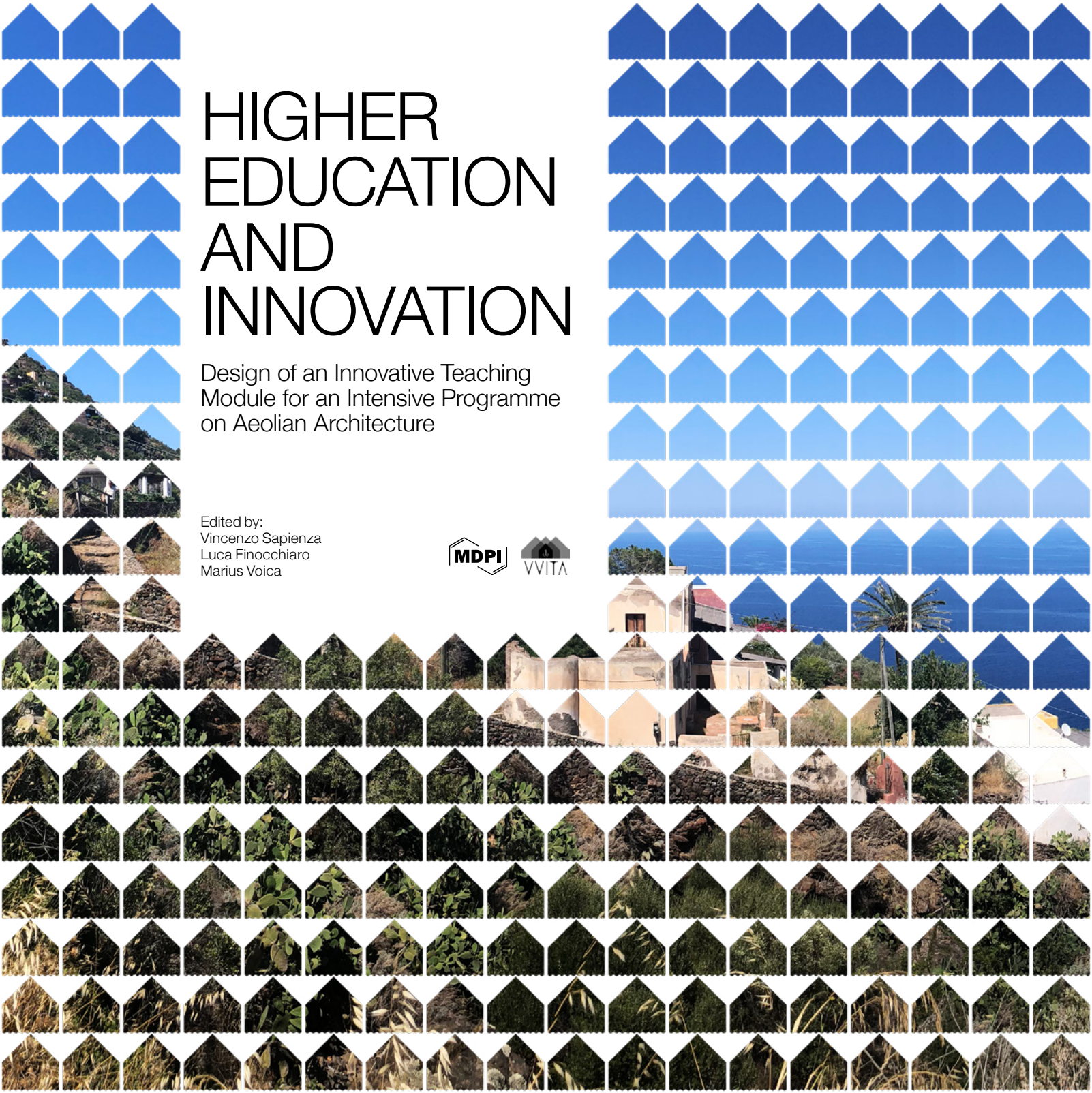

HIGHER EDUCATION AND INNOVATION

Design of an Innovative Teaching Module for an Intensive Programme on Aeolian Architecture

