PORTFOLIO

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Mihai Ionut Vasilescu
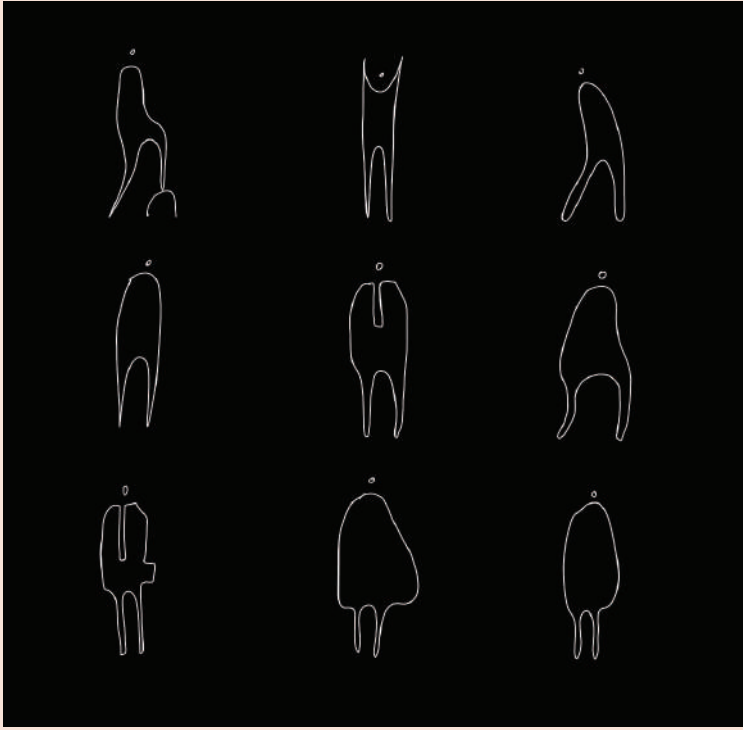
CONTENT

MORE DETAILS AND PROJECTS AT:

https://varchit.com/

In case of technical difficulties of the website portfolio page, a desktop browser is recommended.

FULL CV

QR codes redirect to more details about each project

Valley garden 3D printing

BRIEF:

The project is focused on a large scale in Valley Garden, Southampton. The proposal is a fictional multi-step advancement of 3D printing technology in the city that uses recycled waste to generate structure while rewarding the community.

PROPOSAL:

3D printers are versatile pieces of technology, shaping almost any type of material with no need for personnel. The idea focuses on the community giving away their plastic waste in return for 3D printed items based on the quantity of material they brought in. The rubbish will be processed into recycled filament, giving it a new purpose in the future. The concept revolves around expansion, from small items printed at pop-ups to new types of recycled materials used for building construction. This fictional proposal focuses on ways to reduce waste from a realistic point of view to utopian/dystopian urban strategies.
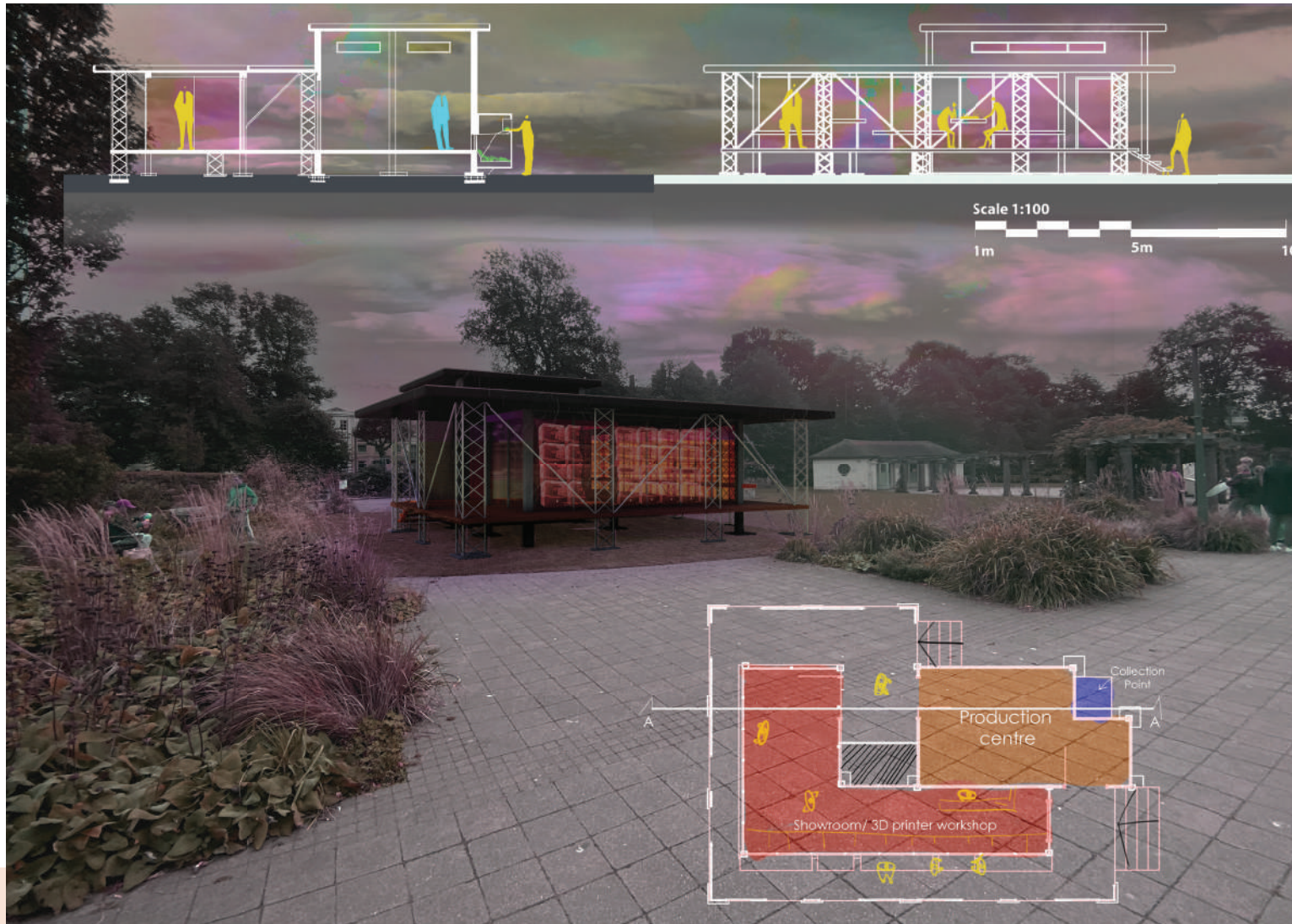
STEPS:

The project takes three steps:
-Step 1
Introducing people to the topic: Organising workshops into small pop-up pavilions to generate attraction. (limited production)

