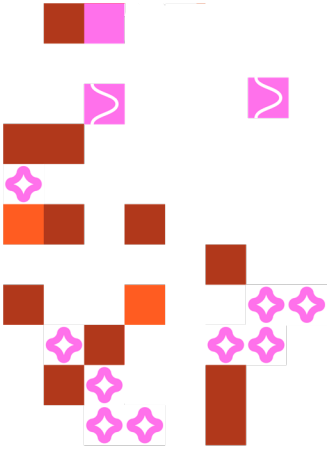
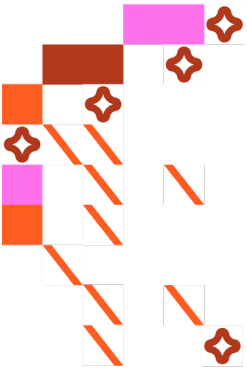
Master in Robotics & Advanced Construction

Directed by
Alexandre Dubor

Iaac Advanced Architecture Barcelona



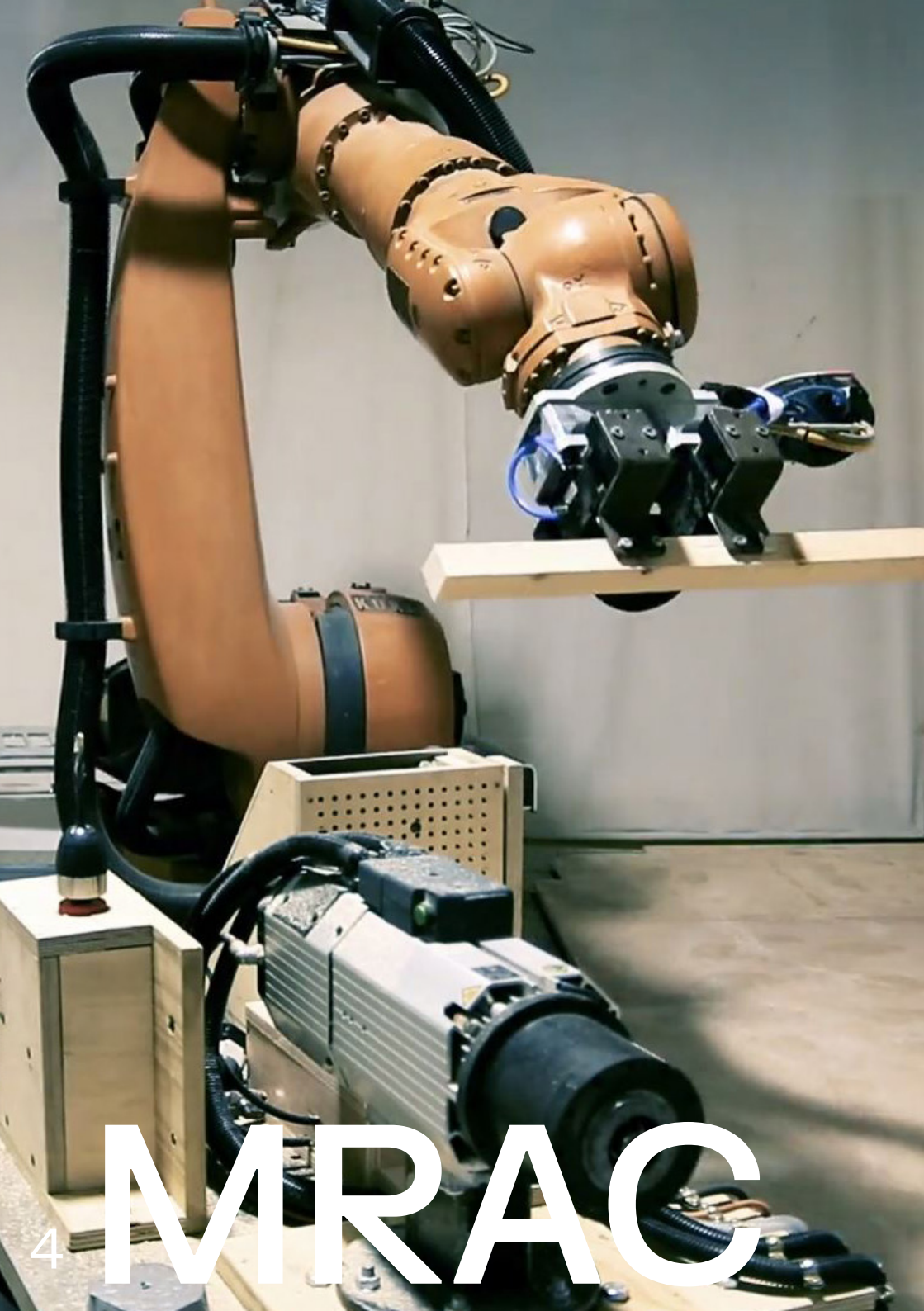


Master in Robotics & Advanced Construction

Barcelona
iaac.net
blog.iaac.net

Instagram
@mrac_iaac

Iaac Advanced Architecture Barcelona


MRAC

What?

The Master in Robotics and Advanced Construction - MRAC seeks to train a new generation of interdisciplinary professionals who are capable of facing our growing need for a more sustainable and optimised construction eco-system.

The Master is focused on the emerging design and market opportunities arising from novel robotic and advanced manufacturing systems.

Through a mixture of seminars, workshops and studio projects, the master programme challenges the traditional processes in the Construction Sector. It investigates how advances in robotics and digital fabrication tools change the way we build and develop processes and design tools for such new production methods.

By bringing together international researchers and industry partners from a wide variety of fields and cultures, IAAC seeks to create a multidisciplinary and multicultural environment, a place to rethink the construction sector and train the new generation of professionals capable of having a positive impact on our future built environment and economy.

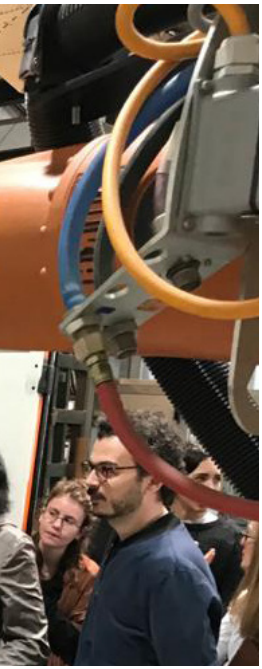
Why?

The construction sector is currently faced with a need for change. A new approach towards how our environment is built must be taken. Growing cities are challenging the sector to find better ways to build more and at a lower cost.

Furthermore, the limited resources that we have on this planet push us towards a more sustainable way of building, inhabiting, and reusing our constructions. In addition to this, the construction sector has not yet taken advantage of the digital revolution that is happening in other manufacturing sectors, such as in the automobile and aerospatial engineering industries. While studies predict that Automation, Robotics, and AI will possibly increase productivity by 60% in the construction sector, they also open new opportunities for design and for increased building performance.

In this context, IAAC proposes a new interdisciplinary programme where prospective students can expect to learn about the state of the art in Robotics and Advanced Manufacturing technologies, as well as theory and practical tools of computational design and artificial intelligence. Master candidates will become fluent in the use of these technologies through continuous hands-on experiments, methodology, and a series of workshops and pilot projects with research and industry partners.

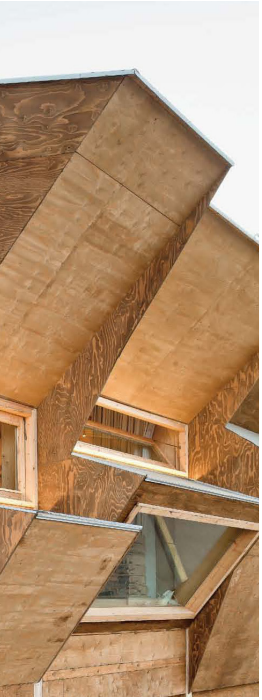

Iaac
ADVANCED
ARCHITECTURE
GROUP



Who?

The MRAC offers an international and multidisciplinary environment where engineers, designers, architects, craftsmen, academics and industry partners have the opportunity to rethink the construction industry and push the boundaries of robotics and advanced manufacturing.