Edited by:
Vincenzo Sapienza
Luca Finocchiaro
Marius Voica

MDPI
VVITA

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Layout by Sebastiano Greco

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CONTENTS

INTRODUCTION

The present book shows the first results of the project VVITA.
VVITA is the acronym of "Modernizing Learning and Teaching for Architecture through Smart and Long-lasting Partnerships leading to sustainable and inclusive development strategies to Vitalize heritage Villages through Innovative Technologies". It is inserted in the Erasmus+ program, measure K2 Strategic Partnership for Higher Education. It involves professors and students of the Ion Mincu University of Architecture and Urbanism of Bucharest (UAUIM), which is the leader, the University of Catania (UNICT), and the Norwegian University of Science and Technology of Trondheim (NTNU).
The core of the project consists of three Intensive Periods (IP), each of them hosted in one of the country partners of the project. IP is a tool adopted in the Erasmus+ Program to encourage transnational teaching and learning of special subjects, through short courses in which involved are students and professors of universities of foreign countries, grouped in a Strategic Partnership.
The IPs of VVITA are addressed to develop innovative methodologies in the teaching of refurbishing and revitalizing local, vernacular architecture. Such courses are called Innovative Teaching Modules (ITM). For Norway, an ITM was in last June 2018 and it was located in Lofoten, an archipelago off the Scandinavian Atlantic coast, 70 ° N. For Italy, an ITM was in last September 2018 and it was in the Aeolian Islands, 32 miles off the Sicilian northern coast. An ITM in Romania was programmed for May 2019, in the Danube Delta, off the coast of the Black Sea. These places are very interesting; their peculiarity is the strong relation between architecture and coastal landscape. Unfortunately, they show wide marginal areas that are unexploited. Therefore, the project is addressed to the revitalization process of them, through architecture.
The ITM is composed by different modes: lectures, practice, and workshop. Each mode is connected with the others to form a system. In order to achieve this synergy, it is very important to have a careful design of the teaching module. In the contemporary view of this subject, binomial teaching-learning is considered indivisible, as well as the partnership between teachers and learners. The learning outcomes are strictly related to this relation, which is also the target of the teaching design.
The design of an ITM is the target of VVITA that is assigned to UNICT. In particular, this book deals with the generic design of an ITM and its contextualization in the module of the Aeolian Islands, called the Aeolian Teaching Module (ATM).
This book is composed of three parts.
The first one begins with a theoretical introduction on the didactic design, addressed to show how it is possible to strength the partnership between teachers and learners. After, it describes the characteristics of the VVITA project, the generic ITM, and a SWOT analysis of the ITM design.

Part II contains the design of the ATM; it speaks about the features of the location and describes the activities carried out there. Part III is divided in two sub-parts. The first one consists of the contributions of the staff involved in the ATM. In particular, it is formed by a corpus of propaedeutic lectures (on the particularity of the place, on the calculation of the comfort conditions, on the evaluation of the local building, and on the use of the GIS technology). The second half is formed by the final reports of the student groups, a contribution from each one of them. After a GIS analysis of the assigned area, they show the revitalization of the building chosen as the case study.

Simona Calvagna

AEOLIAN INTENSIVE PERIOD

LEARNING OUTCOMES

As already mentioned, the Italian teaching module of the VVITA project is called the ATM; it is focused on topics that can be useful to deeply understand the wisdom of the vernacular architecture of the Aeolian Islands and to define principles and strategies to reactivate it in order to revitalize the local built heritage.

At the basis of this, there is the knowledge of the characteristics of traditional Mediterranean architecture, from a typological, historical-cultural, and technical-constructive point of view. Particular attention is paid to the *anchoring* of the building artefacts to the context and to the consequent formal, functional, and constructive relationships between Aeolian architecture and the environment. Belonging to the forms and cultures of Mediterranean life is considered the starting point for the identification of features, parameters, and typologies to be taken into consideration in the interventions of refurbishment of the existing built heritage and in the construction of new facilities.

The architectural characterization goes beyond the knowledge of the historical-cultural, landscape, and technical constructive issues, going as far as a thermophysical and mechanical modelling of the built heritage. For this purpose, the ATM is structured to transfer notions and knowledge related to the basics of thermodynamics and heat transmission, as well as to the thermophysical properties of traditional building materials in the Mediterranean environment and more generally, to the energy behavior of historical buildings. Knowledge of the climate data of the Aeolian Islands is also foreseen, in order to build a dynamic characterization of the thermophysical behavior of the analyzed buildings.

Likewise, in order to be able to carry out a mechanical modelling of the buildings which are the object of analysis, the knowledge provided by the ATM concerns the structural behavior of the historical buildings in the seismic area, with particular attention to seismic actions and to the relationships between the geometry and seismic response of the structures.

With the aim of creating an innovative tool (geodatabase) for the management of the built heritage quality, able to integrate the acquired multidisciplinary data with their geographical location, the ATM also provides basics of topography and informatics, in particular with regard to data automatic structuring, data storage and management systems, and georeferencing systems.

The skills developed during the ATM activities concern above all the use of Rapid Evaluation Methods (REM) [24] in order to achieve a rapid evaluation of the architectural, thermophysical, and mechanical quality of the analyzed buildings. With the help of thematic checklists, drawn based on models such as the ITACA Protocol [25] or the Leadership in Energy and Environmental Design (LEED) method [26], it was possible to establish the features and parameters to be analyzed, in order to compare the different case studies and set, for

each of them, quality levels with respect to a fixed grid.
The fieldwork relies on Geographic Information System (GIS) technology [27], implementing the information collected in the field within a georeferenced data system.
Therefore, the skills that the students can develop are the following:

- use and management of thematic maps at different scales;

- construction, in a guided way, of a georeferenced data system (geodatabase);

- data-entry and data-editing in a novel geodatabase (association of geometry, topography and data);

- measurements of internal thermo-hygrometric comfort and ventilation, calculation of transmittance and attenuation;

- leading a refurbishment design process – with the possibility of introducing new small facilities – in which architectural, energy balance and anti-seismic issues are integrated.

The main characteristic of vernacular architecture is to *be contextual*. This takes place in the construction and arises out of what is permanent rather than from a given event [28]. Starting from this statement, the students can have an immersive experience, applying the acquired knowledge

and skills on the Aeolian environment. More specifically, they can develop the competences of:

- work in a multidisciplinary and multicultural team;

- manage a novel software tool, based on GIS technology;

- make a multidisciplinary assessment of the quality of Aeolian vernacular architecture;

- make a synthesis of the three themes analyzed (architecture, energy balance and seismic restraint) in an integrated design process;

- experiment with a site-specific design process.

