


A walk through
the research
paths of the
Department of
Architecture
of Florence

DIDA RESEARCH WEEK BOOK 2018





DIDA
RESEARCH
WEEK
BOOK
2018

A walk through the research
paths of the Department of
Architecture of Florence





UNIVERSITÀ
DEGLI STUDI
FIRENZE

DIDA
DIPARTIMENTO DI
ARCHITETTURA

graphic design

didacommunicationlab

Dipartimento di Architettura
Università degli Studi di Firenze

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didapress

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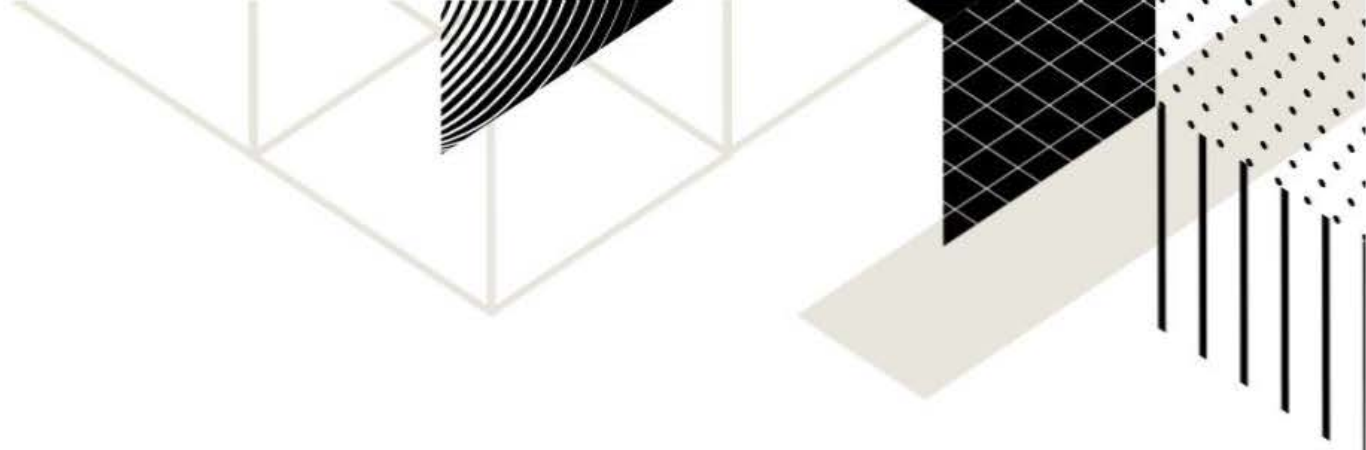
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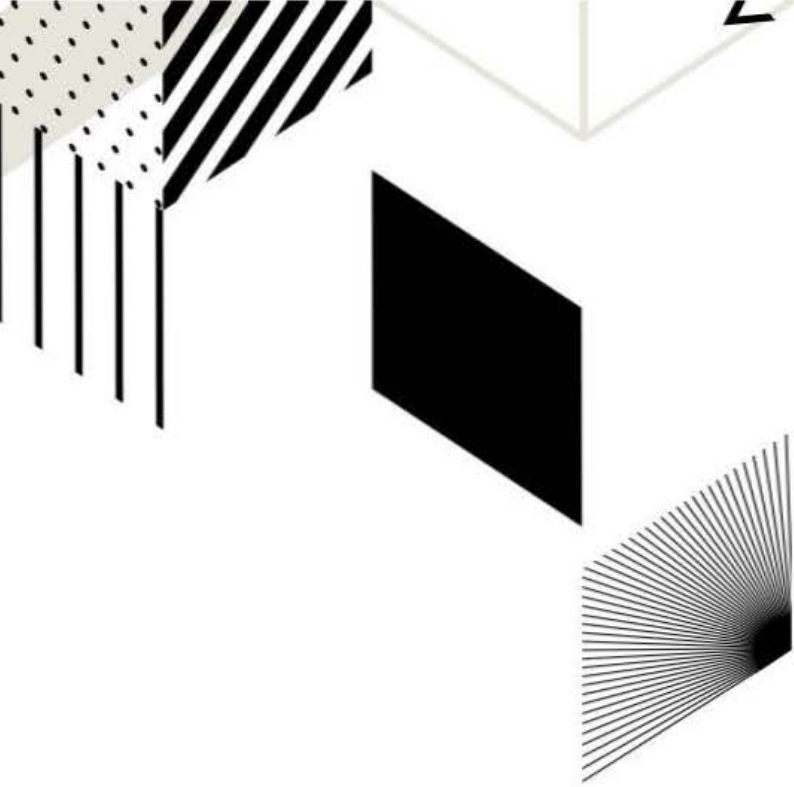