The master will take place at the Institute for Advanced Architecture of Catalonia, a creative space fully equipped with the most recent manufacturing technologies, in Barcelona, an international hub for innovation in a traditionally rich industrial region.



Professional Opportunities

Once successfully finished the master programme, IAAC students will join the IAAC Alumni Community. This is an active and dynamic network of visionary professionals spread around the world, promoting the principles and applications of Advanced Architecture, exploring new academic and research initiatives, leading award-winning practices or successful start-ups and working for internationally acclaimed firms and institutions.

The aim of IAAC is to form graduates who, after the completion of the programme, will be able to develop their acquired skills in a diversity of professional environments, related to the transformation and management of the construction sector.

Master in Robotics & Advanced Construction

MRAC

With the Master in Robotics and Advanced Constructions (MRAC), IAAC seeks to train a new generation of interdisciplinary actors capable of facing our growing need for a more sustainable and optimised construction ecosystem. The Master is focused on the emerging design and market opportunities arising from novel robotic and advanced manufacturing systems.

Through seminars, workshops and studio projects, the Master programme challenges the traditional processes in the Construction Sector. It investigates how robotics and new digital fabrication tools change the way we build, and develop the design tools and processes for such new productions methods.

The Master offers an international and multidisciplinary environment in which Engineers, Designers, Architects, Craftsmen, Academics and Industry partners must rethink the construction industry. The programme takes place in IAAC, a creative space fully equipped with the latest manufacturing technologies, based in Barcelona, an International hub for innovation in a traditionally rich industrial region.

Master in Robotics and Advanced Construction 01

MRAC 01

Master in Robotics and Advanced Construction accredited by School of Professional and Executive Development at the Polytechnic University of Catalonia – European Higher Education Area (EHEA)

Credits
90 ECTS

Language
English

Modality
In-person

Duration
From October 2024 to June 2025 / 9 Months

Study mode
Full time

Admission
Admission based on student profile evaluation.

Master in Robotics and Advanced Construction + 3DPA

MARC 01 + 3DPA

Master in Robotics and Advanced Construction + Postgraduate in 3D Printing Architecture. Both accredited by School of Professional and Executive Development at the Polytechnic University of Catalonia – European Higher Education Area (EHEA)

Credits
90 + 45 ECTS

Language
English

Modality
In-person

Duration
From October 2025 to March 2027 / 15 Months

Study mode
Full time

Admission
Admission based on student profile evaluation.

Master in Robotics and Advanced Construction 02

MRAC 02

Master in Robotics and Advanced Construction - YEAR 02 Research Thesis accredited by School of Professional and Executive Development at the Polytechnic University of Catalonia – European Higher Education Area (EHEA).

Credits
130 ECTS

Language
English

Modality
In-person

Duration
From October 2025 to July 2027 / 18 Months

Study mode
Full time

Admission
Admission based on student profile evaluation.

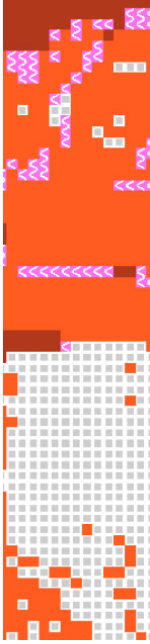
MRAC01

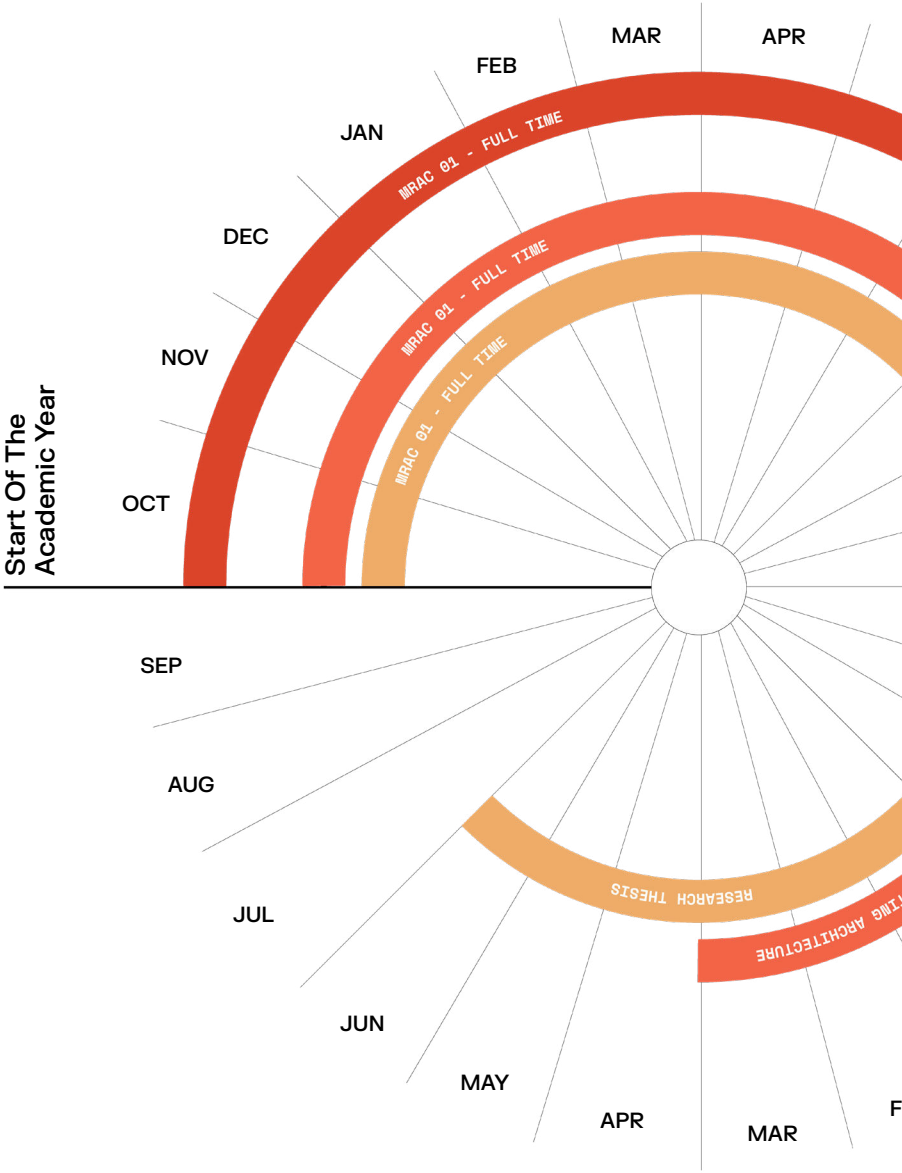
Master in Robotics & Advanced Construction 01

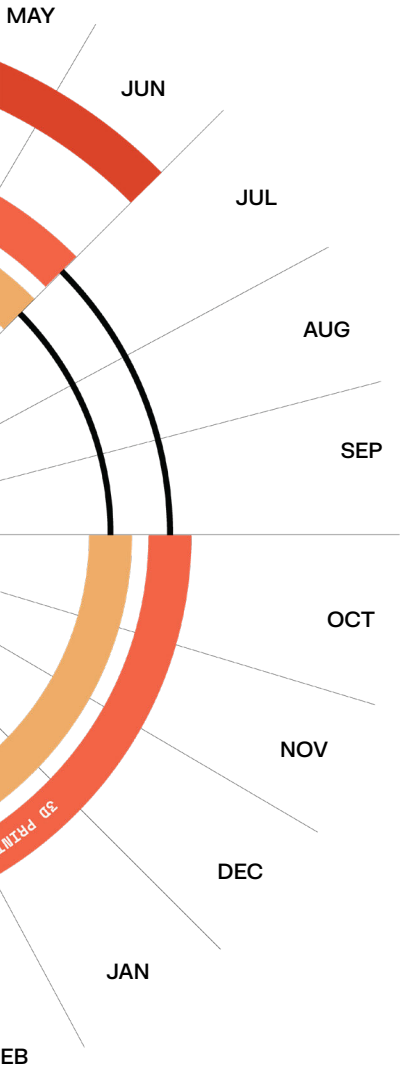
The Master Programme in Robotics and Advanced Construction is an innovative educational format designed exclusively for full-time students. It offers interdisciplinary skills and understanding through a series of class seminars that are put into practice through hands-on workshops.