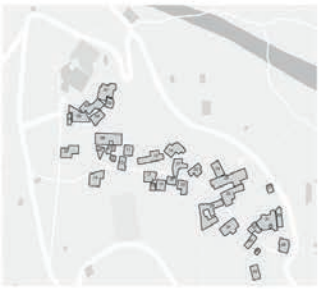
The educational approach of the ATM is based on multidisciplinarity. Many topics are involved both in the data-entry/editing activities of the novel geodatabase and in the design simulation activities.
History, History of Architecture, and History of Construction are important to understand the Aeolian vernacular architecture in the wider perspective of the Mediterranean historical buildings.
Landscape Analysis and Design are useful to see the relationships between architecture, people, and places.
Building Technology and Building Science provide the tools to understand and improve the material quality of the buildings, paying attention to construction processes.
Technical Physics is involved in the activities related to the energy balance assessment. Topography is concerned with the activities of managing the thematic maps and of realizing the novel geodatabase.
In addition to this knowledge, participants have to show interest in new places and new challenges. In fact, the relationship with the location is the best strength of the ITM and therefore, it is very important to take advantage of the full immersion in it. On the other hand, the participants are called to work in very particular conditions, sometimes difficult to access and manage.

Main learning outcomes of the AMT		
knowledge	skills	competences
characters of traditional Mediterranean architecture	use of REM	ability to synthesize
	use of thematic maps	working in a multicultural team
	construction of a geodatabase	managing a novel software tool
thermo-physical and mechanical modelling of the built heritage	data-entry and data-editing	assessment of the quality of Aeolian vernacular architecture
	measurements of thermo-physic parameters	integrated design process
data automatic structuring	refurbishment design process	site-specific design
data storage and management systems		
georeferencing systems		

[Checklist of the features of the Aeolian Houses]

STUDY AREA 1
[VAL DI CHIESA]

FRAMEWORK id 01



picture 1	picture 2	picture 3	picture 4

STUDY AREA 1
[VAL DI CHIESA]

GENERAL id 01

title	description
id*	01
id contrada	☒ Val di Chiesa ☐ Canale Nord ☐ Canale Sud ☐ Liscio ☐ Portella ☐ Pecorini Nord
short description	
age	☐ before 1900 ☐ 1900-1940 ☐ 1940-1980 ☐ 1980-2020
context	☐ city center ☐ suburb ☐ isolated
house unit	☐ independet ☐ flat
property	☐ private ☐ public
number of inhabitants	☐ 0-5 ☐ > 5
use	☐ continous ☐ occasionally ☐ abandoned

* if id matches more than one building unit, mark building id with a,b,c...

notes & sketches

STUDY AREA 1
[VAL DI CHIESA]

GEOMETRY id 01

title	value
number of floor	_____
internal height	_____ [m]
footprint surface	_____ [m²]
total net surface	_____ [m²]
length N	_____ [m]
length NE	_____ [m]
length NW	_____ [m]
length S	_____ [m]
length SE	_____ [m]
length SW	_____ [m]
length E	_____ [m]
length W	_____ [m]
gross volume	_____ [m³]

notes & sketches

STUDY AREA 1
[VAL DI CHIESA]

DOCET INPUT id 01

title	value/description
wall description	_____
roof description	_____
ground floor description	_____
other descriptions	_____
wall thickness	_____ [m]
roof thickness	_____ [m]
ground floor thickness	_____ [m]
other thicknesses	_____ [m]
glass windows	☐ single ☐ double ☐ double-glazed
glass windows U	_____ [W/(m²K)]
frame windows	☐ aluminium ☐ pvc ☐ wood
frame windows U	_____ [W/(m²K)]
cooling system description	_____
heating system description	_____
heating terminal units description	_____
control system description	_____
not conditioned ambient ground floor	_____
not conditioned ambient ceiling	_____
not conditioned ambient attic	_____
not conditioned ambient room	_____

STUDY AREA 1
[VAL DI CHIESA]

BUILDING id 01

title	value	description (score)
cellar aggregation	/	☐ cluster +2.0 ☐ row +2.0 ☐ isolated +1.0
relation with the slope	/	☐ aligned +2.0 ☐ transversal -2.0
facade color	/	☐ white +3.0 ☐ other traditional color +1.0 ☐ not traditional color -2.0
door jambs and lintel	/	☐ traditional color +2.0 ☐ not traditional color -2.0
volume addiction	_____ [m³]	☐ less than 10 % +1.0 ☐ less than 40 % -2.0 ☐ more than 40 % -4.0
puleri	/	☐ in use +4.0 ☐ not in use +2.0
bagghio	/	☐ yes +4.0 ☐ no 0.0
rainwater collection systems	/	☐ cistern underground +3.0 ☐ in use +1.0 ☐ not in use -1.0
green essences	/	☐ traditional +3.0 ☐ not traditional +2.0
perimeter walls	/	☐ in stone +3.0 ☐ plastered +2.0 ☐ in concrete -2.0
enclosure	/	☐ green +3.0 ☐ in wood +2.0 ☐ other 0.0
not congruent pavements	/	☐ yes -2.0 ☐ no 0.0
not congruent roofs	/	☐ yes -2.0 ☐ no 0.0
not congruent windows shape	/	☐ yes -2.0 ☐ no 0.0
not congruent windows frame	/	☐ yes -2.0 ☐ no 0.0
not congruent shutters	/	☐ yes -2.0 ☐ no 0.0
not congruent horizontal shading systems	/	☐ yes -2.0 ☐ no 0.0
not congruent pluvials	/	☐ yes -2.0 ☐ no 0.0
BUILDING SCORE	/	_____ /30