In February 2018, the Department of Architecture of the University of Florence (DIDA) promoted an open and public analysis and evaluation of the research carried out by the Department during its first five years of existence in order to define its strategy, the relationship with third and second cycle education, the role of experimental research and the DIDA-LABS laboratory system, as well as of research units and inter-university research centers.

The objective of the DIDA Research Week, through the documentation, communication and evaluation of the activities carried out by the Department in national and international research projects or in individual or exploratory projects, is an analysis and an in-depth reflection on the research activities at all levels carried out during the first five years of the Department: a wide and transparent reflection which communicates what the research carried out by DIDA is in all its different forms, calling the most qualified colleagues in Florence, Italy and abroad to discuss and to evaluate it and to contribute to the identification of future goals, strategies and actions.

The transparency strategy in scientific communication developed by the Department plays a central role not only concerning the dissemination of knowledge but above all for the effective evaluation by the entire scientific community, certainly more effective than the current assessment procedures. The increasingly international dimension of research and education requires the maximum possible transparency and accessibility of research results.

The Department's commitment to supporting scientific journals, the DIDAPress publishing, the Communication Laboratory and the first DIDA Research Week itself aims to meet this need.



**DIDA RESEARCH WEEK 5 YEARS OF RESEARCH BY THE DEPARTMENT DIDA 2013-2017:
AN ASSESSMENT FOR THE FUTURE PROGRAM.**

19-23 February 2017

Santa Teresa, via della Mattonaia 8, 50121 Florence

Monday 19 February

Disciplinary research

Interdisciplinary and multidisciplinary research

Tuesday, February 20

Competitive research, horizon 2020, industrial research, design research,
research for the third mission

Research communication, magazines and scientific publishing

Wednesday 21 February

The Ph.D. Course in Architecture

Thursday 22 February

Research, training and profession. DIDALABS, Research Units and Research Centers

Applied research experiences

Round table: Research, training, profession: DIDA Open perspectives

Friday 23 February

Research, training and profession in the design area:
scenarios and strategies for the design and project area

DIDA RESEARCH WEEK
BOOK 2018



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Theatre | Architecture Laboratory | TEARC Lab

Urban Design Laboratory | UD

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Architectural Heritage Restoration and Conservation | LARC

Architectural Survey Laboratory | LRA architecturalsurveylab

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Heritage City Laboratory | Heritage City_Lab

Materials and Structures Testing Laboratory | LPMS

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Florence Accessibility Lab FAL	
Heritage and Euro-Mediterranean Design Dar_Med	
International Group on Urban and Architecture Design INTEGRO_UAD	
Landscape, Cultural Heritage. Project PPcP	
Local and Indigenous Knowledge Systems and Innovation INN-LINK-S	
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ARCH

CHM Lab
documentation | development
management

Text describing the research project and methodology.



FEBRUARY 19-23, 2014



DIDA RESEARCH WEEK

Development project of the historic center of Pelago involving the landscape of history

Text describing the development project in Pelago.

Text describing the historic center of Pelago.



FEBRUARY 19-23, 2014



DIDA RESEARCH WEEK

Conservation/Maintenance plan of St. John the Baptist Church Campagna Forensi

Text describing the conservation plan for the church.

Text describing the church and its location.



FEBRUARY 19-23, 2014



DIDA RESEARCH WEEK

Survey and Conservation of the Campagna Forensi

Text describing the survey and conservation work.

Text describing the survey and conservation work.



DIDAlabs

Clusters and applied research

Giorgio Verdiani

DIDAlabs Coordinator

The DIDALABS system is one of the main innovation in the transformation from the former “Facoltà di Architettura” and the new “Dipartimento di Architettura”. Its strength stands not in imposed rules, but in the will of creating a solution and a practical renovation in the approach to research and teaching. In a very short range of time, starting from the 2013 with a system based on a small number of laboratories (about 8) the system quickly grew up reaching about 30 laboratories, linking new disciplines and areas, offering new services, connecting a larger number of researchers and students and creating the full possibility to reach results of excellence. The development of the system, done side by side since the beginning by professors/researches/students has produced a versatile support tool, fully oriented to multidisciplinary approach in problem solving.

