced Interaction is born with the illusion of innovating: a flexible and dynamic program, which seeks to speculate on the uses of the technology; sensitive to the new technologies, but especially sensitive to the persons and their development like creators.



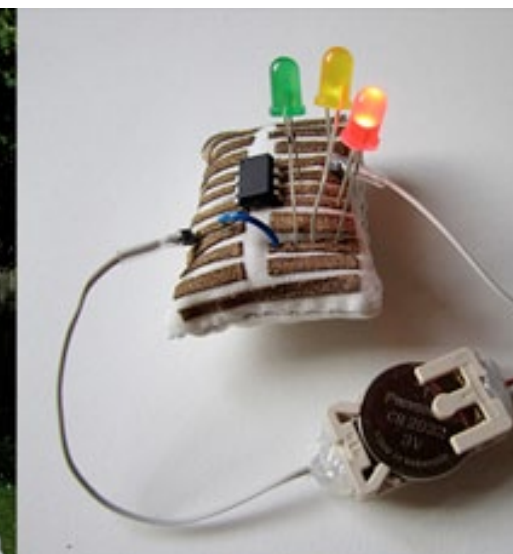
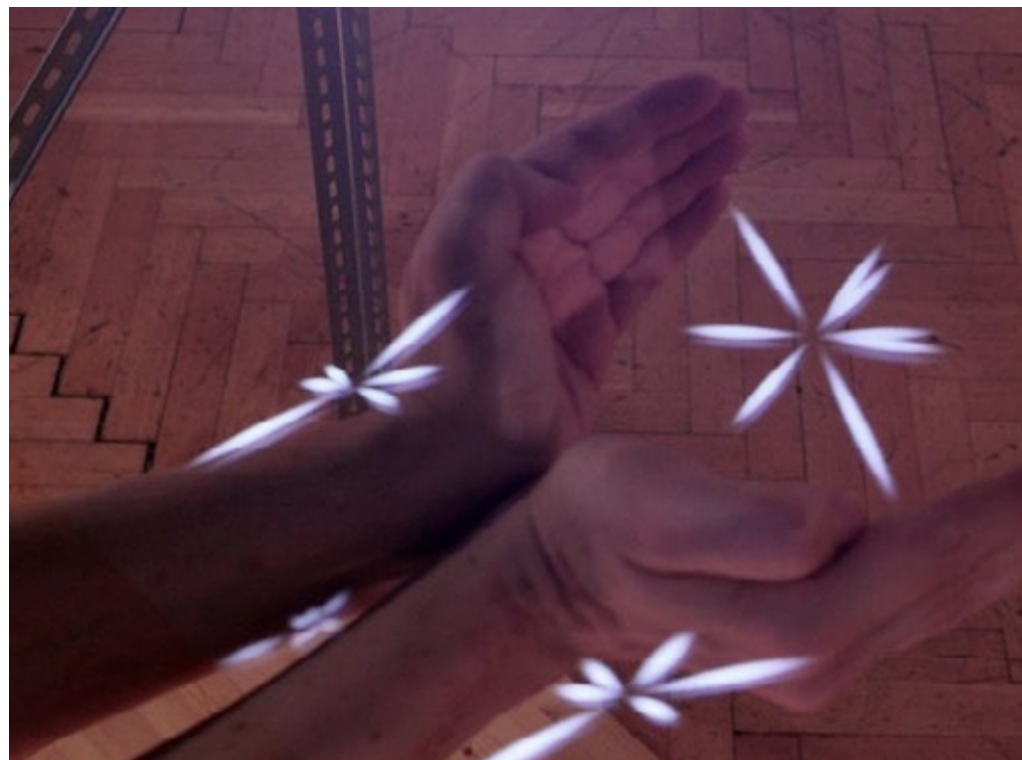
RESEARCH STUDIOS

Inside / Outside: Research in Human-Computer Interaction

How to get what you really want / Craftsmanship in E-Textiles

The Research Studios are the main part of the MAI. They focus on building technical, aesthetic and conceptual skills by working on real-life situations. Each studio has a research agenda and students will develop individual portfolio projects around the main brief of the studio. Special emphasis will be put on the relevance of the project for society. Guest critics will be invited to assess work, and regular input from students in the studio is encouraged and required. By the end of the studio, students will have a portfolio of projects and a working prototype of a thesis project. Projects will be part of an exhibit at the end of the year. Students sign up to one of the research studios and work in it throughout the year.