STUDY AREA 1
[VAL DI CHIESA]

STRUCTURE id 01

title	value	description (score)
construction features	/	☐ mixed +3.0 ☐ reinforced concrete +2.0 ☐ masonry wall +1.0
foundation	/	☐ horizontal +2.0 ☐ slope +1.0
type of soil	/	☐ rock +3.0 ☐ soft +1.0
layout organization	/	☐ cellular type +2.0 ☐ irregular type +1.0
plan regularity	/	☐ yes +1.0 ☐ no +3.0
height regularity	/	☐ yes +1.0 ☐ no +3.0
height of the first floor	_____ [m]	☐ > height of the 2nd floor 0.0 ☐ < height of the 2nd floor -1.0
height of the second floor	_____ [m]	☐ < height of the 1st floor 0.0 ☐ > height of the 1st floor -1.0
wall thickness at the first floor	_____ [m]	☐ > wall thickness at 2nd floor 0.0 ☐ < wall thickness at 2nd floor -1.0
wall thickness at the second floor	_____ [m]	☐ < wall thickness at 1st floor 0.0 ☐ > wall thickness at 1st floor +1.0
number of openings for each cell	_____	☐ ≤ 2 0.0 ☐ > 2 -1.0
presence of large arches	/	☐ yes +1.0 ☐ no +2.0
presence of damages or cracks	/	☐ yes +1.0 ☐ no +3.0
presence of walls on slope	/	☐ yes +1.0 ☐ no +2.0
staircase	/	☐ inside +1.0 ☐ outside +3.0
dimension of the largest cell	_____ [m²]	☐ ≤ 25 m² 0.0 ☐ > 25.1 m² +3.0
STRUCTURE SCORE		_____ /30

STUDY AREA 1
[VAL DI CHIESA]

ENERGY id 01

title	value	description (score)
shutter	/	☐ yes 0.0 ☐ no +1.0
overhanging horizontal distance from the windows	_____ [m]	☐ > 0.1 +1.5 ☐ ≤ 0.1 0.0
overhanging width	_____ [m]	☐ > 0.1 0.0 ☐ ≤ 0.1 -1.5
external shading horizontal distance from the windows	_____ [m]	☐ > 0.1 +1.5 ☐ ≤ 0.1 0.0
external shading height	_____ [m]	☐ > 0.1 0.0 ☐ ≤ 0.1 -1.5
cooling system	[_____]	☐ yes +2.0 ☐ no 0.0
heating system	[_____]	☐ yes +2.0 ☐ no 0.0
heating terminal units	[_____]	☐ yes 0.0 ☐ no -1.0
control system	[_____]	☐ yes 0.0 ☐ no -1.0
renewable energy sources	/	☐ photovoltaic panels +2.5 ☐ solar thermal +2.5 ☐ both +5.0 ☐ no 0.0
recycling of the water	/	☐ yes 0.0 ☐ no +1.0
S/V (surface/volume)	_____ [m⁻¹]	☐ ≤ 0.5 +2.0 ☐ 0.5< S/V ≤ 0.9 +1.5 ☐ > 0.9 0.0
U walls	___ [W/(m²K)]	☐ ≤ 1.0 +2.0 ☐ 1.0 < U ≤ 2.5 +1.0 ☐ > 2.5 0.0
U windows	___ [W/(m²K)]	☐ ≤ 3.0 +2.5 ☐ 3.0 < U ≤ 4.0 +0.5 ☐ > 4.0 0.0
U roof	___ [W/(m²K)]	☐ ≤ 1.0 +3.0 ☐ 1.0 < U ≤ 2.5 +0.5 ☐ > 2.5 0.0
orientation	/	☐ E-W 0.0 ☐ N-S +2.5 ☐ NE-SW (+1.5) +1.5
natural illumination	_____ [FDL]	☐ ≤ 2.0 0.0 ☐ 2.0 < FDL ≤ 4.0 +1.5 ☐ > 4.0 +3.0
natural ventilation	/	☐ cross +3.0 ☐ single +1.5 ☐ no 0.0
ENERGY SCORE	/	_____ /30