The characteristics of a DIDALABS laboratory are quite simple: having a specific idea, being linked to a service or research proposal, having a well-defined space/room, being OPEN to students and other researchers/professors, presenting a vocation in hosting and promoting experiences. What it is not a DIDALABS laboratory is being a closed space reserved to single persons or small group activities or being limited by a lack in interdisciplinary interest. From the student in need to learn a tool to an entire research unit, the parts of the DIDALABS system are available to promote and support the possibility to reach a step forward in the reached result. Each laboratory in this system has a scientific director and the whole system has a coordinator, many laboratories have specific technical operators, the all of them are expert in the subject area of each laboratory, so anyone interested in exploiting the opportunity created by the DIDALABS system have more than one reference figure helping to find the proper links between each proposal/need and the system. Each laboratory started from a research or from the idea about offering a service, in this sense the difference between a “service laboratory” like a Modelling Lab (LMA/LMD) or the Informatic Lab (LIA) or the Photographic Lab (LFA) and a “research lab” like the Heritage City Lab or the Sustainability and Design Lab are quite evident, the first kind offers directly services with affordable costs and the possibility of experience practical technologies for all the students/researches, the second kind offers the possibility to enter and collaborate in a specific research field, developing researches, thesis, Ph.D., internships side by side with the activities of the labs. For a DIDALABS laboratory any request should be a challenge to answer with proper solutions, bringing on the subjects at the base of the laboratory itself. In this logic it is possible to foresee “connected” laboratories (“Laboratorio Congiunto” according to the common definition), with specific collaborations with external units/agencies, thus the presence of a “connected laboratory”, created following a research on contract with an external operator, does not necessarily mean that there is the creation of a DIDALABS laboratory.

The function of a laboratory in the DIDALABS system is to offer the chance to access solutions, technologies, competencies while learning how to integrate each course or research experience with the specific function of the laboratory. Just to make a simple sample: the LMA (Architecture Modelling Laboratory) offers the opportunity to 3D print or cut CAD models, thus this possibility is not limited to a mere “service”, the users of the lab may ask for assistance, have indication, follow and work directly on the preparation/development of their projects, in case of research proposals, the lab can give consultancy about technologies and procedures to allow more efficient results.

In this way the reason at the base of the DIDALABS is offering technologies with a proper competences support, helping the users to benefit from advanced solutions. The high cost of commercial services is compensated by the DIDALABS system effort in limiting from one side the “hidden” cost of learning, allowing the access to basic service like printing, photographing, 3D printing, surveying, scanning, using tools for diagnostics, etc... at very affordable conditions. The whole thing done not accessing to low level solutions, but most of the time to middle range to high range tools and solutions, always supported by appropriate technical operators. The presence



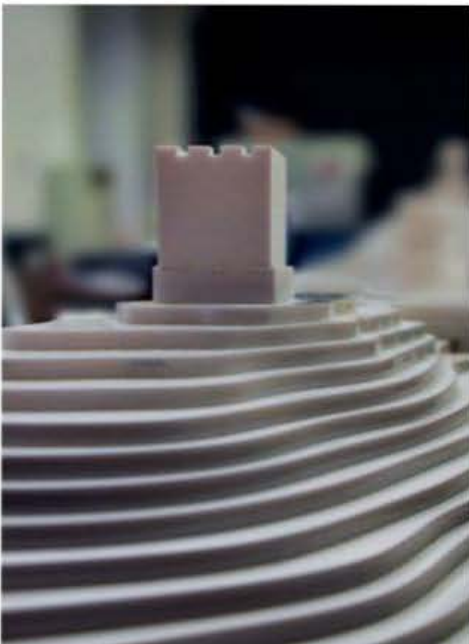
Samples of production of the LIA print center, exhibition panels in Florence.

of specific technical operators, well prepared and always ready to correctly hear the requests from students and researchers/professors, is one of the core of the DIDALABS system, the presence of a range of well skilled professional, well prepared, devoted to their subjects, kind and resolute when needed operators makes the real strength of the system.