Studio Masters:
Hannah Perner-Wilson and Mika Satomi
Chris Sugrue and Arturo Castro



INSIDE/ OUTSIDE

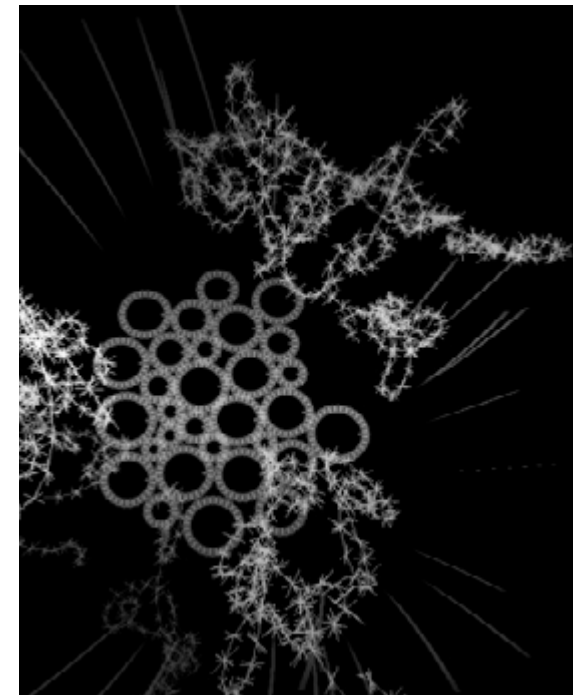
RESEARCH IN HUMAN-COMPUTER INTERACTION

TUTORS: Chris Sugrue and Arturo Castro

This research studio is focused on developing software-driven systems that capture, manipulate, and experiment with human interaction.

The future of creative applications is very far from the dismal rectangle we glue ourselves to daily. From such possibilities as algorithmically generated and fabricated physical objects to interactive installations in public plazas or drawings created by eye-gestures, we will explore systems that move in and out of digital spaces. Students will learn to work with 3d sensors, master topics in computer vision, explore the body as interface, and learn to be fearless in the face of any compiler error.

This studio will teach students the different computer vision techniques as a way of enabling the computer to sense the world. Showing examples of works involving computer vision and explaining the techniques used in each, students will understand different possibilities for interaction. We will also show how to make “the machine” create an experience in reaction to the input it receives with techniques like algorithmic animation, real time image and video manipulation and physical computing.



HOW TO GET WHAT YOU REALLY WANT:

TUTORS: Hannah Perner-Wilson and Mika Satomi

This studio explores the role of craftsmanship in building electronic textiles, commonly referred to as E-Textiles. In order to create innovative, aesthetic and meaningful textile technologies, we believe it is necessary that individuals internalize a set of skills that come from blending material, textile and electrical engineering practices. Through a series of assignments, students will encounter a range of materials from conductive fibers to thermochromic pigments, and learn processes ranging from crochet to laser-cutting.

Students have the chance to explore a wide variety of materials, tools and techniques, but are also encouraged to focus on select techniques in order to acquire technical proficiency and in-depth knowledge. While this studio is predominantly about making, and learning how to make, it will be accompanied by a series of readings and discussions on related topics such as art, craft and technology, skilled workmanship and academic research.

Much of current work in the field of E-Textiles focuses on proof-of-concept prototypes, artistic one-offs and engineering small scale technology for large-scale production. We believe that while craftsmanship is often part of these different approaches, that there is value in emphasizing the role skilled craftsmanship plays in creating novel quality work of its own right. In this studio course we would like to promote

the role of craft in E-Textiles research and production, by acquiring manual dexterity, intuition and technical knowledge of the materials and tools involved. By reflecting on the skills students will develop throughout the course, we wish to begin an open discussion on the future of craftsmanship and the relevance of learning-by-doing and thinking through making.

