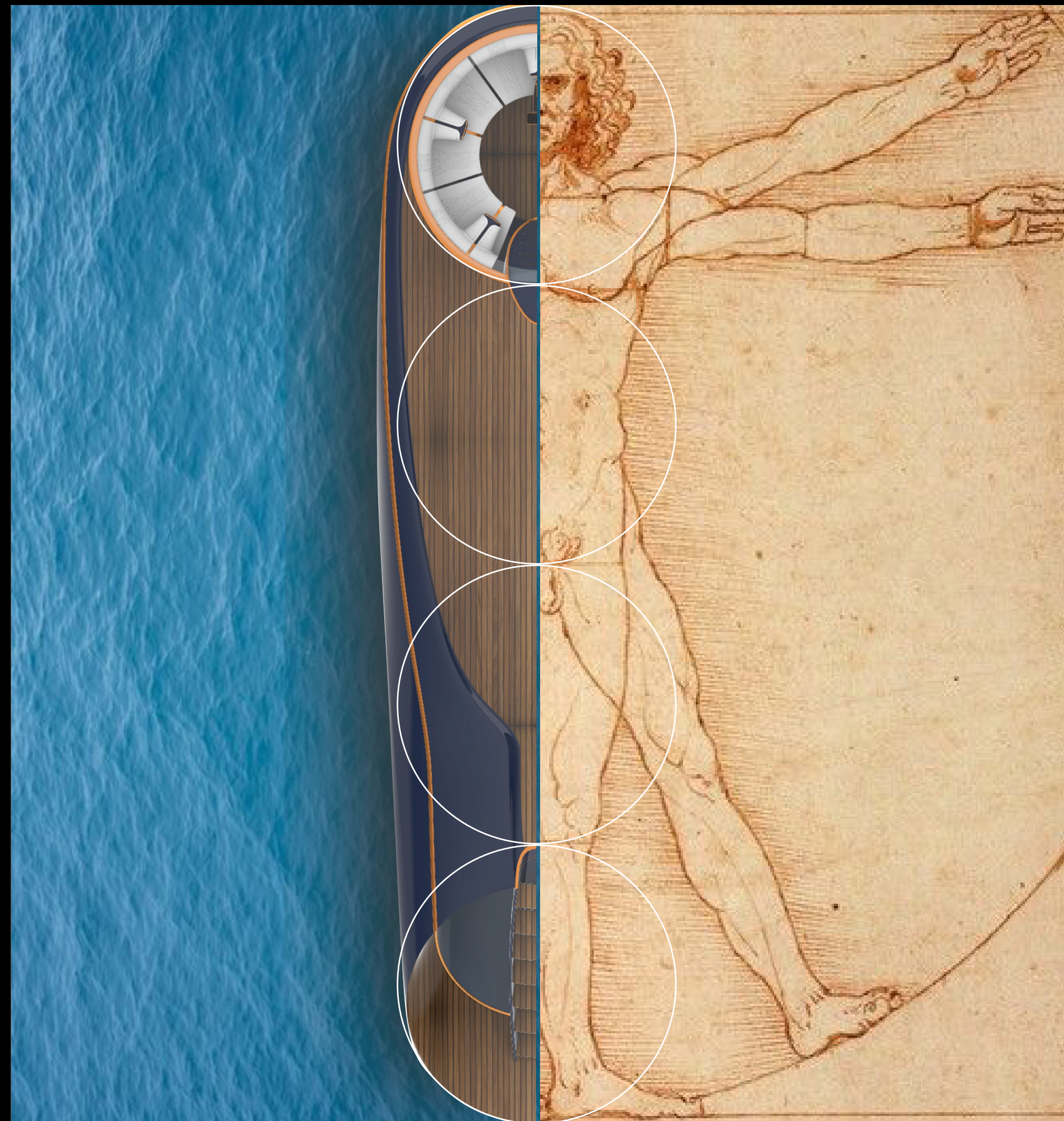


# AESTHETICS IN BOAT DESIGN



Diploma Candidate  
Tallaat Haddad

Field  
Industrial Design

Main theme  
Boat Design

Primary Supervisor  
Steinar Killi

"To develop a complete mind: Study the science of art; Study the art of science. Learn how to see. Realise that everything connects to everything else."

Da Vinci

The goal of this thesis is to define beauty and to show that beauty is tangible and necessary in design. By establishing the value of aesthetics and Searching for the classical rules of aesthetics and apply them in a design process, and create a tool kit which can be applied on different design projects.