The results reached by the DIDALABS system is the introduction of a well working service, parallel to all the learning and research needs of the DIDA. The possibility of accessing to solutions and technologies has expanded the opportunities to all the courses, the technical operators and/or the scientific directors of the labs can meet the students in classes or in the occasion of workshops or can simply be the student to enter the labs and ask for which options are offered to his/her. And the options are numerous and most of the time advanced. Each professor has only to invent or define the solutions about how implement the functions of the DIDALABS in the next course. A talk with the scientific director, with the coordinator or with the technical operators may resolve the last doubts and the course may benefit from a new and interesting integration. In The presence of competencies open to implement a research has simplified the preparation of complex research activities: any scholar can start from a complete set of tools, fully available to the need of the research. A condition capable to move the starting point from the origin to the state of the art, an important step forward in the development of new studies and experience.

Recently, the DIDALABS system has started to be directly part of research on commission and research project, creating excellent opportunity in promoting projects and offering the tools and the competencies for making advanced investigations, survey, documentations, designs, giving proper and strategic contributions. The activity in Florence, all around Italy and often abroad, has consolidated the team of operators and disseminated the image of a well working structure, which is not based on the way it appears but on a concrete knowledge and structure. The great potentiality of the system has been showed in the DIDA Research Week in itself: all the materials, contents, graphics, are products of the vital activities of our Department, produced using the machines and supported by the people of the DIDALABS system.

Soon, the evolution of the DIDALABS system will see the completion of the ongoing reorganization in several "clusters", grouping the laboratories according to their specific service and/or vocation/subject area, with a dedicated figure coordinating each cluster and referring to the general coordinator. In This way, the large number of labs will be easier to manage, allowing more efficient common choices and improving more and more the sys-



Top

Samples of production of the LIA print centre, exhibition panels in Pavia.

Samples of collaborations in research on commission: the team from the Architecture Photographic Laboratory (LFA) documenting the area of the Florentine Cathedral from a crane.

Below

The maquette of the Montecastrese fortress for the Camaiore Archaeological Museum, made by LMA.

tem of interrelationships and sharing of resources between laboratories. The logic at the base of the DIDALABS system: "offering technologies trough competencies" should definitively go beyond the condition, quite common before the introduction of the DIDALABS of the "find solutions, do/learn it yourself", helping the reach of better and more successful results to all the users/participants in the system of laboratories, while stimulating, with new requests, the development of the laboratories themselves. The success of some laboratories, highly request and continuously full of students getting benefit from the specific offer is not the final point of the system, the continuous reinvesting of the gathered resources in promoting new laboratories, little by little is increasing the quality of the system and enhancing the global offer. A process continuously ongoing and capable, if properly supported in the future, to push forward the quality of the teaching and researching of the Department and contributing in a significant measure to the quality of the whole University.



DIDAlabs

DIDALABS is the system of laboratories of the Architecture Department in Florence (DIDA), their mission is the scientific and technical support to teaching, research and knowledge transfer from DIDA in the field of Architecture, Industrial Design, Spatial and Landscape Planning.

1. Architecture & Project

Technologies for the Mediterranean Area Laboratory | TAM Lab

LABIMED Test Cell

An outdoor laboratory to assess energy performances of innovative building components

2. Architectural Heritage Conservation and Valorization

Architectural Heritage Restoration and Conservation | LARC

The restoration of the "Ancient Duomo of Pisa"
Evaluation and monitoring of conservation techniques

Villa Garzoni, its garden and the historic hamlet
Diagnostic investigation for their preservation and restoration

Cultural Heritage Management Laboratory | CHM_LaB

Conservation/Maintenance plan of St. John the Baptist Church
Campi Bisenzio (Florence)

Survey and design of the Plaza de la Constitución of Yátova
Inhabiting the landscape of history

Development project of the historic centre of Pelago
Inhabiting the landscape of history

Heritage City Laboratory | Heritage City_Lab

Documentation of the historical commercial activities of Florence

Heritage Impact Assessment

The buffer zone of the «Historic Centre of Florence»
UNESCO World Heritage Site

FLORENCE Heritage Data

HECO project

Open Data architecture for the old Town

3. Design and Sustainable Innovation

Communication Laboratory | didacommunicationlab

DIDApres

Graphic project of the editorial identity of the Department of Architecture, University of Florence