There are no pre-requisites for attending this studio, but students should be eager to pick up new skills and to reflect critically on the subject matter. Students will be graded on attendance, quality of work, engagement in discussions and coherence of their final projects.



OPEN THESIS FABRICATION

Postgraduate, 4 months

In design and architecture, Computer Numerically Controlled (CNC) fabrication equipment has given designers unprecedented means for executing formally challenging projects directly from the computer. The impact of digital production in these fields allows the production of complex geometries and opens up a wide field of research and experimentation.

Open Thesis Fabrication is an academic program which extends over the period of 15 weeks from September to December 2011. The course is open to students and profes-

sionals who would like to develop a specific research agenda within the field of digital design and fabrication. The program focuses on the development and completion of full scale prototypes using advanced CNC machinery, applying experimental materials and testing smart energy solutions.

Student projects will be followed by experienced tutors and regularly discussed with external guests and consultants with expertise in the field. Along these special sessions will take place specifically related activities such as: factory and building sites visit, field trips, etc.

TEACHING STAFF

Consultants and reviewers will be guests from all over the world specialised in the field of digital design, fabrication and manufacturing.

PROGRAM STRUCTURE/CALENDAR

Open Thesis Fabrication starts on September 5th. The first week is an introductory week where the students will be given bibliography for readings (book, articles and software manuals) and they will have a short introduction to the Fab Lab BCN, one of the most equipped digital laboratory in Europe. After the introductory part participants should present their Thesis topics within the Open Thesis Fabrication Research Agenda which they will be developing during the 15 weeks of the program. There will be weekly activities and conferences such as desk crits with advisor tutor every 2 or 3 weeks. Final submission of the supervised projects will take place on December 20th along with an Open exhibition of the final projects.

PROGRAM ACTIVITIES

Factory Visits
Building Sites Visit
Field trip (not sponsored, optional)
Special desk crit sessions with consultants
Desk crits with advisor tutor (every two weeks)

COLLABORATIVE COMPANIES

The program seeks to develop projects that could possibly continue developing

in collaboration with Industry Companies. Therefore, representatives of several companies will be participating in the program following the projects.

Some of the collaborative companies are:

CRICURSA, www.cricursa.com
ESCOFET, www.escofet.com
SANTA & COLE, www.santacole.com
FUPICSA, www.fupicsa.com
FINNFOREST, www.finnforest.es
IMAR, www.imarsa.com
KUKA, www.kuka-robotics.com
ZERO TO INFINITY, www.01100.com

PROGRAM RESEARCH AGENDA

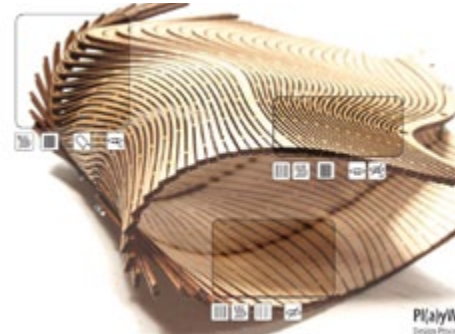
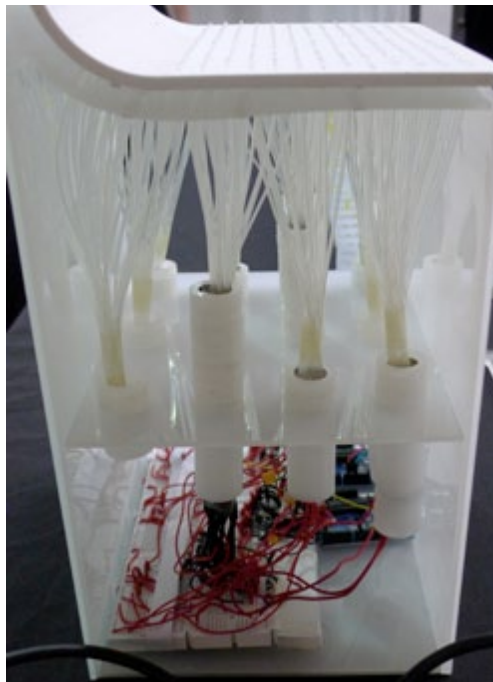
Digital tectonics
Parametric Facades
Micro-Houses
Self Sufficient Buildings
Solar House
Experimental Structures
Advanced Materials
Digital tectonics
Parametric Facades
Micro-Houses
Self Sufficient Buildings
Intelligent Houses
Intelligent Facades