-Step 2
Expanding the proposal:
Adding collection points throughout the city and expanding by opening more pavilions and production centres

-Step 3
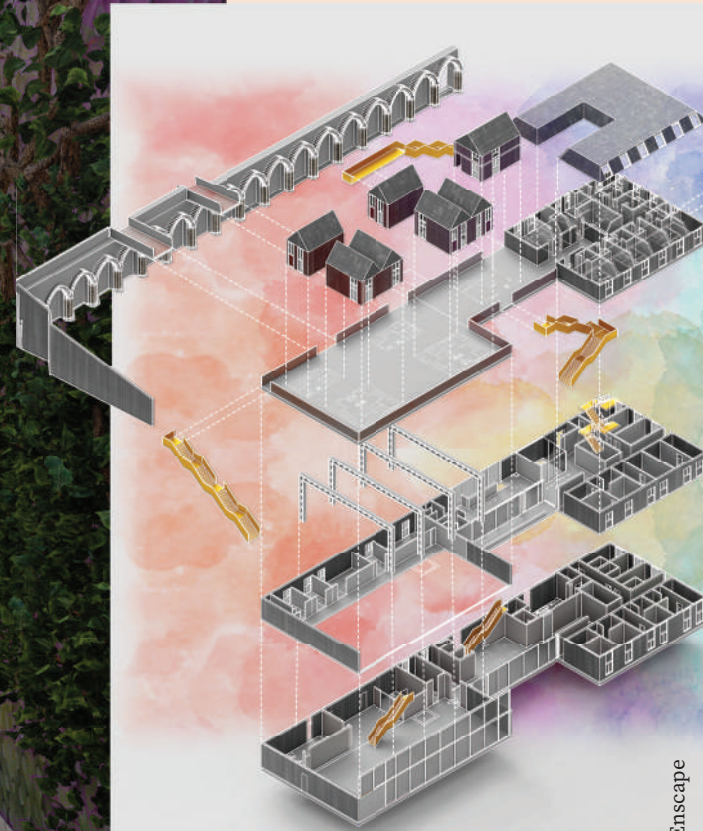Making it part of the city

Future stages:

This stage of the project is fictional and focuses mainly on storytelling. The next stage of the project is the "Brighton 3D Printing community centre" project

Scale 1:100

1m   5m   10

(3D printing pop-up)

3D Printing community centre
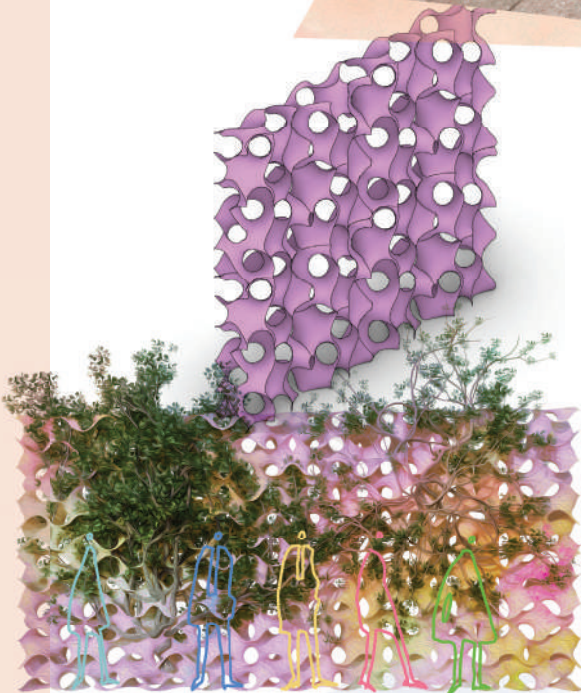

(Community Street Market)

(Exploded axonometric view)

BRIEF:

Designing a large scale hybrid building in the hearth of Brighton, Valley Gardens. The structure should be benneficial to the community and taking in consideration UK building regulation and sustainable design strategies.

3D Printed Facade

The featured axonometric is part of the facade. A 3D printed Gyroid out of PLA will allow ivy and other hanging species of plants to grow. The Gyroid was designed using Grasshopper for an accurate representation of organic shapes. The facade must be prefabricated and then attached to the wall to achieve printable angles. All possible failed components can be molten and extruded back into filament with no waste.

PROPOSAL:

3D printing for comunities:
3D printing has been seen recently as a cheap and easy solution for many industries, but never for personal use. By building cheap pop-ups around Brighton featuring 3D printers and recycling spots, the residents would be able to trade in their recyclables in exchange for 3D printed goods they desire. The plastic collected gets turned back into filament, ready to be used for the 3d printers, giving back a new purpose to it.

To fulfil such a demand, a large production centre would be needed. Although the task of recycling is the main aim, the centre has to evolve to be part of the community. To achieve the task, a hybrid building design has to be considered.

3D printing for the city:
Besides small-scale printing, the bigger target is the architectural side of 3D printing by tackling housing and environmental issues.

Printing homes comes with challenges, but overall, the lack of material waste and almost no workforce needed offers a unique take when designing.

Another benefit of 3d printing is the portfolio of materials that can be used, such as recyclable or recycled plastic, concrete, insulation, metal and anything that can be "extruded."

PRESENTATION:

The following design was my final year major project and as means of presentation, I directed an open exhibition with my faculty studio to showcase our work. The project was presented breefly within an A2 sheet, physical model of the site and model and in VR representation using enscape.

Recycled 3D printed gyroid facade: (GRASSHOPPER)

(North elevation)

FUNCTIONS:

Production / industrial area activities:
-Production centre for 3D printi ng construction using concrete and recycled plastic
-Recycling centre (to upcycle plasti c into 3D printing filament
- Laboratories (For researching diff erent purposes of the materials recycled and different uses o of the 3D printers)
-Boutique for public 3D printing using recyclables

Street Market:
- Behind the building, situated within the retaining wall under the connecting bridges.
-Provides easy access to collection of rubbish, fire escape routes and a smart way to blend all the uses of the building.
-Promotes local businesses and recycling

Residenti al area:
-Block of 25 fl ats
- Single Studios and hotel oriented double rooms for delegates
-Access to the experimental rooft op area

Experimental Rooftop:
-Fully 3D printed experimental houses made out of concrete and plastic cladding.
-Accesible routes to exit the site (bridges over the retaining wall and fire escape staircases)