IAAC gives full-time students the opportunity to create individual studio agendas and develop Pilot Thesis Projects based on the knowledge acquired during the seminars and workshops split into 3 modules. In this way, IAAC puts together an experimental learning environment for the training of professionals with both theoretical and practical responses to the increasing complexity of the construction sector.

Monthly encounters with professionals and researchers are condensed into the programmes' seminar lectures and hands-on workshops. This structure is tailored to accommodate the commitments of students who can dedicate their entire 9 months in our campus to the development of their own studio and thesis project. Students will be part of a highly international group, including faculty members, researchers, and lecturers from all around the world. this environment will encourage them to develop collective decision-making processes and materialise their project ideas.




Start Of The Academic Year
OCT
NOV
DEC
JAN
FEB
MAR
APR
MRAC 01 - FULL TIME
MRAC 01 - FULL TIME
MRAC 01 - FULL TIME
SEP
AUG
JUL
JUN
MAY
APR
MAR
RESEARCH THESIS
ARCHITECTURE



Master Modalities

- MRAC 01
- MRAC 01 + 3DPA
- MRAC 01 + Thesis

Academic Structure

01 First term

October – December

Materialising with machines
Advances in File to Factory workflow allows for precise and complex constructions. In this new paradigm, architecture will be mass customized, constructive logic will be encoded, new materials will be introduced and materiality will be programmed. During this first semester, students will explore the possibilities being already offered by digital fabrication and computational design to gain control over the entire process of materialisation from digital to physical, from the human intention to the robot execution. A special focus will be given on the challenges and opportunities raised by Robotic and Additive Manufacturing for construction.
of a highly international group, including faculty members, researchers, and lecturers from all around the world. this environment will encourage them to develop collective decision-making processes and materialise their project ideas.

02 Second term

January – March

Scanning and learning machines
Advances in data collection and analysis allows for better integration of specific construction challenges such as site monitoring and adaptability, heterogeneous materials, inventory management, assembly tolerances, changing climate conditions and team coordination. During the second semester, students will integrate increasing amounts of data in their workflow, using robotic sensing and digital simulation to get new information of the construction process. Physical computing and analytics will help drive new decision making processes including iterative logics, computational optimisation and artificial intelligence.

03 Third term

April – July

Human machine collaborations
Advances in Human-Machine Interactions and mixed realities allows for a seamless collaboration between humans and robots in factory and construction sites, taking advantage of the best of both virtual and real world. During the third semester, students will extend their skills and perspectives towards new devices and strategies that combine existing manual constructive methods with the digital and robotic ones. This new digital craftsmanship in factories and construction sites will be the scenario students will use to explore the potential of collaborative robots and Augmented Reality for the construction sector.

Master in Robotics & Advanced Construction

Research Studio	Hardware Seminar I	Software Seminar I	Theory and Context I	Workshops
Robotic Craft **Visit** Industry and Factory site	Robotic Actuators	Algorithmic Design	Materialising with machines	Additive Manufacturing Subtractive manufacturing
Research Studio	**Hardware Seminar II**	**Software Seminar I**	**Theory and Context I**	**Workshops**
Robotics sensing **Visit** Robotic Lab	Robotic Interaction	Machine Learning	Human - Machine collaboration	Collaborative robotics Swarm Robotics
Research Studio	**Hardware Seminar III**	**Software Seminar I**	**Theory and Context I**	**Workshops**
Final **Visit** Industry and Factory site	Robotic Actuators	Algorithmic Design	Materialising with machines	Additive Manufacturing Subtractive manufacturing

Seminars & Workshops

MRAC 01

Term I

Materialising with machines

3 Months
October to December

Software 1:

Algorithmic Design

Andrea Graziano, Eugenio Bettucchi
Tutor

Rhinoceros 3D, Grasshopper 3D, Python.
Tools

Hardware 1:

Robotic Actuators

Angel Muñoz.
Tutor

Arduino, Raspberry Pi, ABB, KUKA and others hardware available in IAAC.
Tools

Applied Theory 1

Materialising with Machines

Mathilde Marengo.
Tutor

Mark Burry Sagrada Familia
Jelle Feringa AEctual
Tom Svilans Innochain
Carlos Perez McNeel Europe
Jordi Ribatallada ABB
Shajay Bhooshan Zaha Code - Zaha Hadid Architects.
Past Guests

Workshops 1.1 and 1.2

Manufacturing

Subtractive, forming and additive manufacturing, robotic assembly.
Topics

Noumena, Zaha Code - Zaha Hadid Architects, Eurecat, HeatherWick Studio.
Collaborators

Research Studio 1

Robotic Craft

Vincent Huygue, Marielena Papandreou.
Tutor

From manual craft to robotic fabrication.
Project Goal

The mentioned seminars and faculties refers to the Academic year 2024-2025 The programme for the Academic Year 2026-2027 may be subject to slight variations.

Term II

Scanning & learning machines

3 Months
January to march

Software 2

Robotic Control

Vincent Huygue
Tutor

ROS (Python).
Tools

Hardware 2:

Robotic Sensors

Sameer Kishore.
Tutor

Computer Vision and Data Analytics library for Python.
Tools

Applied Theory 2

Scanning and Learning Machines

Olga Carcassi, Ingrid Paoletti
Tutor

Workshops 2.1 and 2.2

Scanning

3d Scanning, BIM, Drone flight and monitoring, Process monitoring, Adaptive Fabrication.
Past Topics

FabLab Michigan, Georgia Tech School of Architecture, GT Spatial Future Lab, Scaled Robotics.
Collaborators

Research Studio 2

Robotic Sensing

Aldo Sollazzo, Marielena Papandreou.
Tutor

From data acquisition to added value by design.
Project Goal

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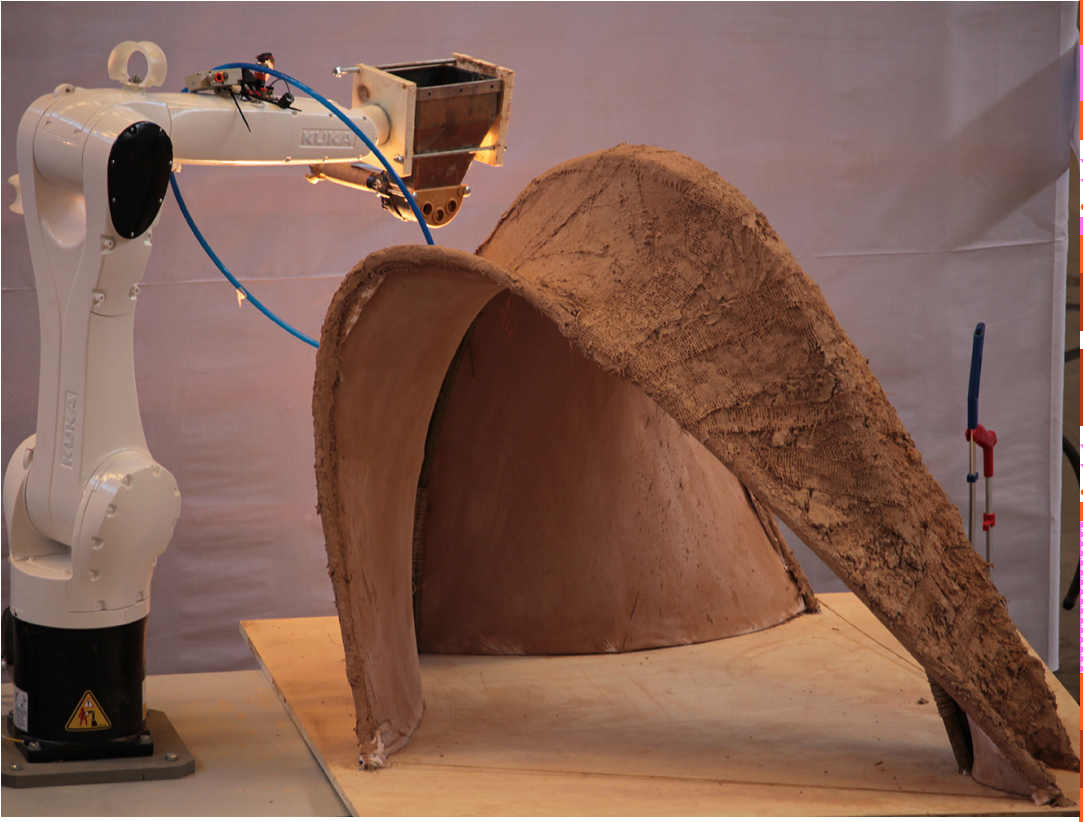