## **ABSTRACT**

Opted to design a boat with a docking system, using those findings have led to new and different lines, proportions, colours and a layout focused on the users and their comfort, aspiring to prove that those guidelines are applicable in different industrial design projects.

"The public is more familiar with bad design than good design. It is, in effect, conditioned to prefer bad design, because that is what it lives with. The new becomes threatening, the old reassuring."

Paul Rand

## **INTRO**

looking at Aker Brygge boat landscape with a single colour and shape boats has invigorated this thesis to talk about design aesthetics and how it is shifting from creating beautiful objects to making monotonous ones. We often hear "beauty is in the eye of the beholder" which became an excuse to avoid provoking peoples senses and create beautiful objects. However, it was just a saying from a comedy novel.

Philosophy, Math, Art and Architecture defined and celebrated beauty. However, when industrial design emerged in the late 19th early 20th centuries, aesthetics were rejected and replaced with Ugliness, banality and decay.

Through this study, I was able to establish that beauty is objective and not subjective and that there are a universal definition and appreciation for beauty sitting a premise, and concluding few guidelines of aesthetics to apply in the design process.

## **RESEARCH METHOD**

This approach starts with establishing the value of beauty in our lives and design, then prove that it is an objective matter and that it can be defined and implemented, and that our understanding and appreciation to beauty is global rather just a personal taste.

The second phase was to define beauty and find rules or guidelines for it using existing examples from classical philosophers and great architects and artists, whom they implemented these rules and created known beautiful pieces.

The third was concluding primary elements, and implementing those findings in the design process.



## THE VALUE OF AESTHETICS

In a book called Scandinavian design by Charlotte & Peter Fiell, it says;

"Scandinavian design is governed by the main principle of modernism to strike the optimum balance between form, function, material, colour, texture, durability and cost to create democratic design solutions."

"above all else, it is the idea that More Beautiful Everyday Objects can enhance the life that immortalises the international phenomenon of Scandinavian design, it continues to offer a haven of timeless simplicity that provides both physical comfort and emotional calm."

The purpose of this study is to find guidelines for aesthetic to use as part of the design process and apply it to design a boat and create an impact on different levels like the individual, product, and environmental.

As an Industrial designer, this will make an efficient design process, as it will be an aesthetic compass. The first stroke on paper is the most difficult one as it usually dictated by the function, not beauty, so one objective is to reverse this and make it an aesthetically driven process.

*Charlotte & Peter Fiell  
2013. Scandinavian  
design. Taschen.*

The current boat design has lost much of its aesthetical touch (Beauty) in the sake of cheaper production techniques, quality, materials, functionality, and humanism.

Most spaces on boats are for storing things, not for the users' comfort. This boat is designed around the users and their seating and sunbathing spaces, with a simplified yet sufficient controllers for its purpose, also accessing water, comfort, and beauty as it will stand out on many levels.

Environmental value, because beautiful objects are preserved, therefore used for longer times. The Bialetti Moka is a living example; since it was produced in 1933 it looks elegant and timeless, we do not need to buy a new one because it is outdated in style and create waste but continue using the one made in the '50s today. Same with boats as Riva Aquarama boats are still used till today and still maintained and restored, mostly because of its aesthetical value which developed into a statement.

“The life of a designer is a life of fight. Fight against the ugliness. Just like a doctor fights against disease. For us, the visual disease is what we have around, and what we try to do is cure it somehow with design.”

Massimo Vignelli

# IS BEAUTY SUBJECTIVE OR OBJECTIVE?

One can argue it is objective, as in Scandinavian design links beauty with material, form and functionality, and classicism links it to proportions and golden ratios and intense, vibrant colours.

Plato said that the universe is beautiful, and will stay beautiful even if there are no people to witness it. Aesthetics and beauty were considered a subjective matter, not objective for fear of labelling something or someone ugly.

The phrase "Beauty is in the eye of the beholder" was a quote from a romantic comedy by Margaret Wolfe called Molly Brown, it was written to serve a purpose in the novel not to define our concept about beauty.