LANGUAGE OF TEACHING

English

AIM AT

Students or professionals from the field of Architecture, Engineering, Fine Art, Design, Landscape, etc.



GLOBAL SUMMER SCHOOL

04

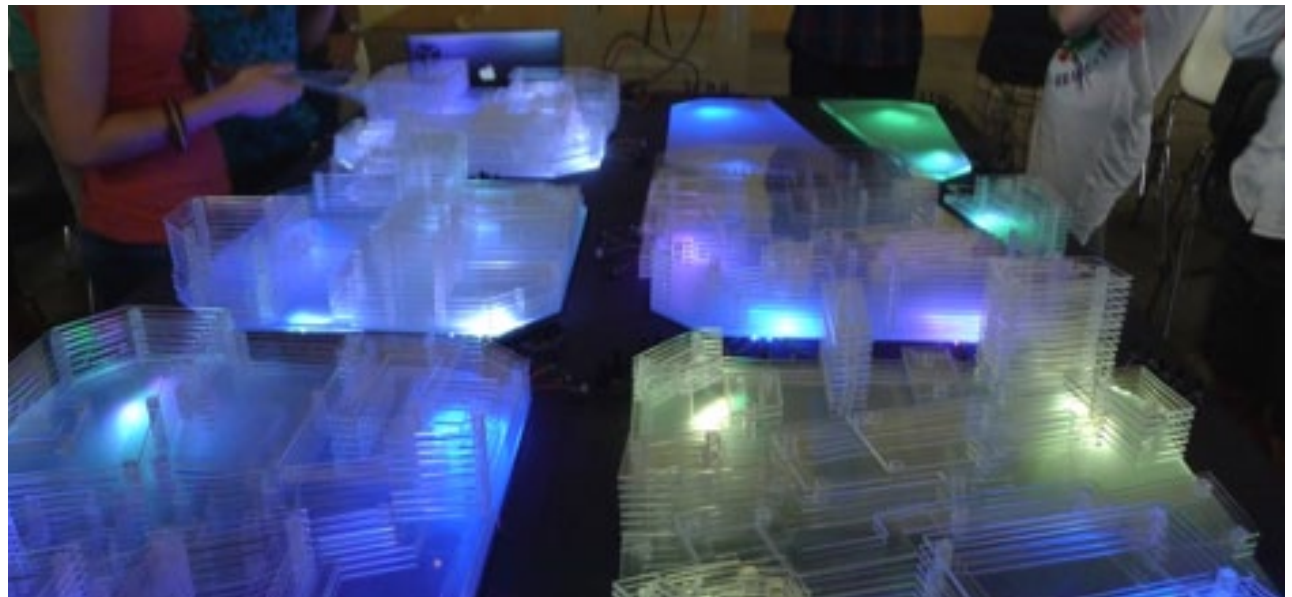
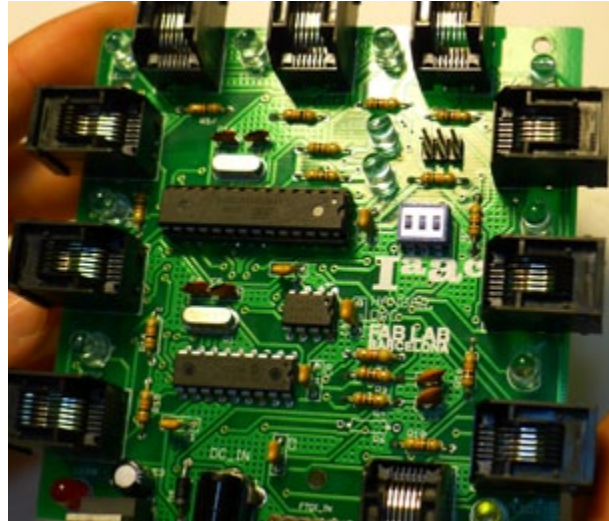
Program, 3 weeks