KUKA
KUKA

Term III

Human machine collaborations

3 Months
April to June

Software 3

Machine Learning

Mateusz Zwierzycki.
Tutor

Parametric modeling, evolutionary solvers, self-organizing map.
Tools

Hardware 3

Robotic Interaction

Ece Tankal, Arron Smith.
Tutor

Touch and body sensors, gesture control, virtual interfaces, augmented / mixed reality.
Tools

Applied Theory 3

Human - Machine collaboration

Ana Cocho
Tutor

Workshops 3.1 and 3.2

Collaborative & Swarm Robotics

Discretizing robotic processes, robotic tolerance, movement programming and interaction, realtime robotic interfaces, mixed reality.
Past Topics

Association for Robots in Architecture, Kokkugia / RMIT, RWTH AACHEN and more tba.
Past Collaborators

Research Studio 3

Final Project

Alexandre Dubor, Marielena Papandreou.
Tutor

From idea to market.
Project Goal

The mentioned seminars and faculties refers to the Academic year 2024-2025 The programme for the Academic Year 2026-2027 may be subject to slight variations.

MRAC 01 + Postgraduate in 3D Printing Architecture

The Master in Robotics and Advanced Construction first year can be combined with Postgraduate in 3D Printing Architecture. This allows students to apply the knowledge learnt into unique applied research program center into the revolutionising technology of additive manufacturing for the construction of sustainable architecture.

For more information, please see the dedicated booklet about the Postgraduate in 3D Printing Architecture program.

Academic Structure

Upon completion of the first year of the Master's programme, students can continue their studies with Postgraduate in 3D Printing Architecture

Master in Robotics & Advanced Construction

Postgraduate in 3D Printing Architecture

Phase 1

Exploration

Techne 1 to 6

Phase 2

Prototype design charrette

Research
Matter Research

Phase 3

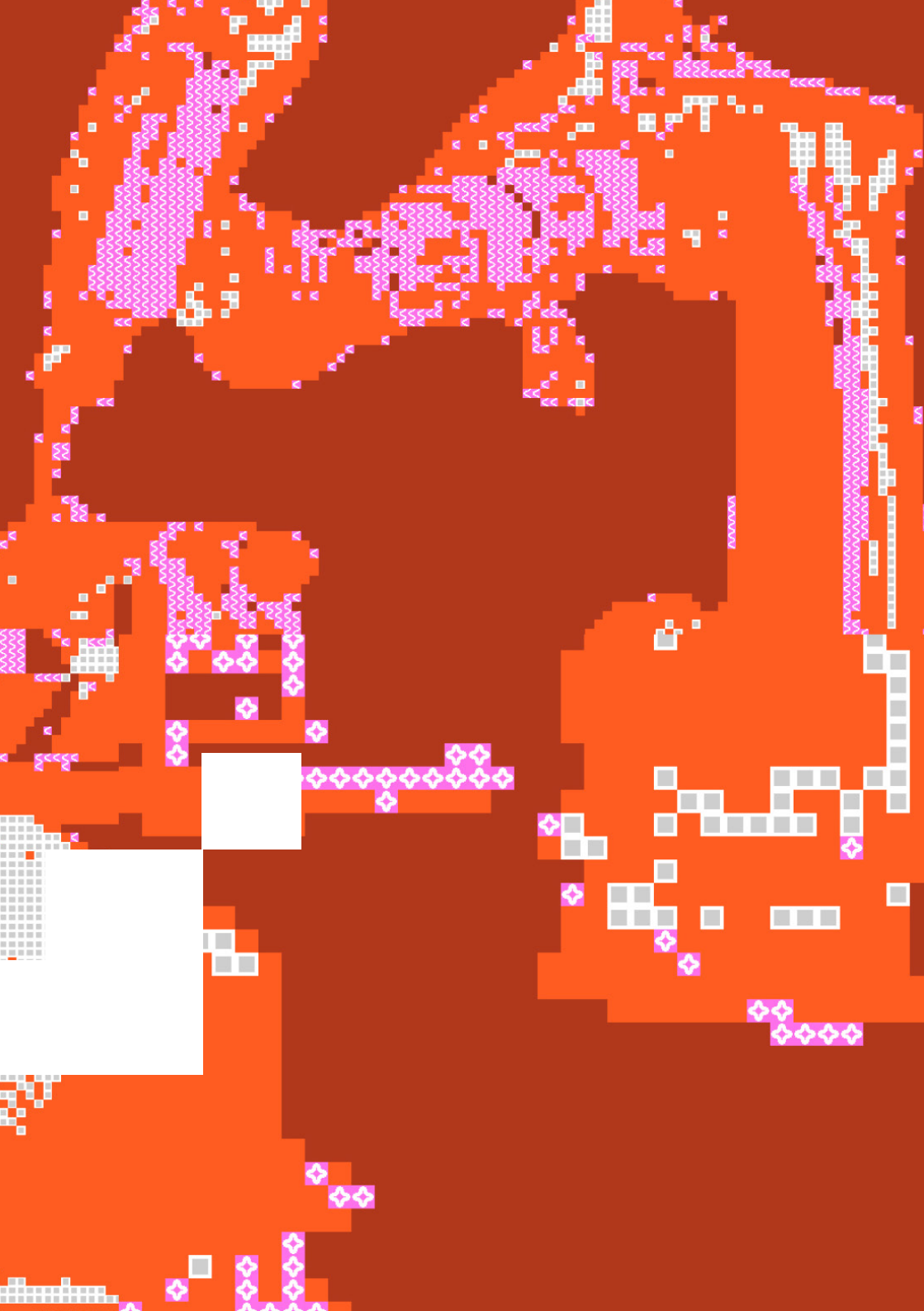
Prototype construction

Large scale prototype contruction
Vision

MRAC02

Master in Robotics & Advanced Construction 02

Targeted towards students' future career in Academia, Start-up or Industry, the second year of the Master in Robotics and Advanced Construction offers the occasion to develop a thesis project with the support of IAAC infrastructure, experts and network, with the goal to maximise its impact on our society. Students can choose to work either individually or in a group, and can propose their own topic and collaborative company, or choose from the one proposed by IAAC and its strong partners. The development of the project will be supported by advanced seminars in Technology, Theory and Business to bring the proposal state of the art research that can really impact the construction industry. To this end, students will collaborate with one specific industry / academia or incubator to develop their project, with a series of internship immersion in the collaborative company as well as review and support directly on the thesis project. In parallel to the development of the Thesis Project Studio, the second year of the Master in Robotics and Advanced Construction offers a series of seminars enhancing both the theoretical, practical and digital skills of the students. Students will also have the occasion to join cross-disciplinary workshops to build large prototypes and installations.