Common area / Restaurant:
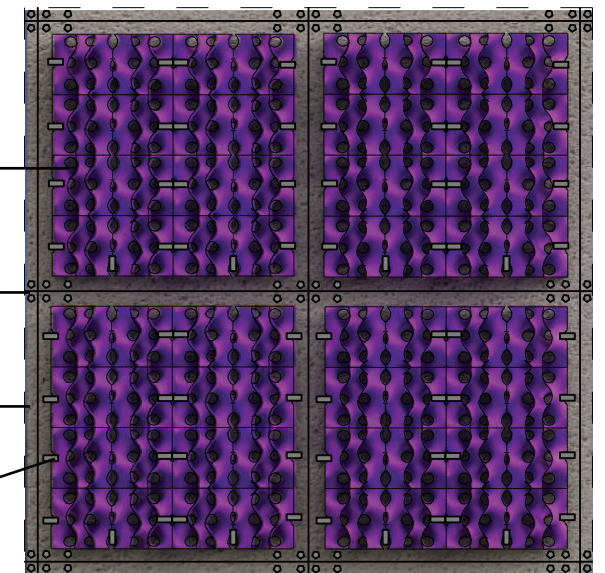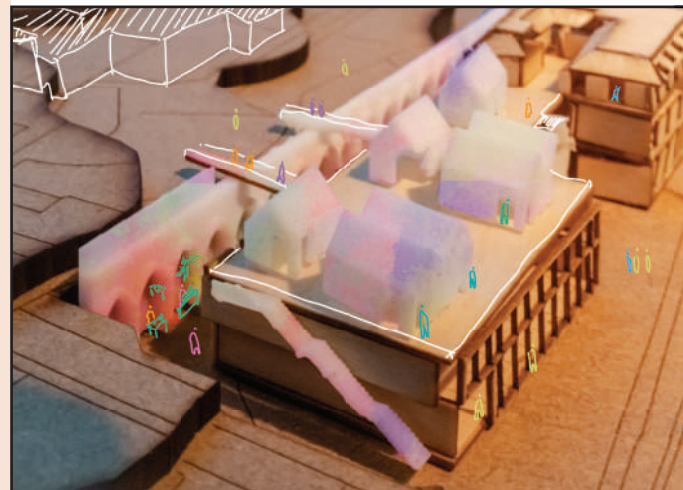-Restaurant
-Reception
-Terace

(First Floor)
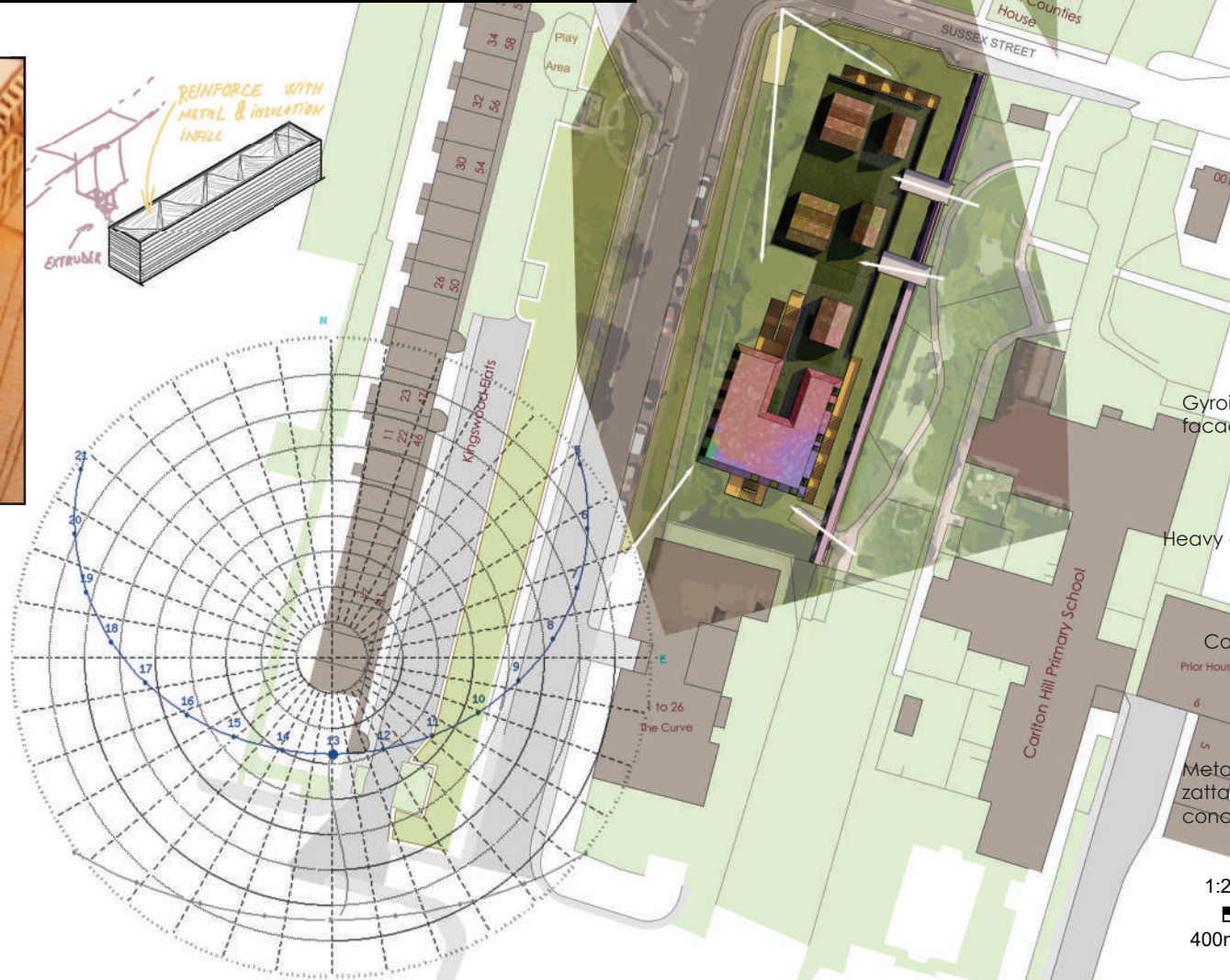

(East elevation)

(Second Floor)

(1:500 scale MDF and 3D print model)

MODEL:

The model is a hybrid of laser cutting and 3d printing techniques on a 1:500 scale, fitting the entire site within an A3 while maintaining a high level of detail.
The 3d printed houses are a diagrammatic representation of volumetric possibilities that could take place on the rooftop, as the concept of experimental and cheap 3D printed homes would imply relocation and redesigning at all times.

(Third Floor)

Gyroid PLA 3D printed facade ellement

Heavy duty bolts

Concrete slab

Metal retainers zattached to the concrete slab

Production centre elevation detail:

1:20

400mm   0   400mm   800mm   1200mm   1600mm   2000mm

Foxes Forest Kindergarten
2021

BRIEF:

Design a small volume kindergarten given Foxes Forest in Portsmouth as an open site.

QUALITY FIRST:

The attention to detail came first when rendering the final images. After that, all additional steps to ensure the quality of the project are taken from planning integrity to the environment, resulting in a solid and clear design idea.