*Charlotte & Peter Fiell  
2013. Scandinavian  
design. Taschen.*

*Sartwell, Crispin,  
"Beauty", The Stanford  
Encyclopedia of  
Philosophy (Winter  
2017 Edition), Edward  
N. Zalta (ed).*

<https://plato.stanford.edu/archives/win2017/entries/beauty/>

# DO ALL APPRECIATE BEAUTY EQUALLY, OR DO WE HAVE TO BE EXPERTS TO UNDERSTAND THE VALUE OF AESTHETICS AND BEAUTY?

*Graham DJ, Stockinger S and Leder H (2013) An island of stability: art images and natural scenes – but not natural faces – show consistent esthetic response in Alzheimer's-related dementia. Front. Psychol. 4:107. doi: 10.3389/fpsyg.2013.00107*

<https://www.frontiersin.org/articles/10.3389/fpsyg.2013.00107/full>

Prof. Helmut Leder says, "In the individual world, art has a positive effect and make that person's life better." Also, research in Alzheimer's patients shows that the aesthetic feeling remains almost stable.

Prof. Helmut Leder, in his study an island of stability he and his colleagues researched people who have Alzheimer's, he showed those patients several paintings, and He asked them to arrange from most to least beautiful. Two weeks later, he did the same experiment, and the result was nearly exact, although the patients did not remember they did this experiment before.

Leder and his colleague Dr Gernot Gerger created an experiment in which he equipped participants with a measuring device placed on the facial muscle that controlled smiling and frowning. In this experiment, they presented participants with a set of random images in a random sequence, and this sequence was previously tested. Participant decided which image are beautiful and which is not. The images were shown for only 1/25 a second, which is too short to identify them consciously. Some did not remember seeing the images at all. The result was artworks portraying negative content promoted frowns among experts and non-expert, while beautiful images generated smiles. However, when asked to evaluate the artworks, the art experts liked the negative ones more.

# IS THERE A UNIVERSAL DEFINITION TO BEAUTY?

This article is from "How Do Philosophers Think About Beauty?" by Andrea Borghini.

"The question arises of whether beauty is universal. Suppose you agree that Michelangelo's "David" and a Van Gogh self-portrait are beautiful: do such beauties have something in common? Is there a single shared quality, beauty, that we experience in both of them? And is this beauty the very same that one experiences when gazing at the Grand Canyon from its edge or listening to Beethoven's ninth symphony?

If beauty is universal, as, Plato maintained, it is reasonable to hold that we do not know it through the senses. Indeed, the subjects in question are quite different and are also known in different ways (gaze, hearing, observation). If there is something in common among those subjects, it cannot be what is known through the senses.

But, is there something common to all experiences of beauty? Compare the beauty of an oil painting with that of picking flowers in a Montana field over the summer or surfing a gigantic wave in Hawaii. It seems that these cases have no single common element: not even the feelings or the basic ideas involved seem to match. Similarly, people around the world find different music, visual art, performance, and physical attributes to be beautiful. It is based on those considerations that many believe that beauty is a label we attach to different sorts of experiences based on a combination of cultural and personal preferences."

Borghini, Andrea.  
"How Do Philosophers  
Think About Beauty?"  
ThoughtCo Jan. 29,  
2020.

<https://www.thoughtco.com/how-do-philosophers-think-about-beauty-2670642>



## THE CLASSICAL RULES OF AESTHETICS

The common classical conception of beauty involves order, harmony, and proportion is traceable to the parallel Greek Pythagorean tradition and the writings of Aristotle and his emphasis on balance, such as the golden mean. Aristotle defines beauty in *Metaphysics* as having order, symmetry and definiteness, which the mathematical sciences exhibit to an exceptional degree.

Vitruvius characterisation of the classical conception in beauty are;

“Order is the balanced adjustment of the details of the work separately, and as to the whole, the arrangement of the proportion with a view to a symmetrical result.

Proportion implies a graceful semblance: the suitable display of details in their context when everything has a symmetrical correspondence.

Symmetry also is the appropriate harmony arising out of the details of the work itself: the correspondence of each given detail to the form of the design as a whole.”

The art historian Heinrich Wölfflin gives a fundamental description of the classical conception of beauty, as embodied in Italian Renaissance painting and architecture: The central idea of the Italian Renaissance is that of perfect proportion. In the human figure as in the structure. This era strove to achieve the image of perfection at rest within itself.

---

Sartwell, Crispin, "Beauty", *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition), Edward N. Zalta (ed).

<https://plato.stanford.edu/archives/win2017/entries/beauty/>

"Good design is honest."

Dieter Rams

**SHAPE**  
**COLOUR**  
**PROPORTION**  
**SYMMETRY**  
**COMPOSITION**

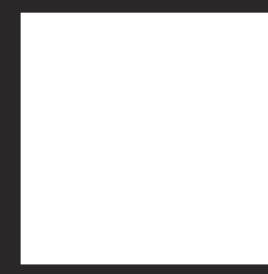
**ELEMENTS OF  
AESTHETICS**

A book called Beauty by Sagmeister & Walsh gave this search an insight into the contemporary aesthetics senses and preferences and helped in concluding these five elements with the classical sources, of course, and they are; shape, colour, proportions, symmetry, and composition.