The IAAC Global Summer School investigates multiscale strategies for the (re) construction of our inhabiting environments (home, city, planet). The last few years of technological, social, political, economic and cultural changes (at both the global and the local scale) demand that we rethink what kind of habitat humanity will live in in the coming decades, given that space in all its aspects (landscapes, cities, places, buildings and bodies) is undergoing dramatic transformations of the evolution of the city and architecture.

DISTRIBUTED EDUCATIONAL MODEL

Distributed educational model: IAAC GS is an initiative which seeks to generate a dynamic network based on distributive knowledge and collective actions.

As part of this initiative the Global Summer School might take place in different cities at the same time. GSS 2011 took place simultaneously in Barcelona, Mumbai and Torino.



WORKSHOPS

-

Short Programs

-

The IAAC Workshops it's a an educational format that pretends to make intensive week-end or week courses about digital manufacture techniques. It is an open format for all groups, architects, designers, students, etc, who want to experiment with digital design and fabrication. Its duration deffers (from 3 to 15 days) and it takes place at IAAC in Barcelona.

OPEN WORKSHOPS FOR NON EXPERTS

The workshops are open to participants without previous knowledge or required diploma .

There is no limitation in the age of the participants.

Those workshops give the opportunity to all users from whichever dicipline to get familiarized with this technology and learn by making.

05



MAA LECTURE SERIES

LECTURE PROGRAMME (2 ECTS credits)

Since 2000 the Master's in Advanced Architecture runs an international lecture programme in which architects and experts from a variety of disciplines present their work at IAAC.

The lectures are open to public.

Some of the Guest Lecturers for Lecture Series 2011/12 were:

- Shigeru Ban
- Michel Rojkind
- Matthias Kohler
- _ Peter Eisenman
- _ Farshid Moussavi
- _ Bjarke Ingels
- _ Peter Cook
- _ Ben Van Berkel
- _ Gunter Pauli
- _ Enric Ruiz-Geli
- _ Thom Mayne
- _ Matthias Kohler
- _ Jelle Feringa
- _ Carlo Ratti
- _ Jane Burry
- _ Mike Weinstoch
- _ Julian Vincent
- _ Lucy Mushgrane
- _ Yona Friedman



Shigeru Ban



Ben Van Berkel



Gunter Pauli



Farshid Moussavi



Bjarke Ingels



Peter Cook



Enric Ruiz-Geli



Peter Eisenman

PAST LECTURE SERIES

PREVIOUS LECTURERS

Brett Steele,
 Pepe Ballesteros,
 Laura Cantarella,
 Santiago Cirugeda Parejo,
 Luca Galofaro,
 Lourdes García Sogo,
 Adriaan Geuze,
 Xaveer de Geyter,
 Toyo Ito,
 Francisco Jarauta,
 Young Joon Kim,
 Kamiel Klaasse,
 Anne Lacaton,
 Duncan Lewis,
 Greg Lynn,
 Winy Maas,
 Josep Lluís Mateo,
 Fernando Menis,
 Enric Ruiz-Geli,
 Alfredo Payá,
 Jaime Salazar,
 Max Sanjulián,
 Charles Renfro,
 Amadeu Santacana,
 Carlos Sant'Ana,
 Kelly Shannon,
 Alejandro Zaera-Polo,
 José María
 Torres Nadal,
 Ben van Berkel,
 Mark Wigley,
 Yung Ho Chang,
 ILSA & Andreas Ruby,
 Jacub Szczesny,
 Jou Min Lin,
 Lucy Bullivant,
 Momoyo Kaijima,
 Manuel Ailo+ Rosa Rull,