INSPIRATION:

"One of the most important and joyful parts of your life should be your childhood, so why not make it the best for today's children?" The design is heavily driven by the site's history, a bastion from the second World War from "The Home of the Navy" situated next to the site. The fluent stacked boat shape reminds heritage and tradition and is a creativity booster for the youth.

Render Software: VRay, Lumion

BIM Software: Rhinoceros 3D

(Lobby render)

(Green Roof render)
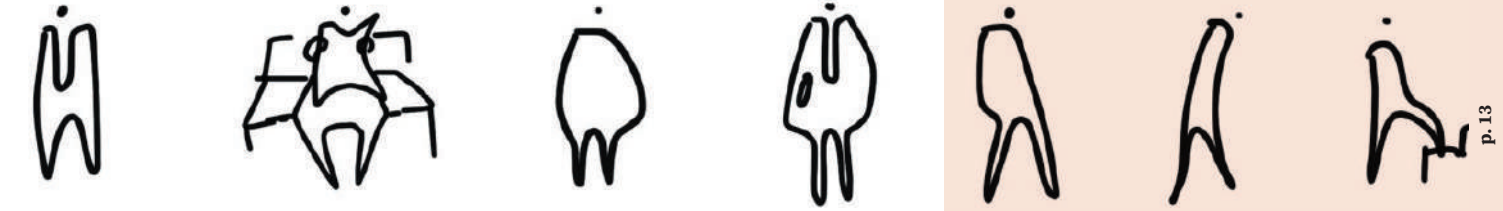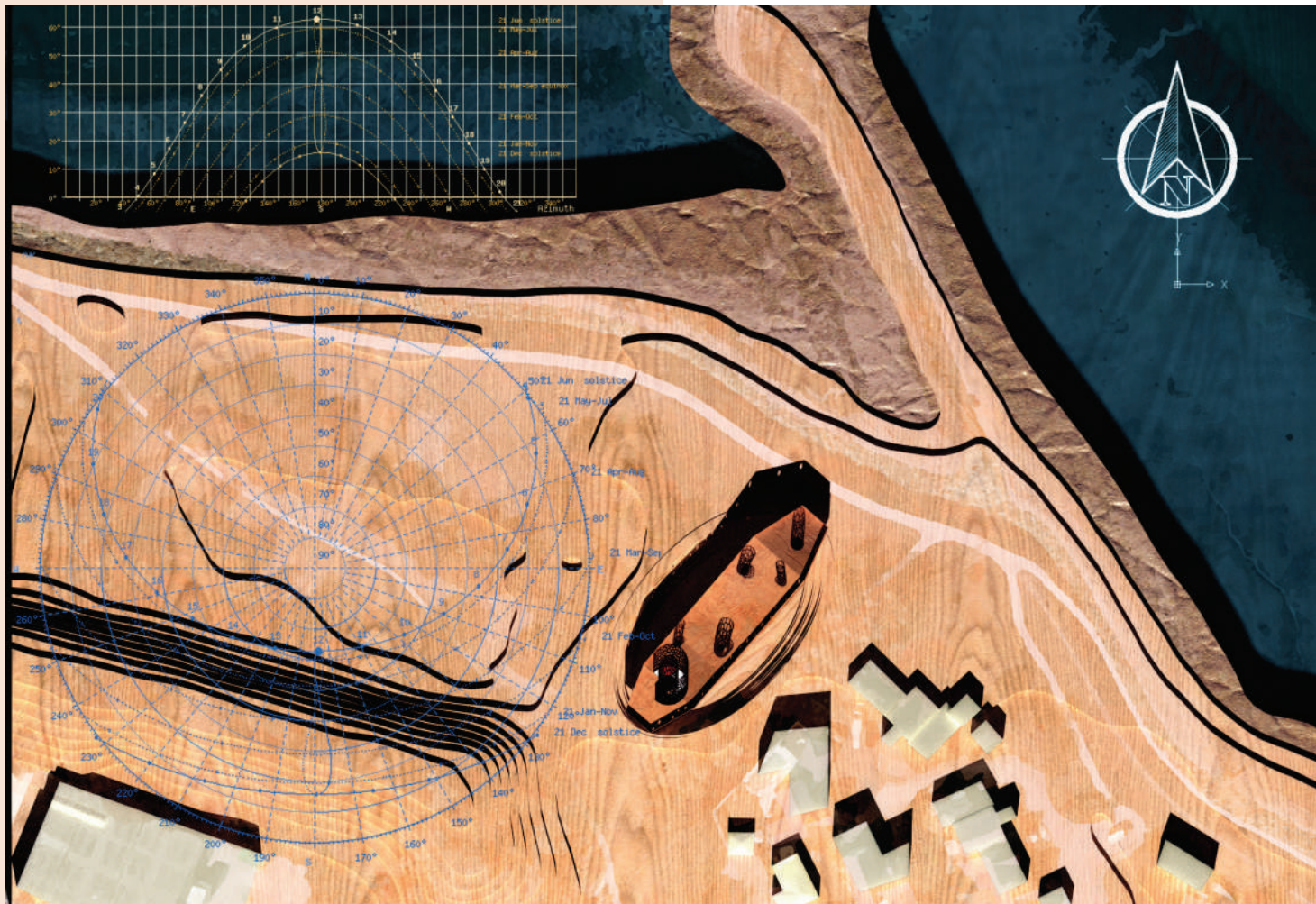
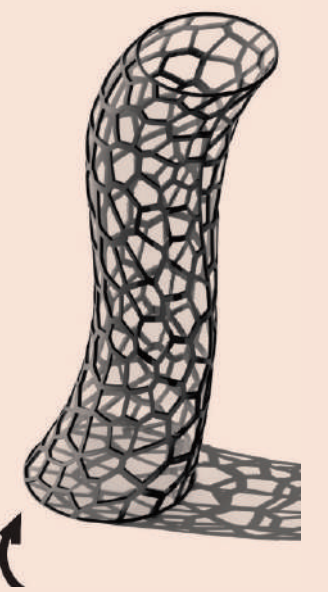## Elements:

Two-storey buildings perforated by the metal frame* all under a green roof. The structure is situated a few meters under the ground level, so the oval staircase could

achieve an atrium effect. The functions are separated by the levels. Food area on the ground floor, activities on the second and outdoor activities on the third.

*Metal frame tube made with Grasshopper

1. Welcoming area / common playroom.
2. Ativity room +3 years olds.
3. Staff room
4. Activity room -2 years olds.
5. Sleeping room.
6. Medical room.
7. Activity room +2 years olds.
8. Cafeteria (common eating space).
9. Common area for kitchen and cleaning staff.
10. Kitchen and storage area.