Wayfinding System

Università degli Studi di Firenze

Wayfinding System

Botanical garden, Natural History Museum

Ergonomics & Design Laboratory | LED

The Intermodal Bike

Multi-modal Integration of cycling mobility through product and process innovations in bicycle design | Project - Wp Ergonomics

Ecology and Ergonomics in the Kitchen

Technological and usage innovation of the kitchen environment

TRIACA

Technology solutions to reduce environmental impact of the camper in the usage phase

Workstation Brunello Cucinelli factory

Ergonomics evaluation and first design phase of the workstations

Smart Running (I Edition)

Definition of scenarios and concepts for products and systems related to indoor and outdoor running

Smart Running (II Edition)

Defining scenarios and concepts of products and systems for the outdoor workout experiences

Modelling Laboratory for Design | LMD lab

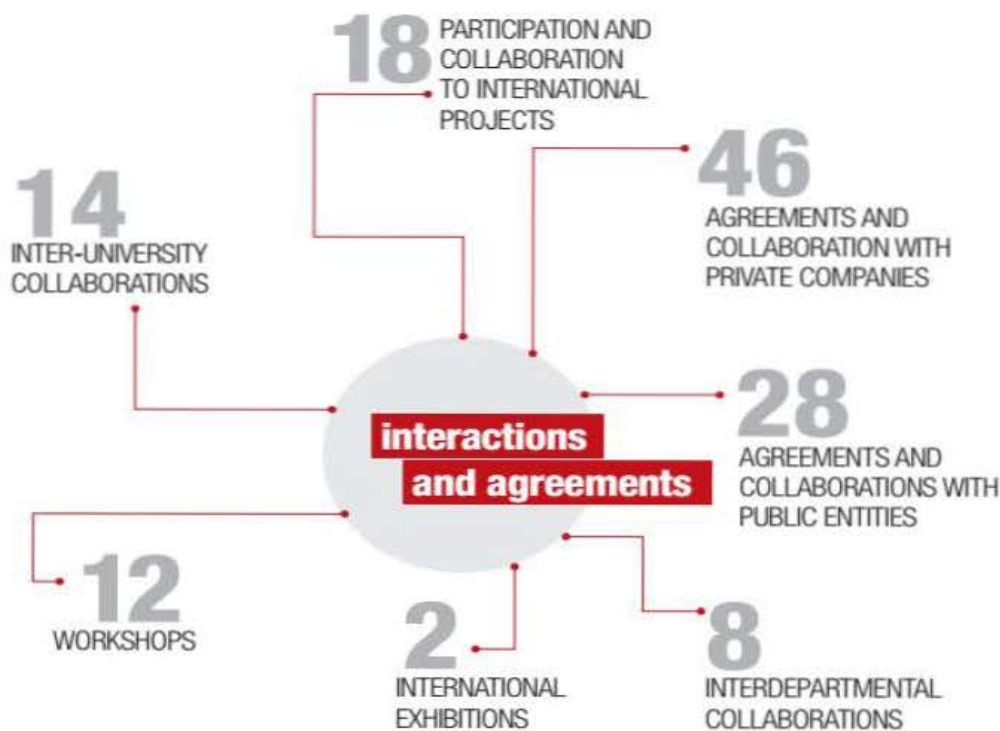
FYLED project

New light in Ponte Vecchio

LUA-LESS project

LIGHTING EVOLUTION project

The light that shows itself



Multimedia Architecture Interaction Laboratory | mailab

High | Bombastic adaptive skin conceptual prototype
 Exploratory research
 (AID) Auxiliary Interface Design
 Role of Evolutionary Computational Design in Energy saving and Architecture gains exploratory research

Reverse Engineering Interaction design | Rei Lab

ADA
 Art Digital Archive
 MDA
 Manufacturing Digital Archive
 Wearable
 Technologies for fashion

Sustainable Design Laboratory | sustainabilitylab

DAPHNE Project
 ERASMUS+ Project
 ODa-M Project
 HIGH CHEST Project
 New design for energetical and environmental high-efficiency chest-freezers

4. Information Communication Technologies

Cartography Laboratory | LCart

FIRENZE 1817 | 2017
 Project
 The New Regional Scale
 Topographic Map of Tuscany

5. Territories, Ecosystems and Landscapes

Critical Planning & Design

PRIN Post-Metropolitan territories
 roots | theories
 Beyond borders: The future of metropolitan territories
 practices