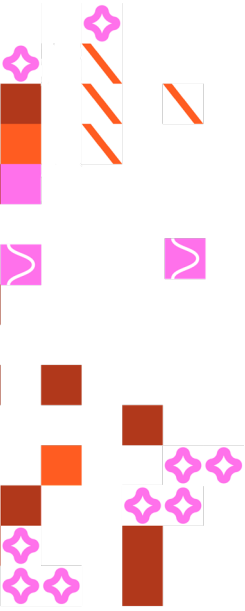


Academic Structure

01 **First term** October – December

02 **Second term** January – March

03 **Third term** April – July



Master in Robotics & Advanced Construction + Research Thesis

Research Studio Academy oriented thesis **Support** Advanced Technology	**Theory** Research Methods	**Workshops** Cross disciplinary project	**Seminar** Advanced Technology	**Internship** At collaborative industry / Academia / Incubator
Research Studio Start up oriented thesis **Support** Advanced Technology	**Theory** Research Methods Business innovation	**Workshops** Cross disciplinary project	**Seminar** Advanced Technology	**Internship** At collaborative industry / Academia / Incubator
Research Studio Start up oriented thesis	**Theory** Research Methods Market for industry research		**Cross Reviews** Thesis cross Reviews	

MRAC + Research Thesis

Research Thesis

The MRAC Research Thesis explores innovative applications in robotics and advanced construction. This program is organized around 3 different tracks, establishing, at different technology readiness levels, a hands-on methodology developing innovative projects. Each track is exposing students to a multidisciplinary learning environment focused on questioning, predicting and projecting novel solutions transforming the Construction Sector. This program is meant to provide the proper framework to those students who want to perform a deeper research, developing new paradigms for robotics in architecture.

Academic Track

How to create an innovative and state of the art research?

In this line, students will focus on developing a scientific research with relevant academic value. Each project will be monitored by a selected team of advisors providing guidance through a rigorous methodology and experimental approach.

Start Up Track

How to convert brilliant ideas into potential market applications?

Through a multidisciplinary framework, students will identify interactions between innovative solutions and business development. Several mentors from robotics, business innovation and startups experts will support students in this challenging journey.

Industry Track

How to orient emerging technology towards industrial needs?

This track is oriented to those students willing to face challenges proposed by a cluster of companies seeking innovative solutions.
This track will, therefore, focus on introducing digital transformations for the industry sector

Collaborative Partner

During the entire year, the students are asked to work in close contact with one academic/startup/industry partner. Students will be connected to a series of possible partners and related topics of interest from the extensive IAAC Networks, or alternatively, students can also propose their own partner and topic, to be reviewed by the academic committee. The collaboration shall include internship, review, technical support and the possibility to continue the collaboration after the master with a separate contract.

Research Support

A team of experts from robotics, advanced manufacturing, data science, business innovation will support students in developing their innovative solutions. MRAC faculties represent a multidisciplinary team of researchers, professionals, academics dedicated to exploring and implementing tech-based applications in the AEC sector.

Seminars & Workshops

During the MRAC Research thesis program, students will have the opportunity to attend a series of parallel programs tailored to implement expertise with theoretical, digital and practical sessions focused on advanced topics in computation, robotics, business innovation and research. All seminars will be transversal to the different tracks, providing a transversal learning experience for each student.

Faculty

Alexandre Dubor
Director

Alexandre Dubor is an architect and researcher combining new technologies in an attempt to improve how we build and live in our cities. He holds a Master degree of Architecture & Engineering from EAVT & ENPC (France) and a Master Degree of Architecture from IAAC (Spain), with a specialisation in robotic fabrication and large scale additive manufacturing (FabBot 3.0). He holds as well a French architectural licence (HMONP) and have worked in various architectural office from competition stage to delivery (Libeskind, Atenastudio, iDonati, AREP) while exploring the potential of scripting and coding in a separate practice (Collectif277). Since 2012, he has been working at IAAC as an expert in digital and robotic fabrication. He is now leading the AAG Fabrication team, and co-direct the postgraduate in 3D Printing Architecture (3DPA) as well as the Master in Robotic and Advanced Construction (MRAC). Together with IAAC staff, students and industrial partners, he is investigating how new advances in material, digital fabrication and computational design could lead to a better construction ecosystem, toward a more efficient, affordable, sustainable and personalised built environment.

Dr. Mathilde Marengo
Head of Studies

Valeria Carrion
Coordinated by

NOTE: The above faculty refers to the Master in Robotics and Advanced Construction 2023-2024 edition. Faculty of 2024-2025 may be subject to slight variations.

Seminar faculty

Aldo Sollazzo
Robotics, Computation and Vision (Noumena)

Dr. Mathilde Marengo
Research Methodology & Urban Design

Daniil Koshelyuk
Mixed Reality and Interaction

Andrea Graziano
Advanced Algorithmic Design (CodeIT)

Dr. Sameer Kishore
Robotic Sensing

Nikol Kirova
Novel Materials & Research Methodology

Nico Schouten
Circular Design (Metabolic)

Davide Rovera
Business Innovation (eWorks)

Dr. Ana Cocho
AI and Robotics Theory

Ece Tankal
Creative Interaction (Hyphen Labs)