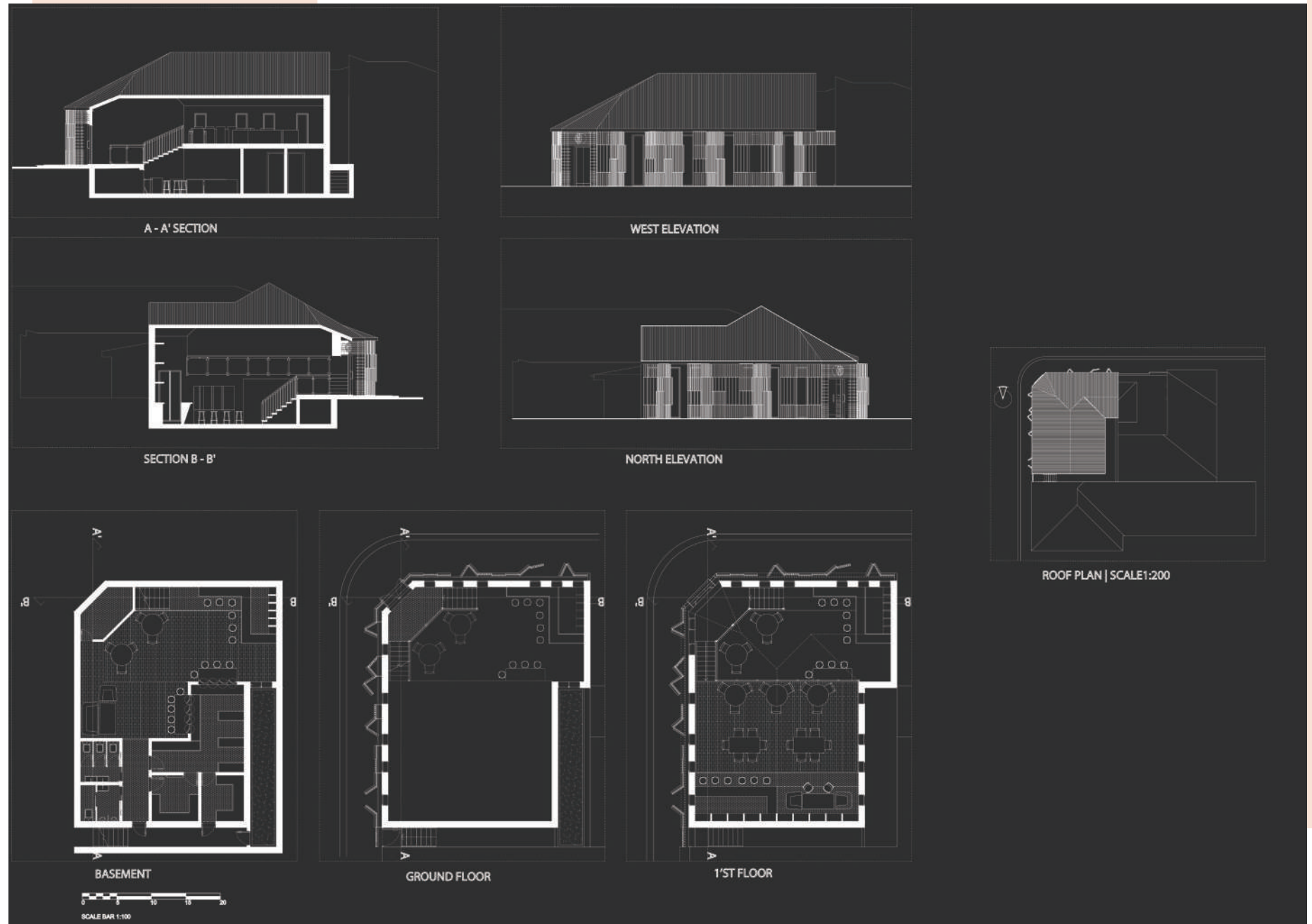0m 2 4 6 8 10m
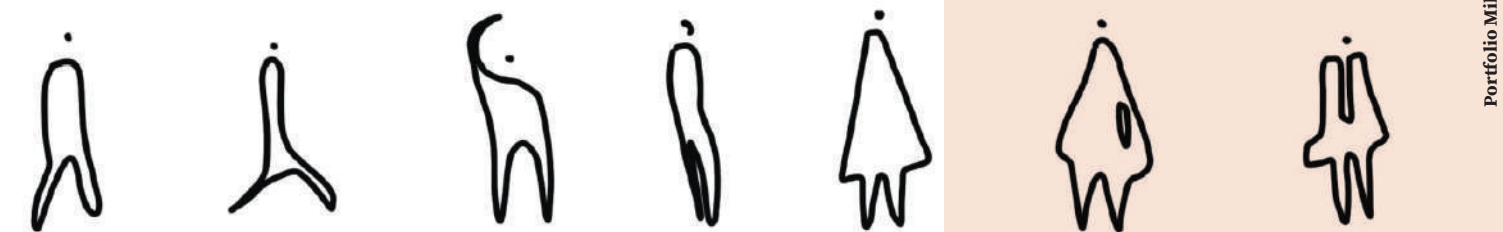
MYH Caffè

*Restoration
Proposal
-2019-*

BRIEF:

I chose the site in Craiova, Romania, on "Horia Street" is an old house that I decided to restore. The function of the building was established after surveying the area (between a park and the local school) The surveying was done by retrieving the original plans from the house owner.

-PLANS - SECTIONS-
-ELEVATIONS-

THE DESIGN:

My design principle stands on using the material; timber for the frames and the original masonry exposed to the public. The house's interior has been wholly repurposed, the ground floor removed (keeping the entrance area), and the basement extended so an extra floor could be added, almost doubling the usable space.

A - A' SECTION

WEST ELEVATION

SECTION B - B'

NORTH ELEVATION

ROOF PLAN | SCALE 1:200

BASEMENT

GROUND FLOOR

1'ST FLOOR

SCALE BAR 1:100

DETAILING

BRIEF:

Design an accessible pavilion on Albert Road, Portsmouth.

PROPOSAL:

The proposal showcases a public space for the community with easy access for bicycles.

The concept is wrapped around a tranquil space surrounded by greenery.

The design is driven by 3 modules connected through a colourful corridor used as a small exhibition for locals.


The corridors connect the 3 modules. The middle module is an open garden, and the other two are for the sitting area. The site is on Alber Road, Portsmouth, surrounded by local shops, so the module's primary purpose is leisure, either a peaceful place to drink your coffee or simply enjoy the surroundings.