METHODOLOGY

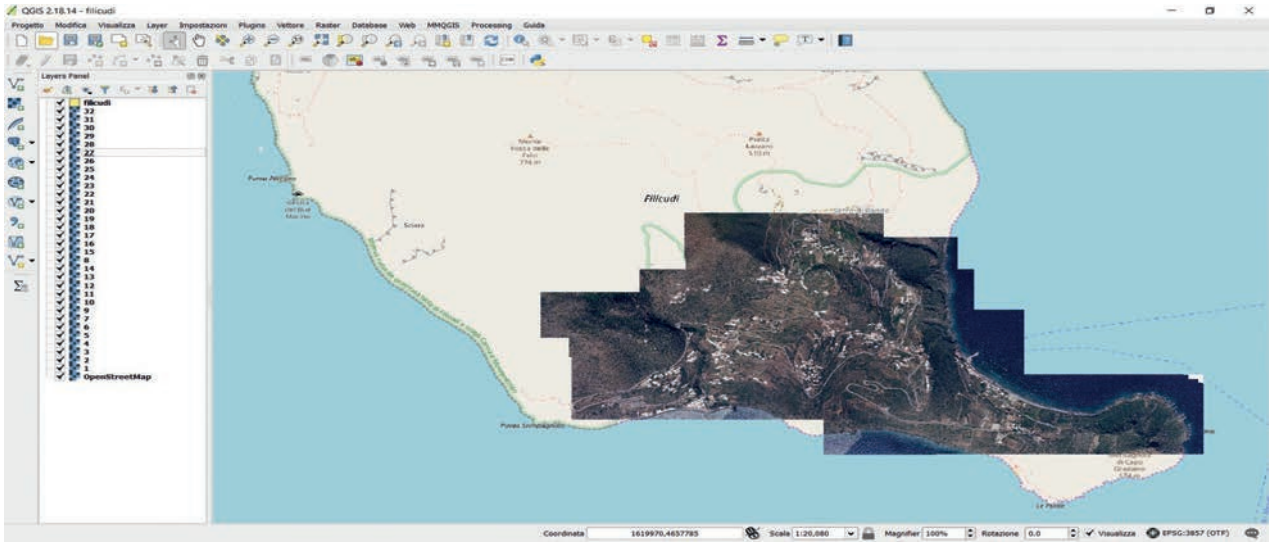
The ATM is composed of different moments with different teaching/learning activities, all connected among them.

- THEORY: The lectures form a corpus to support the development of the workshop. They are focused on the knowledge of the historical-cultural, landscape, and construction issues of Aeolian vernacular architecture. The courses are also oriented to provide the necessary technical tools and to facilitate the inclusion of all students in the new context of study. The lectures are mostly scheduled in the first two days, in Catania and Lipari.

- PRACTICE: The second activity is practice and is addressed to contextualize the knowledge of the Mediterranean and Aeolian area provided in the previous step, through concrete cases in which to quantitatively verify paradigms and parameters introduced. It consists of both solving concrete problems and of practical activities, such as guided tours, meeting with local experts, and film watching.
Practice is also connected with technological issues. For instance, as with the GIS tool, the students are asked to realize the platform in which they have to upload and manage the data about buildings. It is developed by the students within a guided activity, using an innovative open source GIS software tool.

- WORKSHOP: The third activity takes place in the field and consists of the workshop. In it, the students are called to carry out two tasks: field surveys and design simulations. The two tasks are directly connected: the analysis on the building heritage, carried out with the help of the REM, is implemented in the GIS software tool. Subsequently, a design exercise based on the elaborated assessment is carried out, with the aim of resolving the weakness and enhancing the potentials of the case studies.
Students are divided into heterogeneous work groups and to each of them is assigned a larger study area for analysis (task 1), which is smaller for the design simulation (task 2).

- TASK 1. IMMERSIVE DATA-ENTRY/EDITING ACTIVITY IN GIS ENVIRONMENT: The settlement in Filicudi consists of small scattered groups of buildings, mostly residential, located in the south-eastern side of the island. They are connected to each other by a dense network of mule tracks and a recently constructed driveway. The study areas assigned to each group are analyzed from different points of view (architectural, thermo-physical, mechanical) following these phases:
a) On-site surveys (visual analysis, empirical deductive evaluation, thermophysical measurements);
b) Systematization of information, through the use of known databases;
c) Data-entry/editing in the GIS environment;



GENERAL DATA | GRAPHICS | EXTRA DATA | BUILDING | STRUCTURE | ENERGY

DATA

BASIC

cellular aggregation	
relation with the slope	
architectural shape	
volume addiction	
perimeter walls	
green essences	
pulere	
bagghiu	

ADVANCED

pavements	
roof	
pulere shape	
horizontal shading	
facade color	
door jambs and lintel	
windows shape	
windows frame	
windows shutters	
pluvials	

SCORE

BASIC

cellular aggregation score	NULL
relation with the slope score	NULL
architectural shape score	NULL
volume addiction score	NULL
perimeter walls score	NULL
green essences score	NULL
pulere score	NULL
bagghiu score	NULL

ADVANCED

pavements score	NULL
roof score	NULL
pulere shape score	NULL
horizontal shading score	NULL
facade color score	NULL
door jambs and lintel score	NULL
windows shape score	NULL
windows frame score	NULL
windows shutters score	NULL
pluvials score	NULL

Didactic activities in ATM		
Theory	Practices	Workshop
Mediterranean living forms and cultures [V. Sapienza] [G. Giusso]		Task 1 Immersive data-entry/editing activity in GIS environment [staff]
	Visit to the Botanical Garden of Catania [G. Giusso]	
	Visit of the Lachea Island	
Thermophysical properties of traditional building materials in the Mediterranean environment [A. Gagliano]		
REM [R. Caponetto]		
Structural behavior of historical buildings in seismic area [I. Caliò]		
Basics of topography and GIS [M. Mangiameli]		
	Data automatic structuring, data storage and management systems and georeferencing systems [M. Manggiameli]	Task 2 Design simulation of local architecture revitalization [staff]
History of Aeolian Islands [R. Vilardo] [M. Martinelli]		
	Visit to the Lipari Museum	
	Visit to Filobraccio and Capo Graziano [V. Sapienza]	
Ancient terraces of Filicudi Island [A. Bonazza] [A. Sardella]		
	Visit to the Pumice-stone Quarries [E. Carnevale]	
	Visit to Zucco Grande	

d) Summary evaluation and attribution of a quality label to each analyzed building.
The use of checklists, prepared by the teaching staff, makes the data collection easy.
Through a REM methodology, the system provides three indexes for each one of the topics covered:

1) Typological/landscape/constructive aspects;

2) Energy behavior;

3) Mechanical behavior.