Laboratory of Ecological Design of Settlements | LaPEI

The metropolitan city of Florence
 A polycentric urban system of bioregions self-sustaining and resilient
 A Geographical Information System on local heritage of Apuan Alps
 BIORÉGION Project
 Aquitaine
 Farming with the Arno River
 Perfluvial agricultural park

Plans and Projects for the City and the Territory | PPCT

Follonica Periurban Forests
 Brownfields Survey
 of the Metropolitan City of Florence
 HOPE
 Home of People and Equality plan of urban innovation
 VR perceptual evaluation

Regional Design Lab

Urban Design beyond the local
 Urban Regeneration in Port Areas
 Arcimed | Mediterranean Arcipelago ; Strategic Asset | Port of Livorno
 Strategic planning for Metropolitan Cities
 Strategic Plan 2030 | Metropolitan City of Florence
 Metropolitan Renaissance ; Monitoring of PSM 2030
 Planning across local boundaries
 MAKING THE REGION VISIBLE | RIVER CONTRACTS
 River Contracts of Calore; River Contracts of Ombrone



Informatic Laboratory of Architecture

informaticlab - LiA

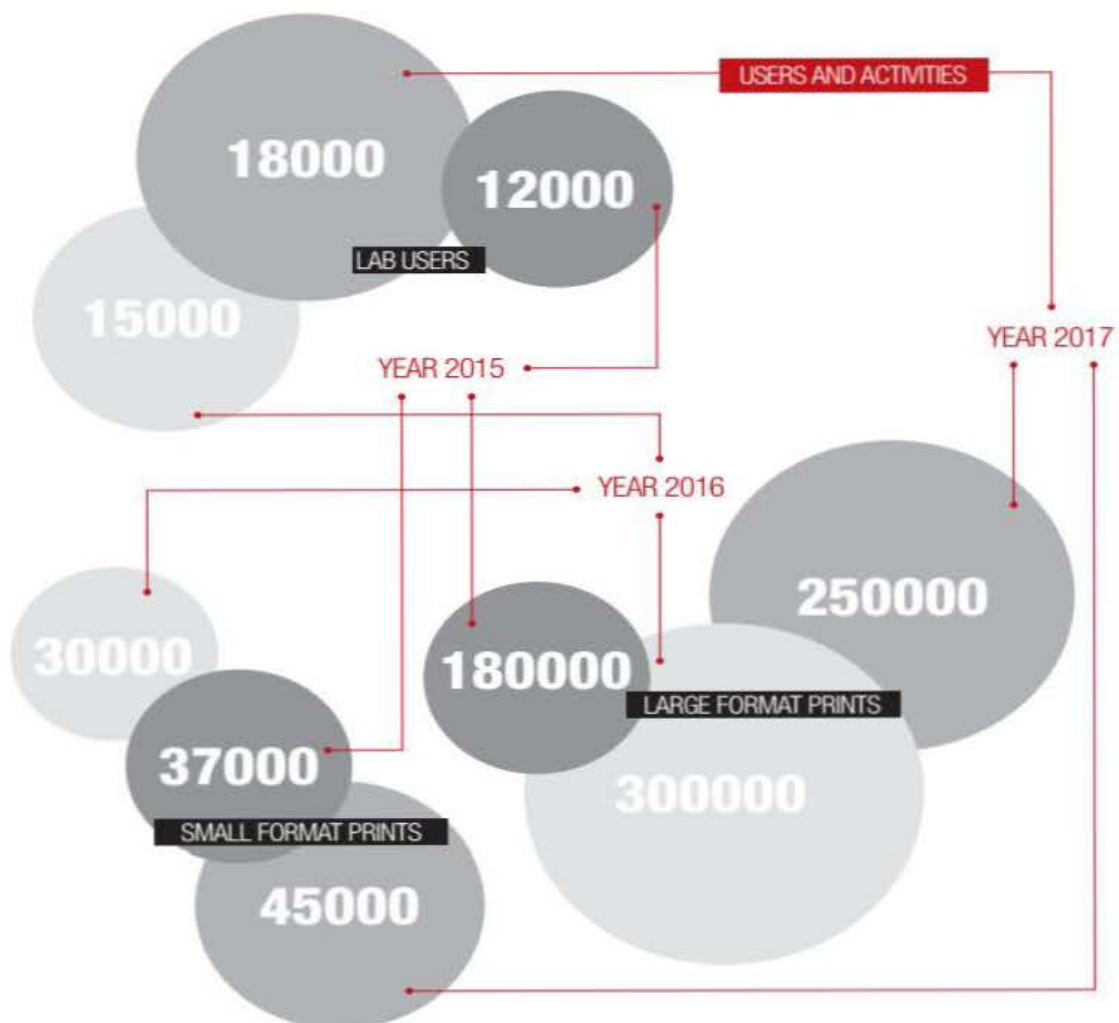
inkjet printing - laserjet
software tuition | dataprocess