PLAN
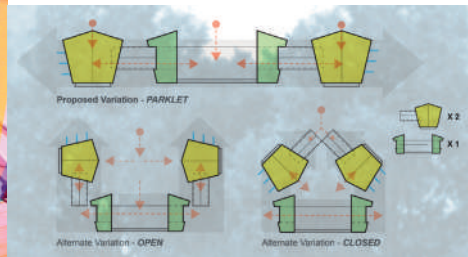
Oak shingles

10 mm Rigid insulation

Timber studs

70x70mm Timber collumn

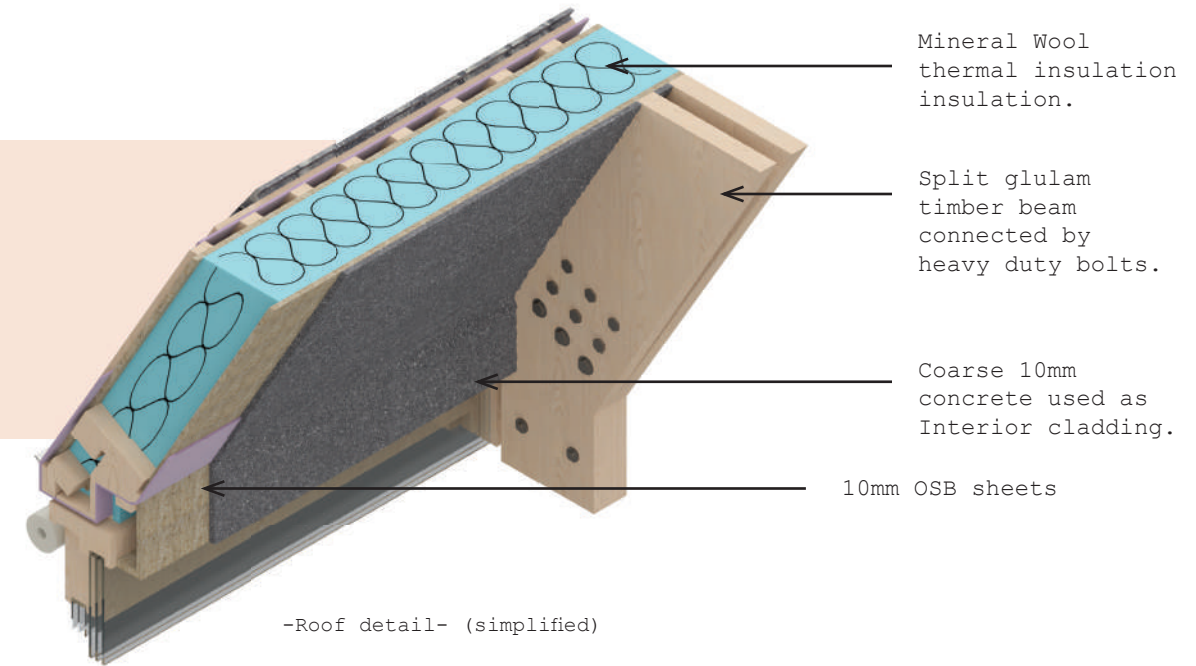Textile blind roll attached between collumns
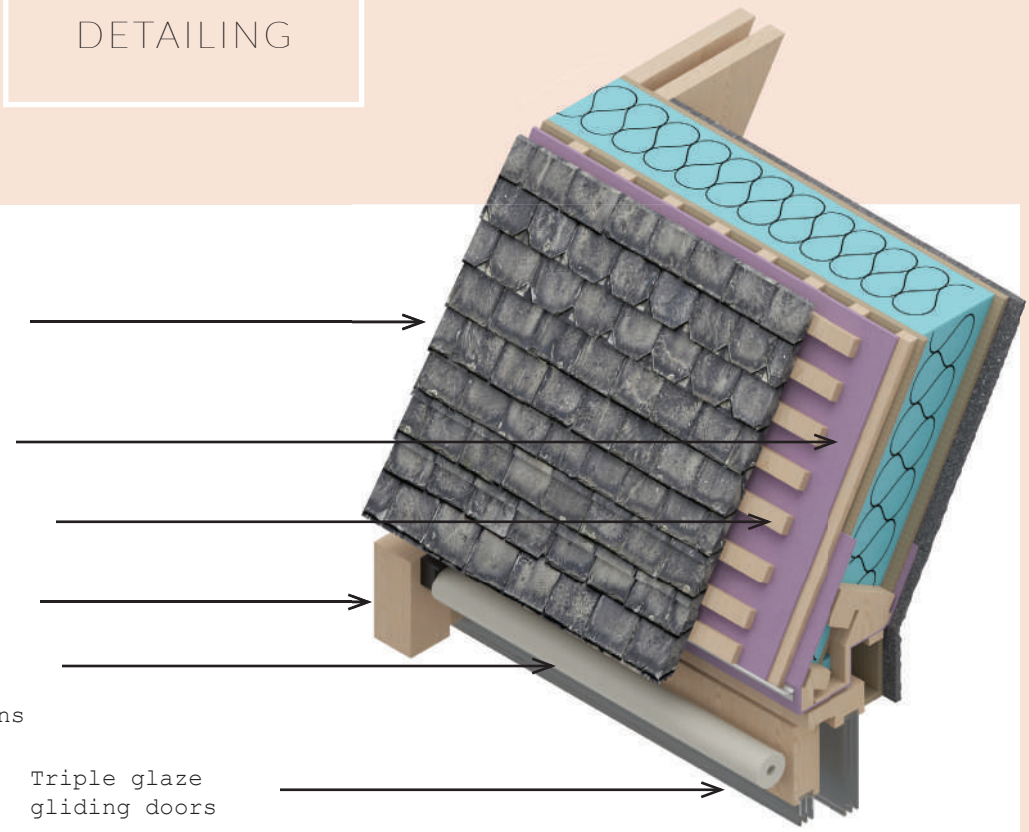
Triple glaze gliding doors

Mineral Wool thermal insulation insulation.

Split glulam timber beam connected by heavy duty bolts.

Coarse 10mm concrete used as Interior cladding.