The sum of them forms a global index that measures the quality of the surveyed buildings.
The implemented virtual platform can be queried to give aggregated data. The sum of the results of all study areas allows the obtaining of information on a significant portion of the whole island.

- TASK 2. DESIGN SIMULATION OF LOCAL ARCHITECTURE REVITALISATION: The working groups have to deepen their reflections on an assigned building located within the study area, in order to reach a more precise assessment of the architectural quality that takes into account the different relevant issues. The architectural parameters to be evaluated concern the coherence of the construction elements with the traditional building models and landscape characteristics, with particular attention to:

- Relations between architecture and context;

- Materials used in the construction process;

- Water and waste systems;

- Natural ventilation;

- Daylighting.

Inputs of the Task 2		
Area of study	Destination of the revitalized buildings	
	winter	summer
Valdichiesa	typical products shop	
Canale Nord	municipal office	infopoint
Canale Sud	bike rental	electric bike station
Liscio	wellness center	medical center
Portella	university center	observation point
Pecorini nord	art center	art gallery

List of the Aeolian Teaching Module participants		
UNICT HOST PARTNER	NTNU	UAUIM
TEACHING STAFF		
Vincenzo Sapienza	Luca Finocchiaro	Marius Voica
Ivo Caliò	Chiara Bertolin	Mihaela Hărmănescu
Antonio Gagliano	Markus Schwai	Elena Cristina Mândrescu
Simona Calvagna		Marina Mihăilă
Gianluca Rodonò		Adrian Moleavin
STUDENTS		
Antonino Artino	Florian Betat	Ioana Capotă
Ivan Attardo	Ilya Pugachenko	Iulia Panait
Jessica Caruso	Marija Katrina Dambe	Alexandru-Marian Mărginean
Noemi D'Amico	Irhana Sehovic	Ana Maria Petrescu
Giulia Fiore	Jingjing Zhou	Diana Neagu
Sharon Gibilras	Alla Aniskova	Corina Șerban
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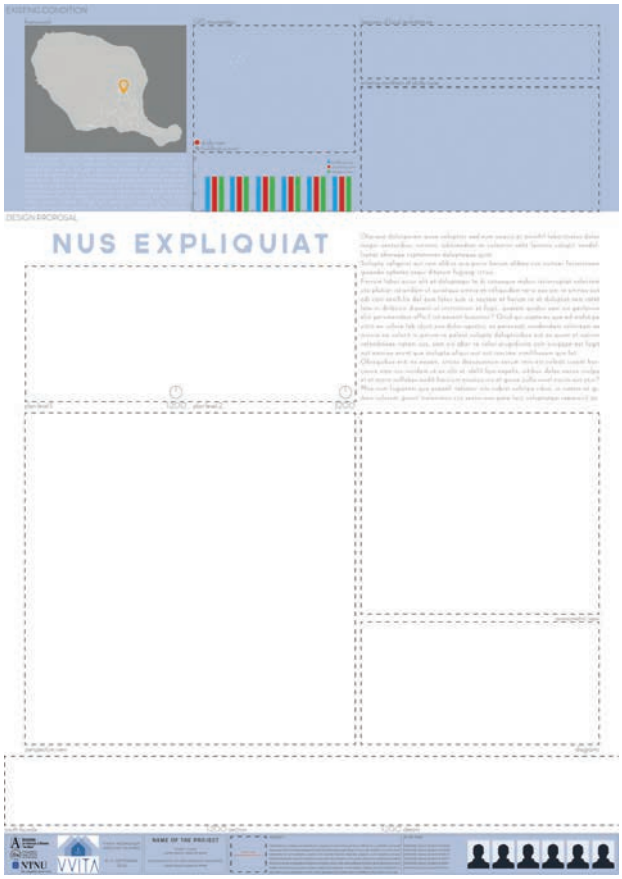
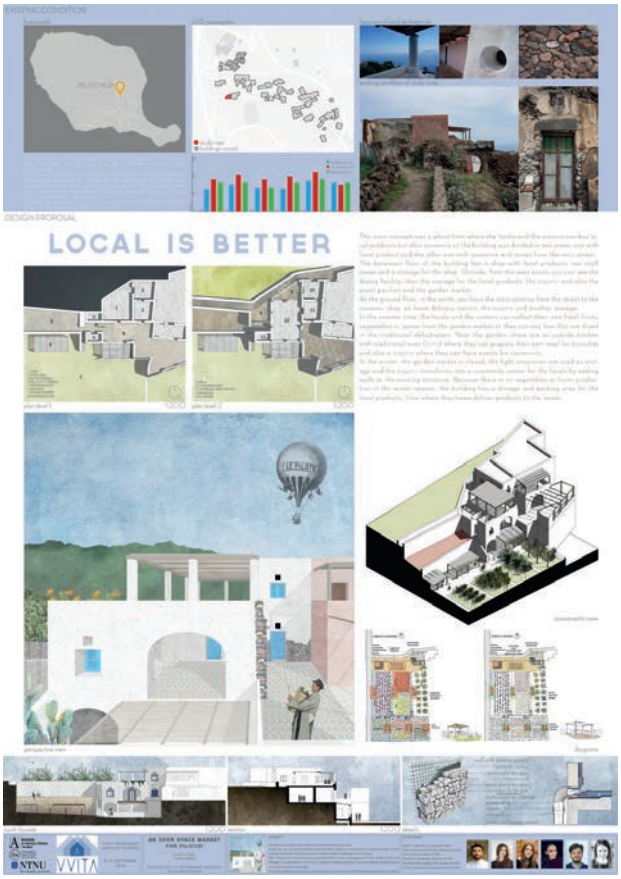
Angelo Monteleone		Andrei-Mihai Bosnyak
Anna Scandura		Adina Popa
Claudio Torre		Diana-Nicole Șerban
		Oana-Maria Anghel
		Ioana-Mihaela Iordache
		Diana Bădicu
		Theodora Bratu