Shyam Zonca
Digital Fabrication

Valentino Tagliaboschi
Robotic Fabrication Expert

Ricardo Mayor
Digital Fabrication

Secil Afsar
Fabrication Assistant

Yara Tayoun
R+D Manager

Nestor Baguin
Computational Design

Edouard Cabay
3DPA Co-Director, MRAC & MAA Faculty

Huanyu Li
Robotic Fabrication Assistant

Marita Georganta
Robotic Sensing Expert

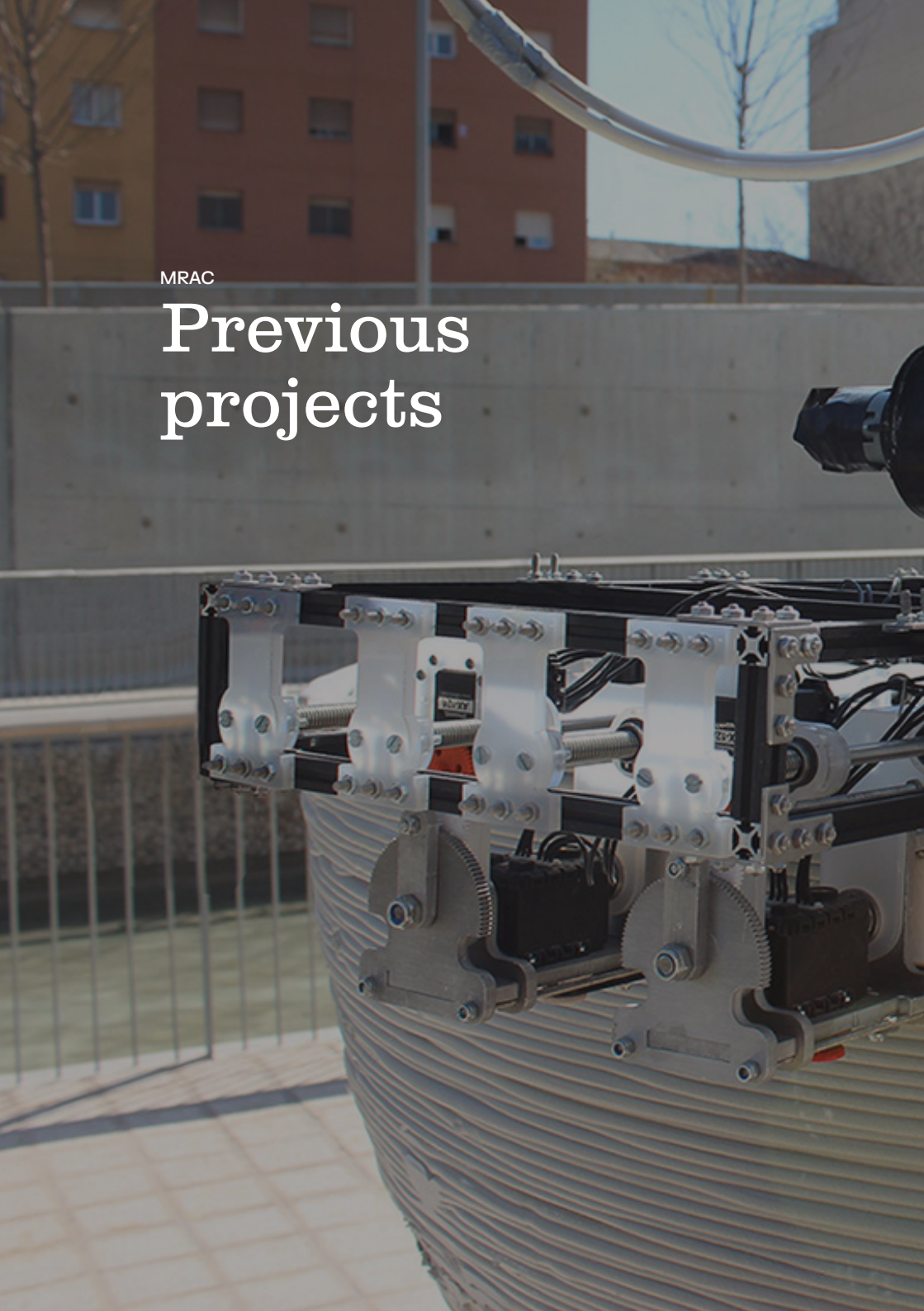
Pit Siebenaler
Faculty Assistant

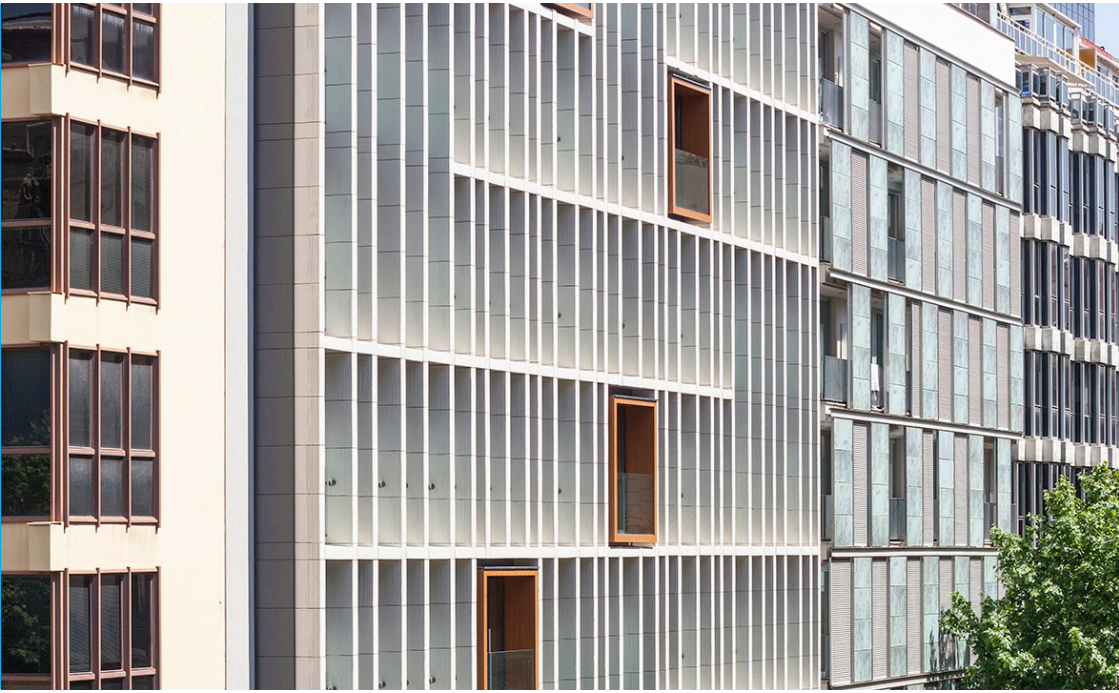
Julia Marsal
Robotics Engineer

Madeline Gannon
Robot Whisperer

MRAC

Previous projects





Musical Robotic Façade

In collaboration with:

CERÀMICA CUMELLA | 1880

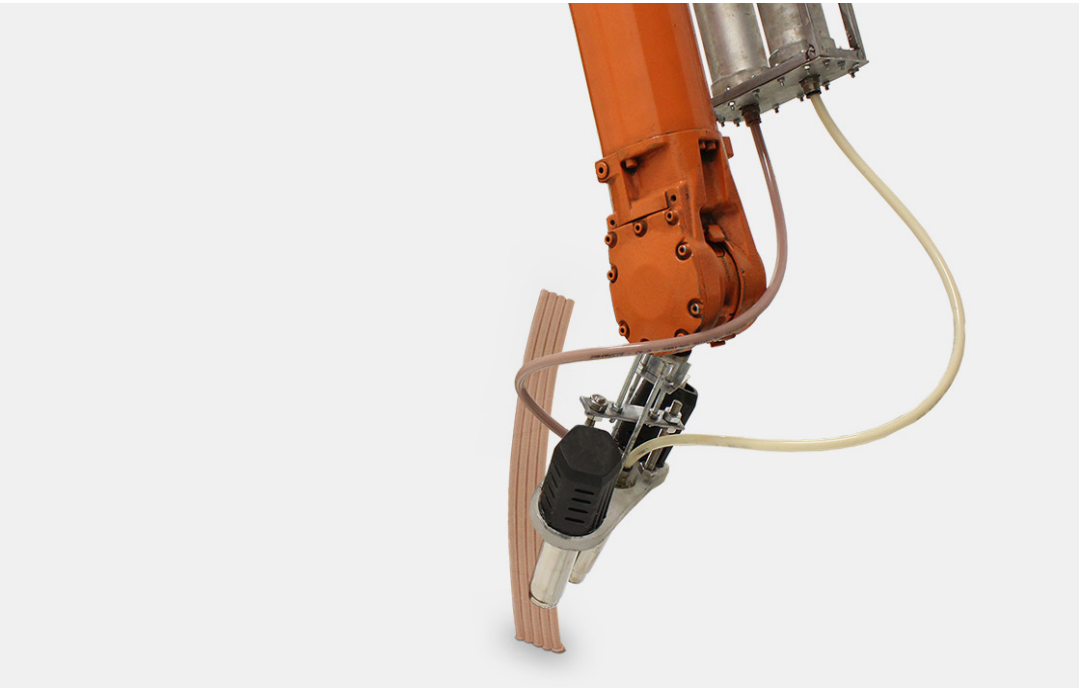
Try to imagine a façade that combines robotics, ceramics and Max Richter's music. Do you think it's possible? It is, and today you can see it by visiting the Eixample neighbourhood in Barcelona, as part of a recently built hotel.

By applying an algorithm designed by the Institute for Advanced Architecture of Catalonia (IAAC), a robot was able to transform a musical input into carvings on the ceramic bricks which cover the hotel's façade.

The music played on ceramics is the album "Recomposed by Max Richter: Vivaldi's Four Seasons," published in 2012 by Deutsche Grammophon label. The whole work is composed by 1120 pieces (800 in the front and 320 in the main hotel entrance), each one containing eight seconds of robotic reinterpretation of Vivaldi's Four Seasons Recomposed by Max Richter.

This work has been possible thanks to the sum of talent of the Architect Daniel Isern and his team, specialists in hotel construction, the Ceramist Toni Cumella and IAAC Robotic Expert Alexandre Dubor.

The first idea of this project has been developed within the Open Thesis Fabrication Program (OTF) by the student Rodion Eremeev and tutored by Alexandre Dubor, Areti Markopoulou and Silvia Brandi.



Mataerial Large Scale Manufacturing

In collaboration with:

JORIS LAARMAN LAB®

Mataerial is a new method of additive manufacturing.
This patent-pending method allows for creating 3D objects on any given working surface independently of its inclination and smoothness, and without a need of additional support structures.

Conventional methods of additive manufacturing have been affected both by gravity and printing environment: creation of 3D objects on irregular, or non-horizontal surfaces has so far been treated as impossible. By using innovative extrusion technology we are now able to neutralize the effect of gravity during the course of the printing process. This method gives us a flexibility to create truly natural objects by making 3D curves instead of 2D layers. Unlike 2D layers that are ignorant to the structure of the object, the 3D curves can follow exact stress lines of a custom shape.

Finally, our new out of the box printing method can help manufacture structures of almost any size and shape.