Andres Cánovas,
 Andrés Jaque,
 Carlos Arroyo,
 Angel Borrego,
 Colectivo Zuloark,
 Ana Salinas, Maria
 Auxiliadora Galvez,
 Isabela Wieczorek,
 Ecosistema Urbano,
 Claudia Pasquero,
 Marco Poletto,
 Bernhard Franken,
 Sabine Müller,
 Bostian Vuga,
 Axel Kilian,
 Benedetta Tagliabue,
 Alejandro Gutierrez,
 Juan Herreros,
 Winka Dubbeldam,
 Hanif Kara,
 Neil Leach,
 Minsuk Cho,
 Alfonso Vegara,
 Behrok Khoshnevis,
 Stephen Wolfman,
 Michael Rojkind,
 Caterina Tiazzoldi,
 Jaime Lerner,
 Massimiliano Fuksas,
 Rajendra Kumar,
 Ariadna Alvarez Garreta,
 and many others.



Albert Ferre, Tomoko Sakamoto



Benedetta Tagliabue



Michael Weinstock



Behrok Khoshnevis



Neil Gershenfeld/MIT



Lars Hesselgren



Axel Killian



Ricardo Bofill



Manuel de Landa



Massimiliano Fuksas



Bostian Vuga



Aaron Betsky



Rancho Kolarevic



Momoto Kayima



Brett Steele



Neil Leach



Jose Luis Mateo



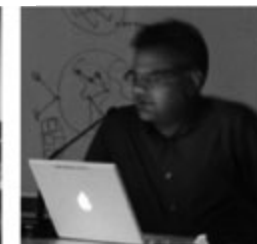
Jaime Lerner



Sean Hanna



Stephen Wolfram



Hanif Kara



Toyo Ito

FAB LAB BARCELONA

WHAT IS A FAB LAB

Digital Fabrication Laboratories, Fab Labs, are a platform for cooperation between people and organizations from different countries around the world. Fab labs are conceived and designed to encourage the idea that **anyone** can fabricate/make **anything** anywhere in the world by sharing technological and social knowledge and by using machines of digital manufacturing.

The project emerged from a program launched by The Center for Bits and Atoms (CBA) of MIT and is led by physicist Neil Gershenfeld (director of CBA). The project of Fab Labs has extended from laboratories in downtown Boston to rural India, South Africa, Norway, Spain, Afghanistan, Kenya and more. All Fab Labs work in coordination through the Internet and a video conference network, and they meet annually in a global event.

The Fab Lab programme explores how the content of information relates to physical representation. The Fab Labs are laboratories of personal digital fabrication in which it is possible to make almost anything, from a computer measuring 1 cm by 1 cm to an intelligent house. These labs are distributed in various parts of the world and connected to each other by way of the Internet and video conferencing, which allows the sharing of experiences and with it the creation of a network of distributed knowledge. The Fab Labs use advanced techniques and technologies which are being made accessible to everyone. They are equipped with state-of-the-art equipment such as laser cutters, 3-dimensional printers and milling machines and electronic components for creating artificial intelligence.

FabLabs use advanced techniques and technologies which are being made accessible to everyone.



WHY A FAB LAB

INVENT TO LEARN AND GROW

A Fab Lab is much more than a space with a series of number of rapid prototyping and fabrication machines.

It is a space for creation and education at different levels. Today, Fab Labs is the place that will host and create the next revolution in digital fabrication. This is the bet of the Centre for Bits and Atoms at MIT as well as other prestigious international institutions that they invest on it. A digital fabrication revolution where more than mere spectators, consumers will be in the position of actors-producers. We will not speak any more about producer and consumer but about a new term, the *prosumer* (producer+consumer).

Computing and communications technology have drastically changed our way of living in the past 25 years, and continue changing it. The next big jump is in the personal fabrication, and its digitalization.