From the point of view of energy balance, the evaluation of the building's thermophysical performance is deepened by introducing the collected data within an easy-to-use software [29], able to return a qualification of the studied buildings for a subsequent comparison between the different case studies. From a mechanical point of view, a visual analysis of the cracks, accompanied by a guided assessment of the structural features of the buildings, makes it possible to establish a quality label related to the response to the seismic action of each building.





The design simulation for the revitalization of the built heritage starts from this point. The design choices therefore derive from parametric assessments attentive to the sustainability and coherence of the interventions, to the peculiar characteristics of landscape and traditional architecture, and to the use of renewable energies. This applies both to refurbishment and to possible completion volumes.
The designs are addressed to ruined buildings which, unfortunately, are quite frequent in Filicudi. This fact leaves the students quite free and stimulates their creativity and invention.
The teaching staff provides the new destinations for each building. The projects have to foresee an elevated grade of flexibility, according with the difference in use in different seasons. In winter, the functions must be developed in the masonry cells. In summer, according with the increasing number of inhabitants, some additions, i.e., kinetic or removable structures, can be considered.
In the GIS platform it is also possible to simulate some refurbishment actions, in order to understand their impact on the building.

TIMING: The typical workday is organized according to the following timetable.
A.M.: Field surveys and excursions.
P.M.: Data processing and design and planning.
18.00: 5 minutes per group presentation of the work done during the day, in a few slides. This follows with a debate with the staff members to address the activities of the following days.
The evaluation of the outputs is carried out by the staff in three periods.
One or two days after the start of the workshop, an intermediate presentation is made, to check the outputs of task 1 and the concept of task 2.
The last day is reserved for the oral presentation of the work.
The students are also invited to present a final report and a poster within three months after the end of the ATM. The final report is included in the final book of VVITA. The posters are used to realize an exhibition of the works in the common spaces of the University of Catania.

[1] Val di Chiesa

[2] Canale Nord

[3] Canale Sud

[4] Liscio

[5] Portella

[6] Pecorini Nord

ACRONYMS

ATM	Aeolian Teaching Module
CAD	Computer Aided Design
DDS	Decision Support System
DEM	Digital Elevation Model
DICAR	Department Civil Engineering and Architecture
EQF	European Qualifications Framework
EPI	Energy Performance Index
FOSS	Free and Open Source Software
GIS	Geographic Information System
GPL	General Public License
GPS	Global Positioning System
IP	Intensive Period
ITM	Innovative Teaching Module
NTNU	Norwegian University of Science and Technology of Trondheim
QGIS	Quantum GIS Software
REM	Rapid Evaluation Method
SWOT ANALYSIS	Strengthen, Weakness, Opportunity, Treats Analysis
UAUIM	Ion Mincu University of Architecture and Urbanism of Bucharest
UNICT	University of Catania
VVITA	Modernizing Learning and Teaching for Architecture through Smart and Long-lasting Partnerships leading to sustainable and inclusive development strategies to Vitalize heritage Villages through Innova tive Technologies
WMS	Web Map Service

BIOGRAPHIES

VINCENZO SAPIENZA
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Vincenzo Sapienza was born in Catania (Italy, Sicily) fifty years ago. He started working in the University of Catania in 1997, as a researcher of Building Techniques and now, he is an Associate Professor and Vice Head of his department. He is also Scientific Director of the Enabling Techniques for Architecture Laboratory (ETA Lab). Every year, he has covered a Chair related to his disciplinary competences.
His scientific activity is essentially divided into three thematic areas: innovative building technologies; building sustainability; history of construction.
He has carried out a number of didactic and research periods in foreign universities and in particular, in NTNU of Trondheim University, in Norway (November 2016) and in UAUIM of Bucharest (March, 2017), and UTM of Madrid (February, 2018).
He is on the editorial board of the journal MODULO (by Be-Ma Editor, Milan). He was the curator of a special issue, 38/2016, of ilProgettoSostenibile Magazine. Since 2015, he has been Associated Editor of the journal TeMA – Studies on Architectural Engineering.