WHICH OF THESE  
SHAPES DO YOU  
THINK IS THE MOST  
BEAUTIFUL?



Ⓐ



Ⓑ



Ⓒ



Ⓓ



Ⓔ



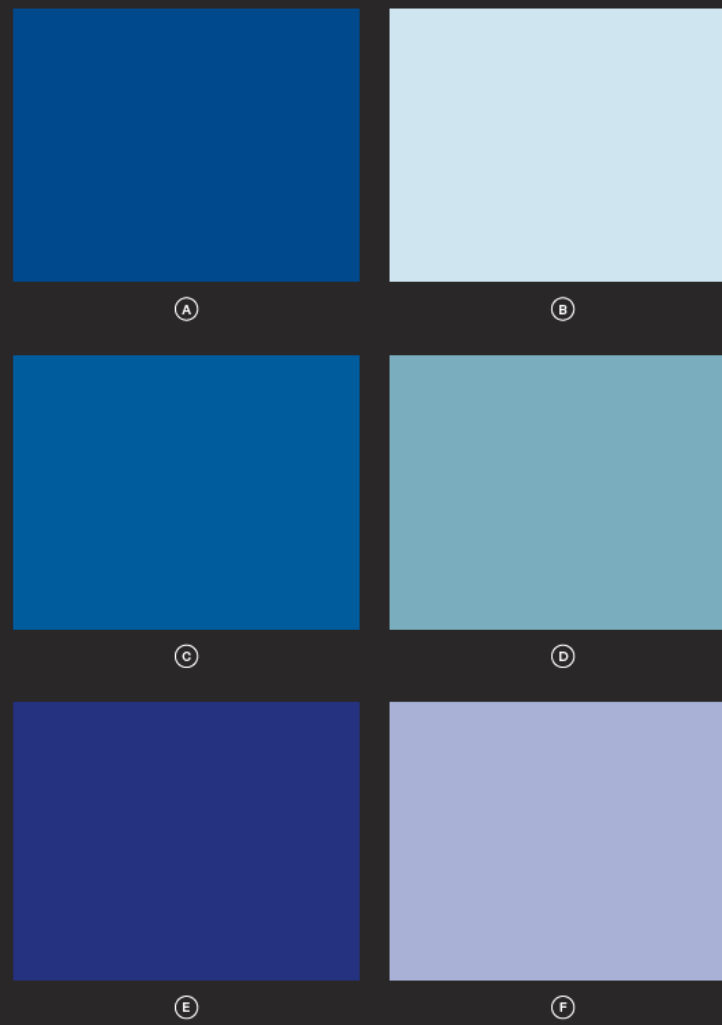
Ⓕ

**SHAPE** In an experiment where shapes were presented to experts and non-experts in art galleries and online, people selected the circle as the prettiest shape, and their second favourite was a curvy random shape. In contrast, the least favourite shape was the rectangle.

Sagmeister, S. and  
Walsh, J., 2018.  
Sagmeister & Walsh:  
Beauty 1st ed. New  
York: Phaidon.

<https://sagmeisterwalsh.com/work/all/beauty/>

WHICH SHADE OF  
BLUE DO YOU  
THINK IS THE MOST  
BEAUTIFUL?



In our survey, 26% found B the most beautiful, 22% E, 18% D, 14% C, 12% A.  
Only 8% found F the most beautiful.