10mm OSB sheets

-Roof detail- (simplified)

Technical drawings and detailing bridge inspiration and reality because strong ideas come with proof and explanation. Having detailing skills, studying materiality became a hobby as I always wondered how to better design and blend materiality and technology into my structures in a symbiotic matter.
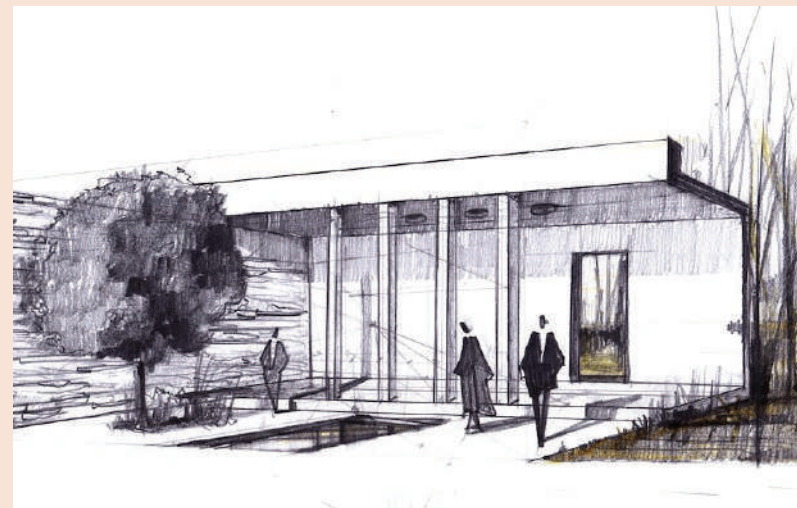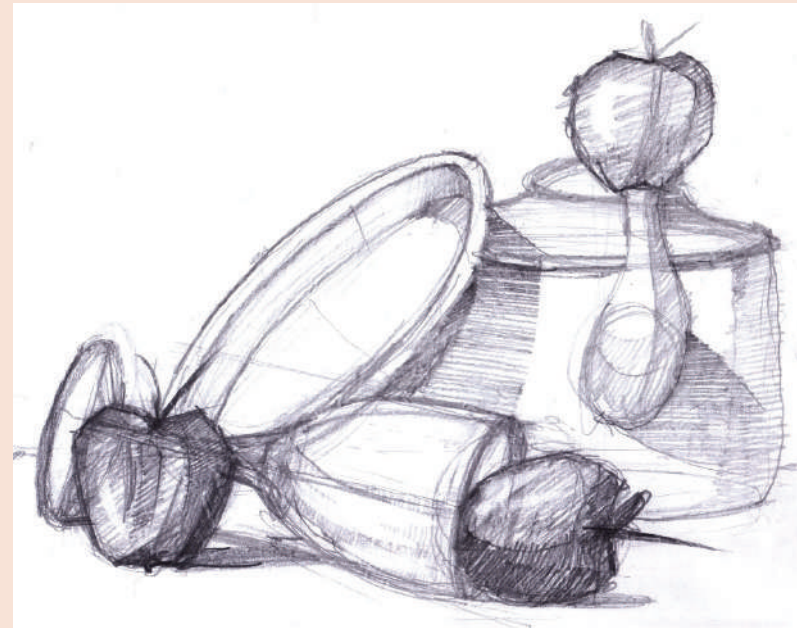
Hand drawing & skeching

Drawing is one of the most essential aspects of enjoying the practice by keeping everything entertaining and challenging. Without it, there cannot be vision or inspiration because we get a new lead for the final product for each mistake we make on paper while sketching for ideas.
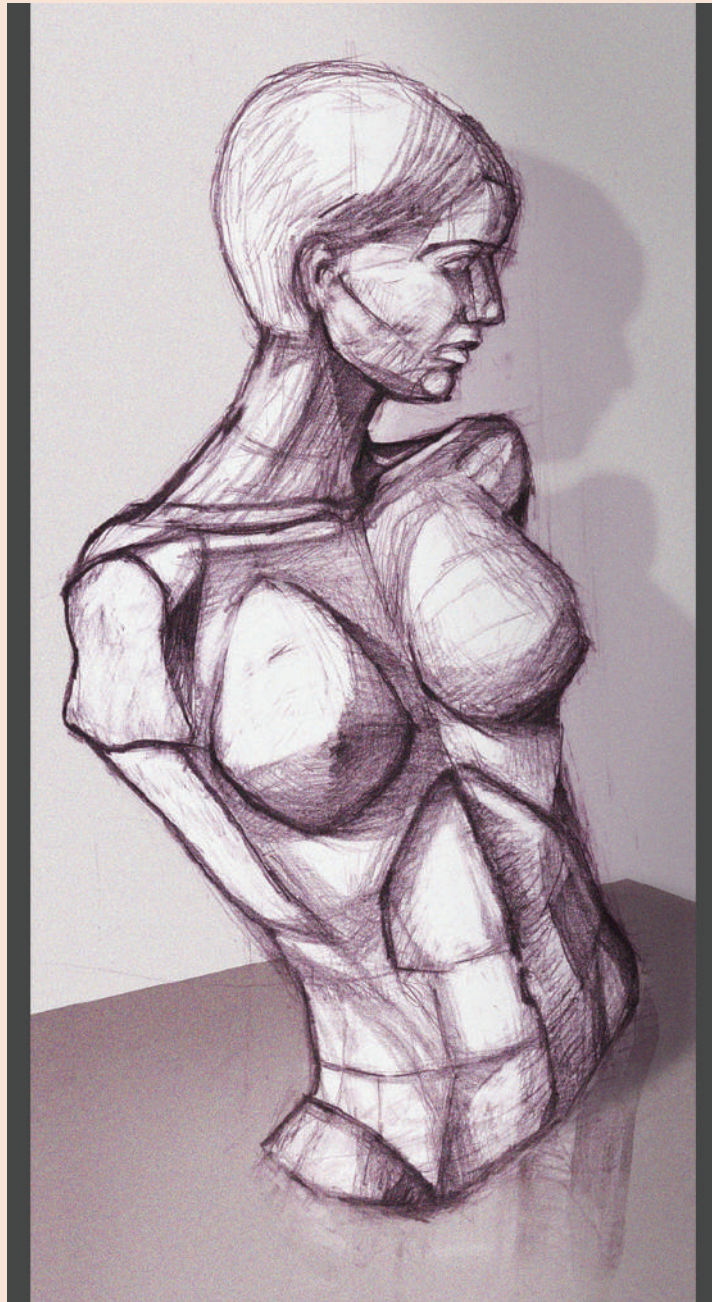

HUMAN PROPORTION STUDIES ALONG THE YEARS.