3D Printed Bridge

In collaboration with:

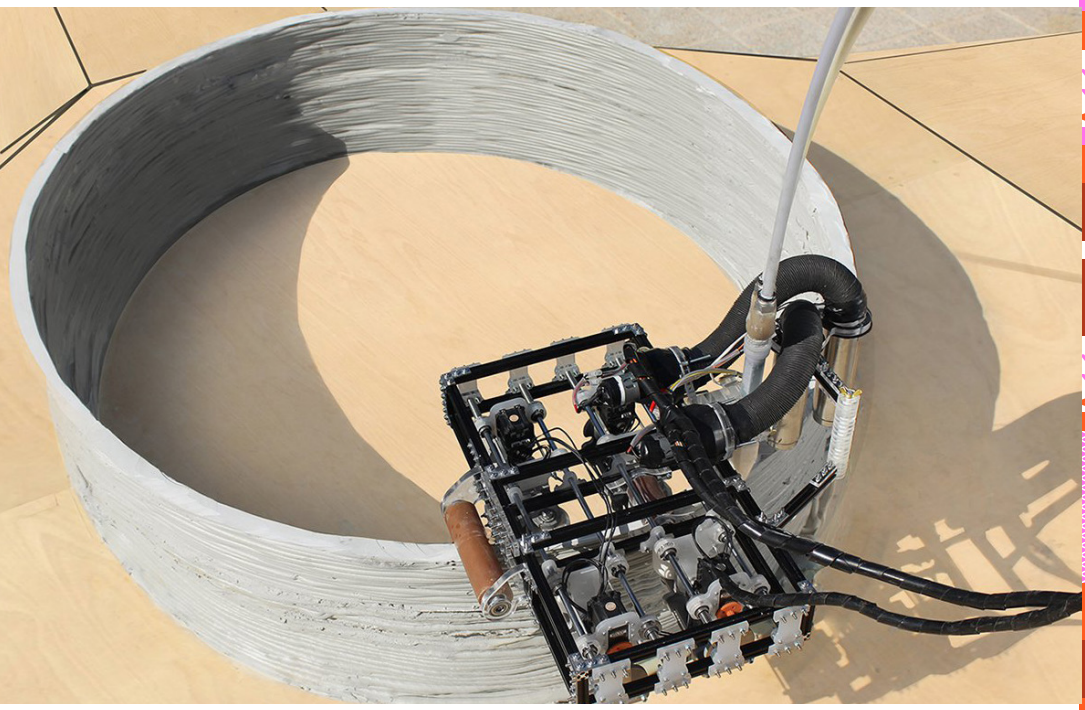
acciona

The first pedestrian bridge printed in 3D in the world was inaugurated on December 14th 2018 in the urban park of Castilla-La Mancha in Alcobendas, Madrid.

The Institute of Advanced Architecture of Catalonia (IAAC) was in charge of the architectural design of the bridge, which has a total length of 12 meters and a width of 1.75 meters and is printed in micro-reinforced concrete. With the design of the bridge printed in 3D, the Institute for Advanced Architecture of Catalonia (IAAC) remains committed to innovation and becomes a global pioneer in the use of large-scale 3D printing. The 3D printed footbridge of Alcobendas represents a milestone for the construction sector at international level, since, to date, this technology has not been applied in the field of civil engineering.

The 3D printed bridge, which reflects the complexities of nature's forms, was developed through parametric design, which allows to optimize the distribution of materials and minimize the amount of waste by recycling the raw material during manufacture. The computational design also allows to maximize the structural performance, being able to dispose the material only where it is needed, with total freedom of forms, maintaining the porosity thanks to the application of generative algorithms and challenging the traditional techniques of construction.

In addition, the design responds to the challenges posed by the legislation, being implemented in a public space: anyone can now cross the bridge, which will be installed in Alcobendas as an urban infrastructure integrated in the park.



Minibuilders

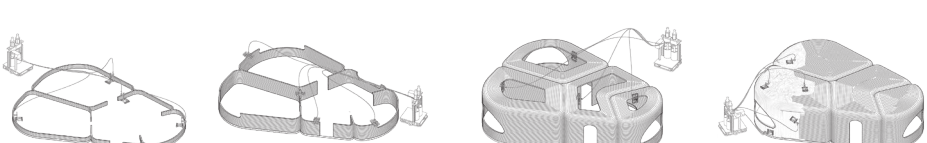
Small Robots
Printing Big
Structures

In collaboration with:

SD VENTURES

There has always been a close relationship between architecture and technology. Yet, in recent times, architecture has stagnated and the construction industry has been slow to adopt technologies that are already well established in other fields.

Robotics and Additive Manufacturing offer great potential towards innovation within the construction industry. A research group at the Institute for Advanced Architecture of Catalonia, based in Barcelona, set on a goal of **re-elaborating 3D-printing techniques** so as to overcome existing limitations of this technique in large-scale. The objective was to develop a **family of small scale construction robots,** all mobile and capable of constructing objects far larger than the robot itself. Moreover, each of the robots developed was to perform a diverse task, linked to the different phases of construction, finally working together as a family towards the implementation of a single structural outcome. Hence, instead of one large machine, a number of much smaller robots working independently, but in coordination, towards a single goal.



Fusta Robotica

In collaboration with:

Iaac

This robotic fabricated pavilion is made exclusively out of Catalan wood. Although it is local and low-impact “zero kilometre” material, the wood is low quality and solely used for palettes.
The challenge is to build a stable structure by using this wood.

The design solution is based on incorporating thin pieces, as well as several diverse joints and triangulations implemented through digital computation. The fabrication is done with a KUKA robot, allowing to automate the assembly process and reduce any manual workload.the project.

EchoWood

Can we transform **wood** waste into **high quality architectural products** thanks to 3D scanning, computational design, AI and Robotics ?

This research presents a new bottom up data driven design approach to designing and producing acoustic surfaces from wood waste. The proposed solution is an automated workflow capable of producing mass customised acoustic panels integrating the properties of each wood piece to maximize its acoustic properties in the final product, while allowing unprecedented control on the aesthetic quality of the the architecture surface. The developed process includes the following steps :

Each individual wood waste is first 3D scanned, then analyzed with computer vision to extract each geometrical and performance properties.

The information is stored in a web based digital library that is integrated with parametric design tools, to enable an iterative design process paired to the acoustic evaluation of bespoke acoustic surfaces.

Finally a robotic cell is fed with this information to cut and assemble each wood piece into the final acoustic panel.

Collaborative Entities

Eurecat Technology Centre of Catalonia

Eurecat serves the industrial and business sectors with differentiating technology and advanced expertise, offering solutions to their innovation needs and boosting their competitiveness in a fast-paced environment.

CRICURSA Curved Glass XXL Size

Founded in 1928, specialist in high technology glass bending, CRICURSA is setting the standards of design and construction being present in many of the most famous architectural works around the world, offering XXL size curved and flat glass for exterior and interior applications.

ABB ROBOTICS Industrial robots and robot software Multinational

Technology leader that is driving the digital transformation of industries. With an experience of more than 130 years, ABB is today leader in digital industries with four customer oriented businesses: Electrification, Industrial Automation, Motion, and Robotics & Discrete Automation.

UNIVERSAL ROBOTS Collaborative robots made simple

Universal Robots is a Danish manufacturer of more than 42000 industrial collaborative robot arms, which are used in several thousand production environments every day around the world.

Cumella

Ceràmica Cumella, founded in 1880 in Granollers (Barcelona) with the conviction of a necessary integration of technical tradition and innovative process, encouraging with a steady hand and continued research, finding solutions on how to keep up with present technological requirement.

HEATHERWICK STUDIO Design & architecture practice

A multi-award winning British design and architecture studio, focusing on large scale projects in cities all over the world. Based out of our combined workshop and design studio in Central London, Heatherwick creates buildings, spaces, master-plans, objects and infrastructure.

TALLFUSTA Wood Building Solutionsfirmsoftware Multinational

With more than 75 years of experience in the wood sector, TALLFUSTA offers design and mechanization of structural elements, providing also technical advisory services for constructive solutions driven by the criteria of sustainability and low consumption.

Zaha Hadid Architects

Based in London for 40 years, Zaha Hadid Architects (ZHA) is developing transformational projects across six continents, working with global excellence clients at all scales and in all sectors. Hadid's interest is to create transformative cultural, corporate, residential and other spaces that work in synchronicity with their surroundings in the interrelated fields of urbanism, architecture and design.