Speaking today about digital fabrication means speaking about Fab Labs, about networks, about the materialization of the digital world, about physical computing. The Fab Lab Greece/Athens will form part of a global network of more than 50 laboratories in over 15 countries, which are connected by videoconference each day, sharing knowledge and processes in open source. It will also be an active node within this range of labs, able to participate in international conferences, events (Fab8 in August 2012) or temporary host some modules of the Fab Academy (University of Fab Labs).

Summing up setting up a Fab Lab in Athens will bring:

- continuous collaboration with MIT, Center for Bits and Atoms and other prestigious institutions
- an active node part of a global network of 50 laboratories in over 15 countries



FAB ACADEMY

Fab Lab Network Program, 6 months

Fab Academy is the university of Fab Labs, its campus is the world and their classrooms are the Fab Labs in different countries: Iceland, Netherlands, South Africa, Ethiopia, Peru, Spain, among others. The Fab Academy is a model of distributed education in the principles, applications and implications of Digital Fabrication.

The Fab Academy was launched to provide access to advanced instruction for students in the fab labs exceeding the educational resources locally available to them. It links groups of students and instructors in fab labs, with online video collaboration and lectures by a global faculty. Unlike remote instruction from a central campus, the digital fabrication tools in a fab lab effectively allow the campus to come to the student, for distributed rather than distance education.

Fab Academy Certificates provide familiarity with technical options and capabilities, hands-on experience, and direction for further study. Each requires, and is evaluated by, developing and documenting projects. They are periodically renewed to reflect best practices. The Fab Academy consists of 16 certificates that make up a 9-month diploma in Digital Fabrication. The Fab Academy forms and trains new managers of new Fab Labs as well as new instructors for the existing Fab Labs.

Admission is limited by available space, and based on balancing the students' backgrounds, interests, and experience, as well as project portfolios. Fab Academy tuition is priced to cover the local costs of instruction, facilities, and materials, as well as global capacity. Where possible, support is sought for needs-based tuition assistance.



FAB LAB KIDS

Fab Lab BCN Program

02

The need to invent, to create is something related with human evolution.

A child has the creative ability to invent everything. Creativity is closely linked to emotions, and therefore promotes their development, the personal growth and the expansion of talent.

The FabLab kids, is one of the activities of the Fab Labs.

It is about a creative laboratory that favors the development of intelligence, creativity and imagination of children and youth. It's a place where thinking is encouraged and innovation is present, a place where educational and recreational activities are conducted aimed at children aged between 10 and 16 years, focused on the design and digital fabrication.

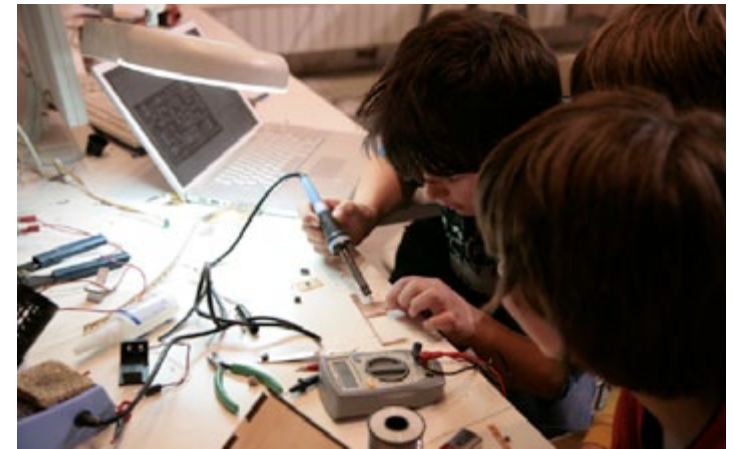
Children use technology every day ignoring its uses and compositions and lacking of a critical view of consumption and use of this technology. One of the motivation of Fab Lab kids is to promote reflective, analytical and critical thinking.

We believe that is necessary introduce a technological literacy that tranform children to creators of Smart Objects and video games instead of being passive users and compulsive consumers ..

There are major issues involved in improving the future: energy, self-sufficiency, correct use of resources, the non -consumption, ecology.. Inside FabLabs there is a big effort sensitize children and young people around those issues and propose innovative projects that could make future better.