I tried to understand human proportion on my workload by noticing the symmetries and asymmetries in the human body. This exercise over the years made me understand the importance of an organic design. As almost everything is designed around the human body

THE IMPORTANCE OF HAND DRAWING SKILLS

During my studies, I have learned helpful drawing techniques like parallel projection, built perspective and still life drawing that helped me better read others' sketches and visualise in-depth 3D volumes. These skills in a better proficiency in different 3d software.
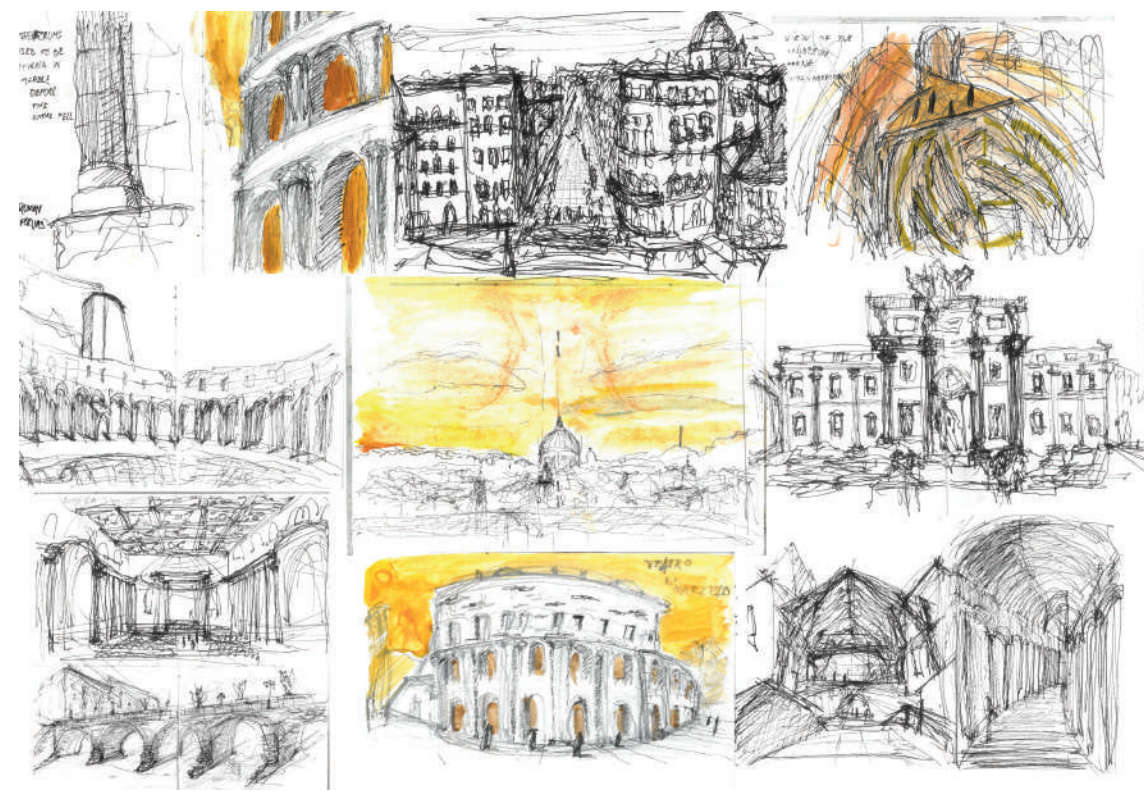
TRAVEL SKETCHING

Understanding architectural design means analysing it. Whether with a sketch or study, it is always a source of inspiration.

The following selections of quick sketches are made after highlight spots in my home city of Craiova, Romania, and one of my favourite cities Rome, Itlay on A6 paper. Travel sketching quickly became my passion in high school, and it always helped me clear my mind and be creative.
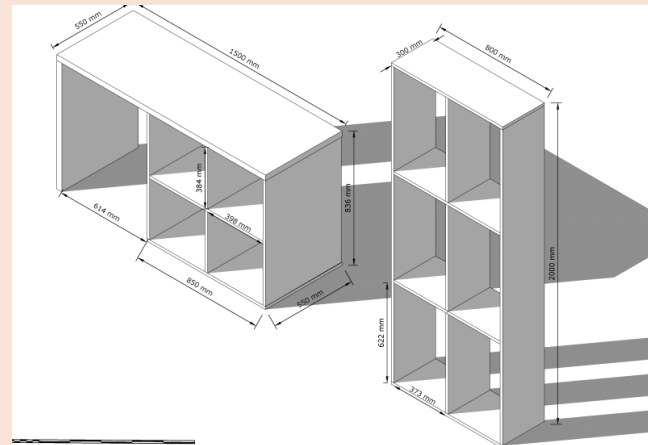
Freelance Projects

Apartment renovation(Feb.2021)

Consulted with the client to determine interior preferences to meet the overall design goals. Also managed the client's budget and kept track of the project's costs.


Designed furniture and manufactured it with a CNC machine for individual clients and offered interior design consultation for the firm that hired my services.
My tasks were to design the furniture for the manufacturing team and generate detailed renders for the clients.
Sophisticated tech was being used in the work environment, such as CNC machines, laser cutters and 3D printers.

Product Design
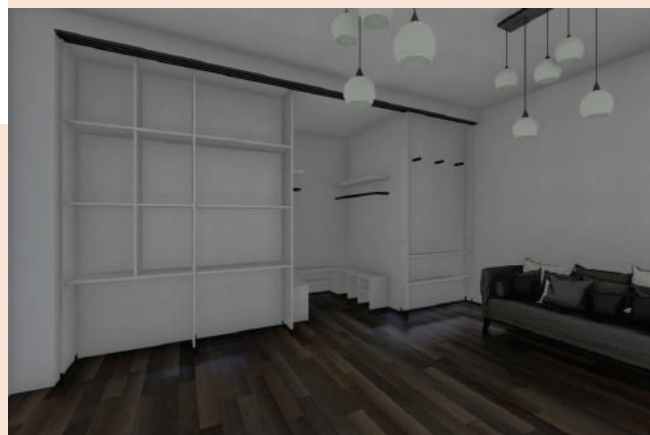
CRAFTING MODELS
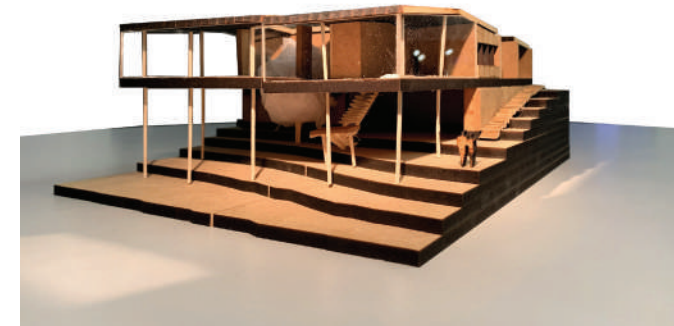
**CASA VIDRA - LINA BO BARDI
SECTION MODEL 2020**

Voted as the most detailed model in the studio, it showcases a section through the middle of the house done with high precision. Some model elements were realised using the laser cutter due to the charred colour that makes the model stand out.

**"THE POINT" PAVILION PROPOSAL
- PROTOTYPE MODEL - 2019**

PROTOTYPING

A laser-cut parametric pavilion model on scale. The tutors praised the model for the organic shape of the design and its flow.

SURVEYING

**SURVEY MODEL FOR THE "TEXTILE
WORKSHOP" PROPOSAL - 2020**

Incomplete due to the pandemic's start, the model features the empty plot for a textile workshop proposal in between highly detailed surveyed facades on Albert Road in Portsmouth, United Kingdom.

PORTFOLIO | 2022

MIHAI IONUT VASILESCU

CV