MARIUS VOICA
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Marius Voica received his Bachelor degree from "Ion Mincu Institute of Architecture" in Bucharest in 1996 – Faculty of Architecture and Urbanism. He finished his Master's degree in 1999, specializing in "Marketing in Architecture", and graduated from a post-university course in "Project Management".
In 2007, he received his PhD in Architecture with his thesis "Ecological Architecture: Tradition and Contemporary Technology. Sustainable Development and Ecological Management." He has been working in higher education in Architecture since 1998.
He was also manager of the "URBANPROIECT" branch within The National Institute of Research Development in Construction, Urbanism, and Sustainable Territorial Development URBAN – INCERC.
Currently, he works in architectural and construction management, and coordinates the "E.U. Research Funds Office" and the International Studio in "Architectural Synthesis" Department at the UAUIM.
He has attended scholarships, workshops, and teaching programs at universities in Karlsruhe, Regensburg, Montpellier, Stuttgart, Istanbul, and Vienna.
His activity in architecture, urbanism, and interior design has summed up to over 90 projects.

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After earning Master's degree in Building Engineering at the University of Catania (Italy), Luca Finocchiaro moved to Scotland where he earned a Master of Architecture at the Glasgow School of Art. He worked in Barcelona twice, first as a visiting researcher at the ETSAB in UPC (developing his PhD thesis in bioclimatic design of hospitals) and secondly, practicing architecture. Luca is today Associate Professor in "Climate and built forms" and head of the MSc program in Sustainable Architecture at NTNU. His main interest and research focus is the analysis and understanding of climate and its implementation into the architectural design of buildings able to passively address their environmental performance towards comfort. Climate and morphological parametric analyses have been, in different research projects, addressed in design guidelines for both the design of new buildings and the energy retrofitting of existing ones. In 2009, Luca was initiator of the NTNU proposal for the Solar Decathlon 2012 and later, architect of the LivingLAB and Test Cell projects at the Zero Emission Buildings research center at NTNU.

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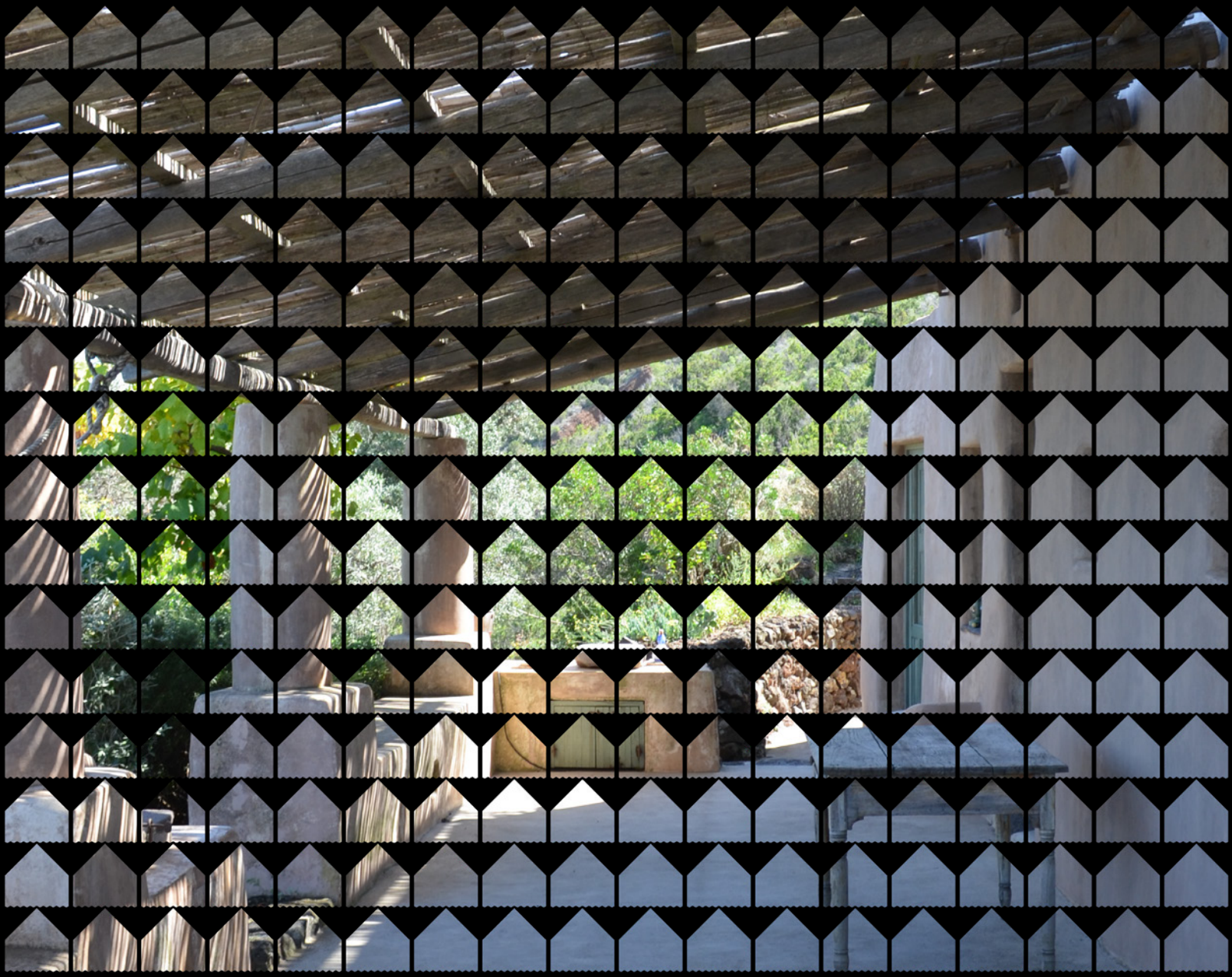

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