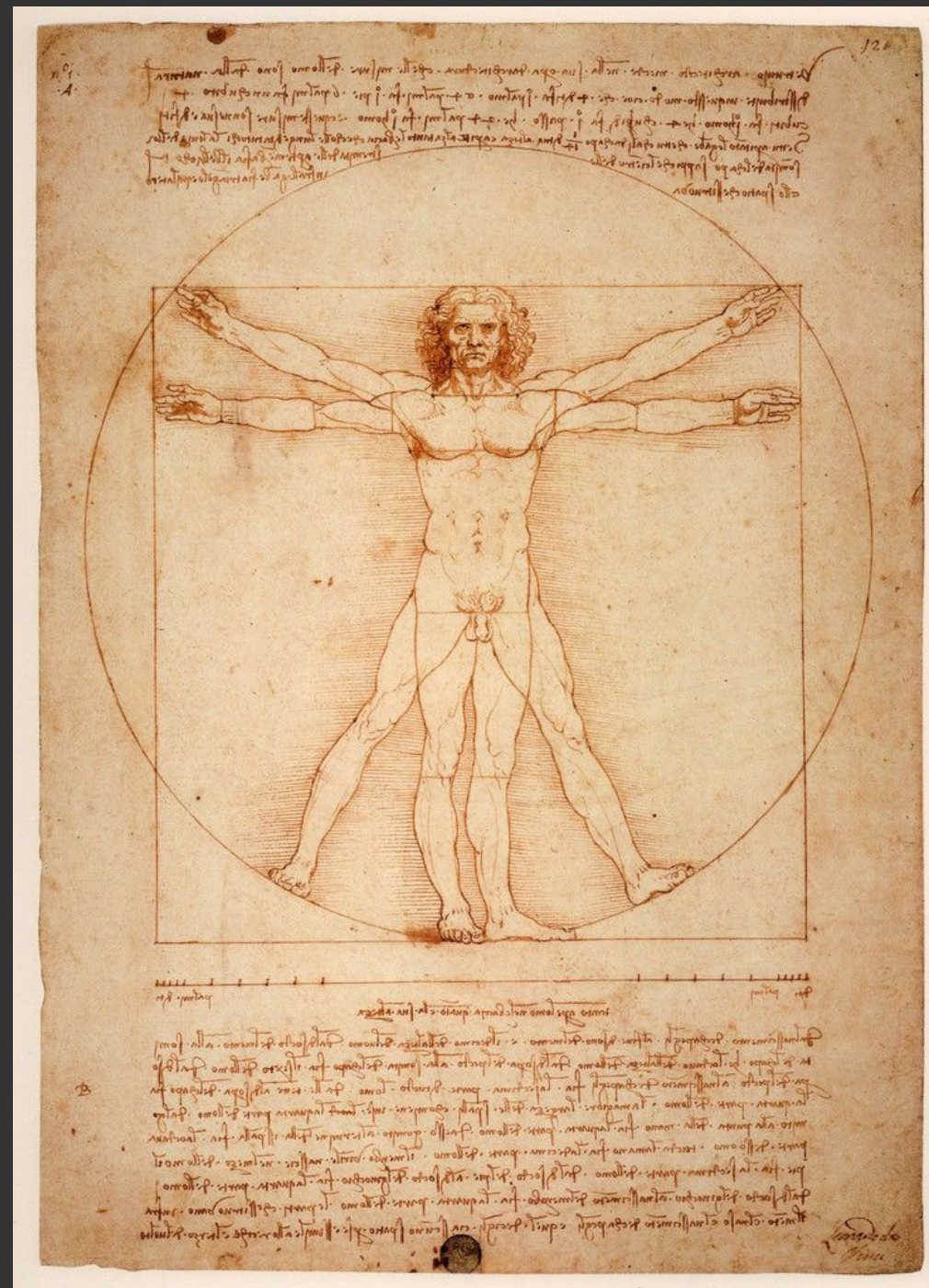
**COLOUR**

In a similar experiment where swatches of different colours and shades of blue were presented to experts and non-experts in art galleries and online, people selected the blue shade from DaVinci's works.

Sagmeister, S. and  
Walsh, J., 2018.  
Sagmeister & Walsh:  
Beauty 1st ed. New  
York: Phaidon.

<https://sagmeisterwalsh.com/work/all/beauty/>





Designers, architects and artists get their inspiration from nature, and nature's ideal proportions are the golden ratio; and since this project is about human-centric design. Therefore, using the proportions from the Vitruvian man was most proper as it signifies the perfect human proportions.