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Didainformaticlab - LiA is a scientific and technical support for teaching, looking for the Department of Architecture DIDA. The laboratory offers users an articulated system of IT services for architecture, design and graphics, including a well-equipped printing centre for the production of graphic works. Technical support is provided by specialized personnel with full skills in the field of architecture and representation, aimed at training and making all users operational and independent. The LIA activates and promotes training courses for specific softwares for Graphics, Architecture and multimedia applications. The laboratory hardware is used for editing, printing and as a calculation system for rendering processes aimed at images and animations. Some stations are integrated for virtual reality like Oculus Rift, Leap Motion and Google Cardboard. All the computers in the laboratory are equipped with the most common CAD and graphic rendering softwares. These include: Adobe, Microsoft and Autodesk suites; Maxon Cinema 4D, McNeel Rhinoceros 3d and Agisoft Photoscan.







Photography Laboratory

LfA

photo | photogrammetry

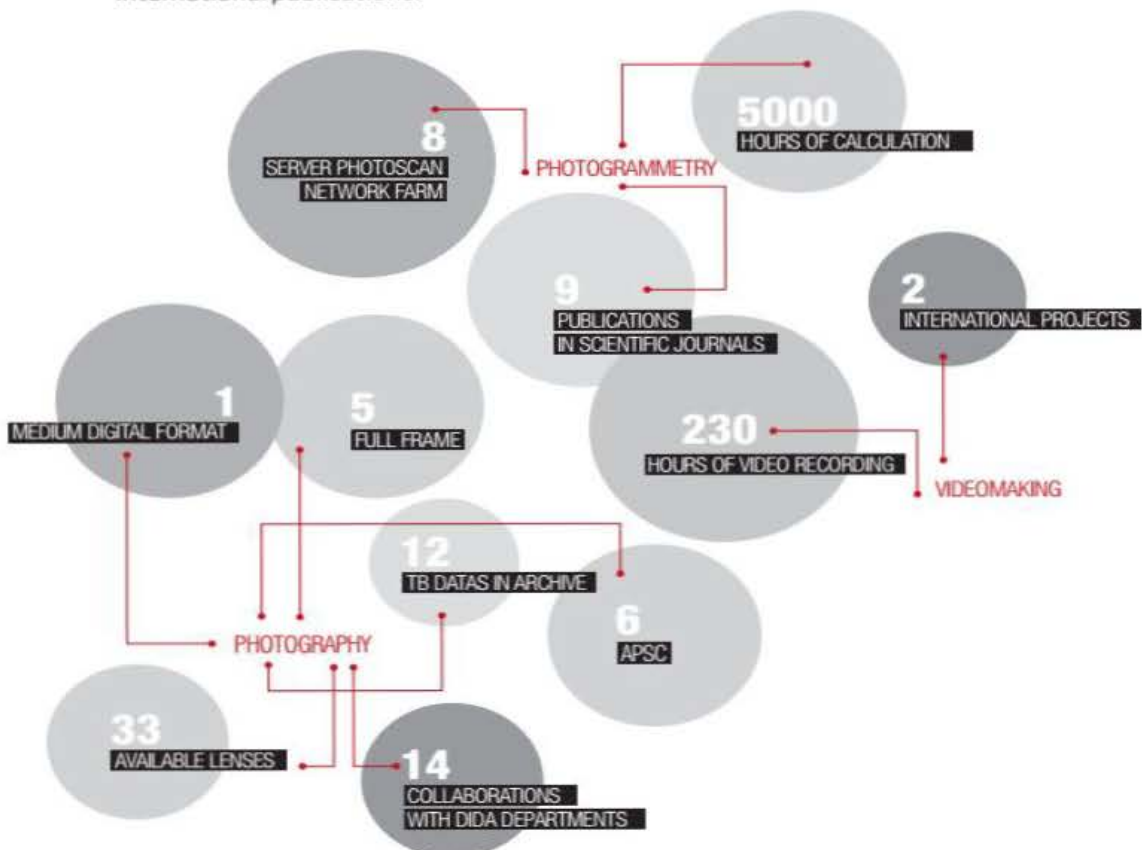
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Dida photography lab is characterized as a place of research and development in the photographic and photogrammetric field as well as representing a scientific and technical support to the teaching of the Department of Architecture DIDA and the University. In addition to the classical photographic shooting activity for Architecture, the photographic laboratory carries out photogrammetric surveying activities for the DIDA, the University and the affiliated institutions, implementing, at the same time, the development of techniques and methods of surveying in order to improve the usability and quality of the data produced. By way of example, the photogrammetric survey of the Cathedral of S. Maria del Fiore in Florence in collaboration with the Opera Del Duomo, the photographic survey of the Museo di S. Marco and the works contained therein as well as the relief photogrammetric of the marble floor of the baptistery of S. Giovanni in Florence. The laboratory is also open to use by students who can use professional equipment for all needs related to the course of study. It is equipped with an equipped room, a darkroom and aims to educate the user to a personal development of new image poetics, whether static, dynamic, digital or analogical through the development of projects able to tell the Architecture. Work that has been realized in the production of the video-documentary "La Cattedrale di Luce. The poetics of the structure, the structure as poetic". Created by LfA for the Municipality of Pescia as part of the activities related to the figure of Roberto Savioli and the flower markets of Pescia. Laboratory activities are often the subject of national and international publications.