WHEN WE CREATE SOMETHING WITH OUR HANDS IS VERY VALUABLE.

WHEN GREAT IDEAS, IN MOST CASES PRESENTED ON A PIECE OF PAPER, CAN BE MATERIALIZED AND PRODUCED BY THE INVENTOR, THE VALUE IS MULTIPLIED..



FAB LAB PRO

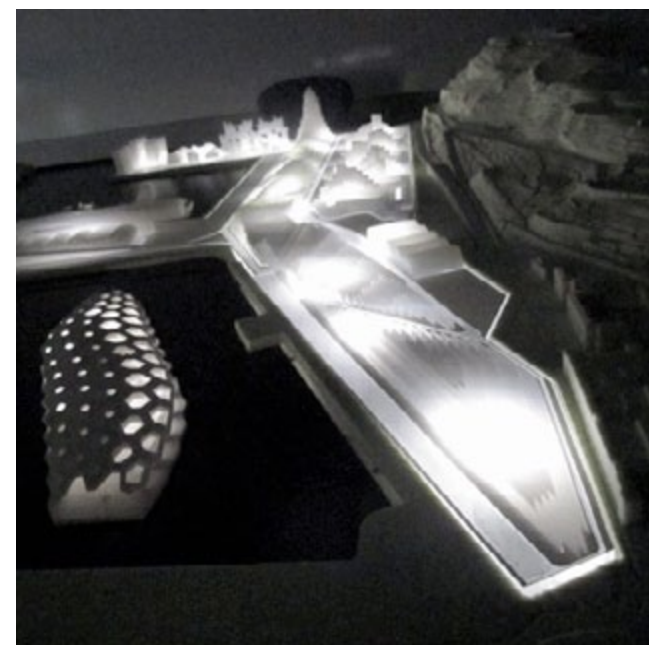
Fab Lab BCN Training Program

With an experience of 4 years of intensive research in the use of digital tools and fabrication in architecture, IAAC is positioned within a selected international group of schools and research centers who have chosen to explore and apply new production processes.

The people of the IAAC involved in this project are not only students but also professionals, who spend much of their time to put into practice these processes, either through their own projects or collaborations with other professional equipment.

With this background, and apart from the services of manufacture, the FAB LAB wants to offer this knowledge to professionals through intensive specialized courses and consulting formats for the resolution of models, prototypes and projects, involving issues of complex geometry and / or production of non standard customized elements.

03



Q VALLDAURA/ GREEN FAB LAB

Q Valldaura is a research center for self-sufficient habitats, located on an historic 130 hectare farm in the Collserola Natural Park, twenty minutes from downtown Barcelona. It is powered by the IAAC with the support of the "Avanza Plan", the MIT YC and several organizations and companies.

The project will take place in several phases and will be developed in three areas: a research center located near the farmhouse, a restaurant and event center located near Cerdanyola Road, where the Can Valldaura Restaurant stands now, and an historical center that will develop a program of archaeological research.



Q Valldaura has an interesting history: it is the place which in the XII century hosted the first Cister Monastery of Catalonia. Later, it became a royal hunting palace, becoming an independent municipality that includes Mataró, and finally it ended up being a farm.

Our project promotes a process of nature conservation and rehabilitation of architectural and landscape heritage. To develop the conservation estate, a special plan to improve the property was presented, including forestry, agriculture, livestock, heritage and environmental and functional aspects. The "Masía Can Valldarura" was built in 1888 with an agricultural structure, a system of irrigation and forest management, that will be restored.

The Self-Sufficient Habitat Center establishes the relationship of Man, Environment and Planet defined as "self-connected man."

We promote education and research programs for people of all ages, in a multidisciplinary environment that seeks to become an international benchmark. Within the Valldaura environment, research and action will be undertaken on food, energy and objects, the three basic needs that humans require to be self sufficient.

Activities will also take place related to recovering ancestral knowledge on management of resources we have in our environment, as well as sharing knowledge globally through information networks.

The inauguration will take place on December 4, 2012, coinciding with the day it was founded in 1150.



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