IAAC Advanced Architecture Barcelona

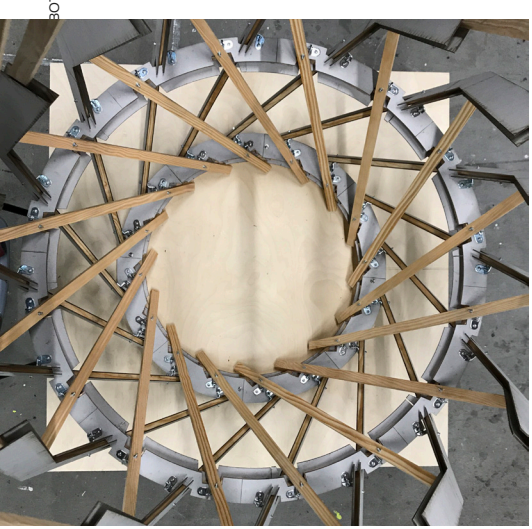
Education, Research and Development Center that inspires, envisions and prototypes the future through innovation from Barcelona.

About the Institute

To inspire architects of change to envision, prototype and impact the future.

The Institute for Advanced Architecture of Catalonia (IAAC) is an international centre for research, education, production and outreach, with the mission of envisioning the future habitat of our society and building it in the present.

Based in Barcelona, the Institute offers multidisciplinary programmes that explore international urban and territorial phenomena, with an emphasis on the opportunities that arise from the emergent technologies, and the cultural, economic and social values that architecture can contribute to today's society.



IAAC the Institute for Advanced Architecture of Catalonia

We don’t see the future as a distant horizon awaiting us. We understand the present as a moment to influence what comes next. The future is our daily inspiration, our driving force, and our biggest commitment: our minds live in the cities, the technology and the problems of the future.
We stand at the intersection of imagination and reality, where every prototype holds the potential to shape the next era of habitat. We are architects of change.

Guided by our unwavering conviction that a better built environment is possible, we push the boundaries of today through innovative education, research and development. These are our tools to address today’s problems and achieve the future we pursue for our cities.

> “ To change something, build a new model that makes the existing model obsolete”
>
> — R. Buckminster Fuller

Innovation center

We equip “architects of change” with knowledge, skills, tools, networks, and critical thinking to envision, design, and prototype alternative radical and plausible futures. Through immersive learning and educational experiences, practical projects and visionary ideas are brought to life.

In this dynamic, collaborative space, students, researchers, industry experts, communities of practice and academics exchange ideas to find new innovative pathways. Explorations aimed at solving the challenges surrounding how habitat relates to the rest of the factors of the urban environment — individuals, communities, sustainability, etc.

We go beyond being an educational institution. We are an ecosystem of innovative research, conceptualization and materialization of disruptive solutions aimed at building a better future.

IAAC is located in the Poblenou neighbourhood of Barcelona, in the recently created district known as 22@, an international reference for companies and institutions oriented toward the knowledge society. In the 22@, cutting-edge firms, universities, research and training centres are integrated with different agents of promotion that facilitate interaction and communication among them.

The neighbourhood is close to the historic centre and the seafront, and features some of the most iconic landmarks of the city such as the Agbar Tower and the Design Hub building. The ongoing projects of the Plaça de les Glòries and the Sagrera APT station are also making it one of the most dynamic enclaves in the city.

Pujades Campus

IAAC is housed in two old factory buildings, with 4.000 m2 of space for research, production and dissemination of architecture.

The space itself is a declaration of principles, embodying an experimental and productive approach to architecture.

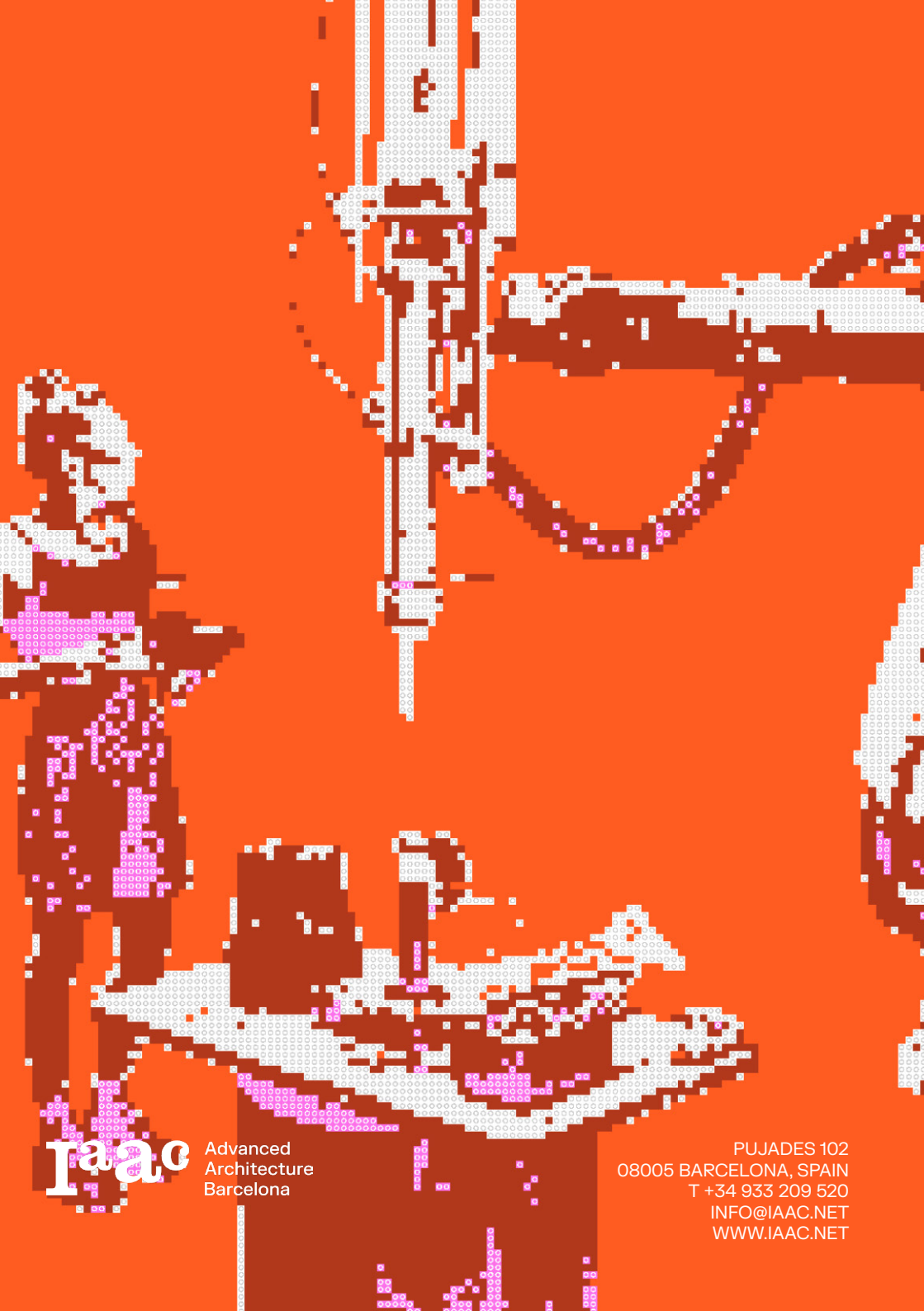
The IAAC Pujades Campus premises include the Fab Lab Barcelona, an architecture and design-oriented digital fabrication laboratory, and a second Fabrication Laboratory, entirely dedicated to the development of IAAC students projects.

Valldaura Campus

Valldaura Labs is IAAC's second campus located in the Collserola Park, the green heart of Barcelona's Metropolitan Area.

The campus is a 140 hectares park and testing ground for innovation, that features the latest technologies in the fields of energy, information and fabrication.
The core of this innovative project developed by IAAC is a series of laboratories that work to set a new benchmark for self-sufficiency.

The Valldaura Labs premises include the Green Fab Lab, a fabrication laboratory oriented towards self-sufficient and productive solutions. The Food Lab and the Energy Lab, allowing students to research the specifics of the production of key elements involved in self-sufficiency.



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