Heritage and design

Historic building renovation,
architecture and interior design

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Giuseppe De Leo
Yoichi Sakasegawa

Collaborators

Nicola Tenerani
Salvatore Zocco

3D Digital Survey

Giorgio Verdiani

Survey Collaborators

Martina Carrara
Stefano Lami

"The architecture of the past and that of the present are not opposed to one another but on a par, resembling each other in the fundamental conditions through which they have been produced". With these words Ignaci de Solà Morales introduces the architectural work of Giorgio Grassi, focusing on projects which pursue a clear continuity with historical buildings or locations. Not just restorations neither just new designs, those works by Grassi represents the peculiarities of our Italian architectural culture at its best. Likewise we consider the relationship between our cultural heritage, architecture design and restoration projects as integral components of architectural practice, in which interest in the cultural, site-specific and material aspects is central. This research has been conducted over the specific case study of the expansion of the Civic Archaeological Museum of Camaiore. Enlarged with a new underground level, the Archaeological Museum interiors have been totally redesigned integrating new contemporary materials and forms into the preserved features of the 16th century fully restored palazzo. As a further step a 15.000€ worth research agreement has been set up between the city of Camaiore and our Department in order to start the digital survey of the ruined castle of Montecastrese and the production of a series of touchable models for blind visitors based on such digital data then included in the museum display.





Arezzo, Colle del Pionta

Survey and digital restitution

Scientific Coordinator
Giorgio Verdiani

Partnership
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Academo "Roberta
Pellegrini", Arezzo
Mauro Mariottini

Research Group
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Francesco Tioli
Andrea Pasquali
Angela Mancuso
Mirco Pucci
Iacopo Giannini
Giulia Chiti
Anna Frascari
Carlo Gira

The Pionta Hillock, near the actual train station and the San Donato Hospital in Arezzo, was once the place of a small fortified citadel, destroyed in the sixteenth century and literally razed to the ground to the point of making any trace disappear. In the twentieth century the archaeological excavations have begun to bring to light the remains of some buildings, making manifest the presence of important remains, the 'iconographic apparatus that has documented through time this place, even if valuable, is often contradictory and unclear. Starting from 2014, following a research agreement between the Department of Architecture of the Florence University and the Cultural Association Academo, Arezzo, an articulated activity of survey, documentation and digital reconstruction of this place began. A process that allowed to begin rethinking the value of these place and the communication and valorisation formulas to transmit the historical and artistic value of this citadel reduced to rubble.