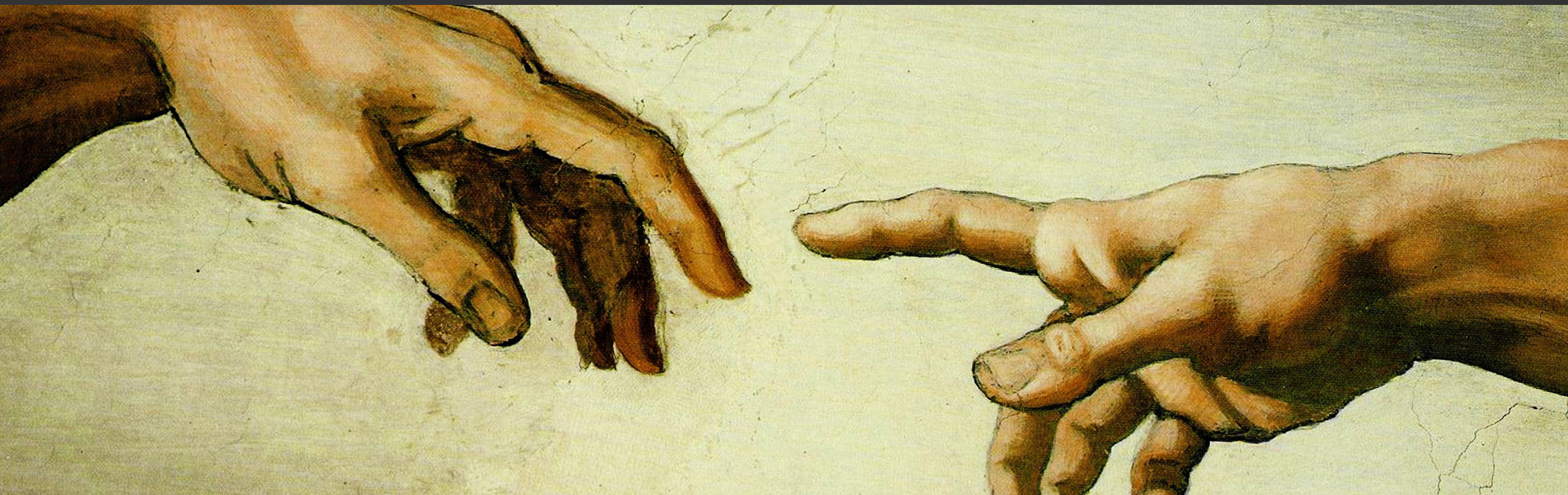
A famous representation of this approach can be seen in Leonardo Da Vinci's Vitruvian Man (1487). Vitruvius was an architect who emphasised a balance of a "triad" of characteristics of good architecture utility, durability and beauty. Where the Platonic tradition is inclined to push beauty to the realm of ideal thought beyond perception, Aristotle emphasised an approach to beauty that regards it as part of the functioning of the real world.

## PROPORTION

“This Universal Man represents the beauty, complexity, and symmetry of the human frame. It also represents da Vinci's passion for the art, the Science and the Philosophy of the medical field so familiar to that of chiropractic.”

HUNTLEY, H. E. (1970).  
*The divine proportion:  
a study in  
mathematical beauty.*  
New York: Dover  
Publications.





## **SYMMETRY**

In his book "Symmetry" Hermann Weyl said, "symmetry is Harmony of proportions". Elements in composition do not have to be an exact mirror of each other to be symmetrical.

He Said: "Symmetry, as wide or as narrow as you may define its meaning, is one idea by which man through the ages has tried to comprehend and create order, beauty, and perfection."

The Creation of Adam in the Sistine Chapel is an excellent example of this; the hands show symmetry, as Michelangelo intended a symbol of God creating man in his image and likeness; this symmetry added a charming beauty to the scene.

Hermann Weyl, 1952.  
Symmetry. Princeton  
University Press.





## COMPOSITION

The composition or the "order" as mentioned by Vitruvius is the Stage where all these elements are put together.

The Bialetti Moka, with its geometric elegant long lines and facets, black handle, and aluminium body, which represents the art deco aesthetical values.

Another example was the Nefertiti's bust when it was unveiled in Berlin in 1923. 'Egyptomania' was in the air, following the discovery of the tomb of Tutankhamun the previous year, and Nefertiti's angular, geometric appearance chimed with fashionable taste.

"She is very modern-looking, very Art Deco, So everybody seemed to like her. It is hard to find anybody who did not think that Nefertiti was beautiful."

Nefertiti's Face: The Creation of an Icon by Joyce Tyldesley

Choosing art deco, not as a decorative element but as an expression of timeless elegance and sophistication, because this aesthetical language kept on appearing through history, from ancient Egypt, Greece and Roman cultures to Japanese art middle eastern geometry and finally in Europe.

Joyce Tyldesley, 2018.  
Nefertiti's Face  
The Creation of an  
Icon. Cambridge, Mass,  
United States:  
HARVARD  
UNIVERSITY PRESS.

Design should not be trendy. Good design should last over time until it wears out.

Achille Castiglione

# THE BOAT

With these aesthetic guidelines set, I have started working on two different directions inspired by cars, with one primary focus on aesthetics.

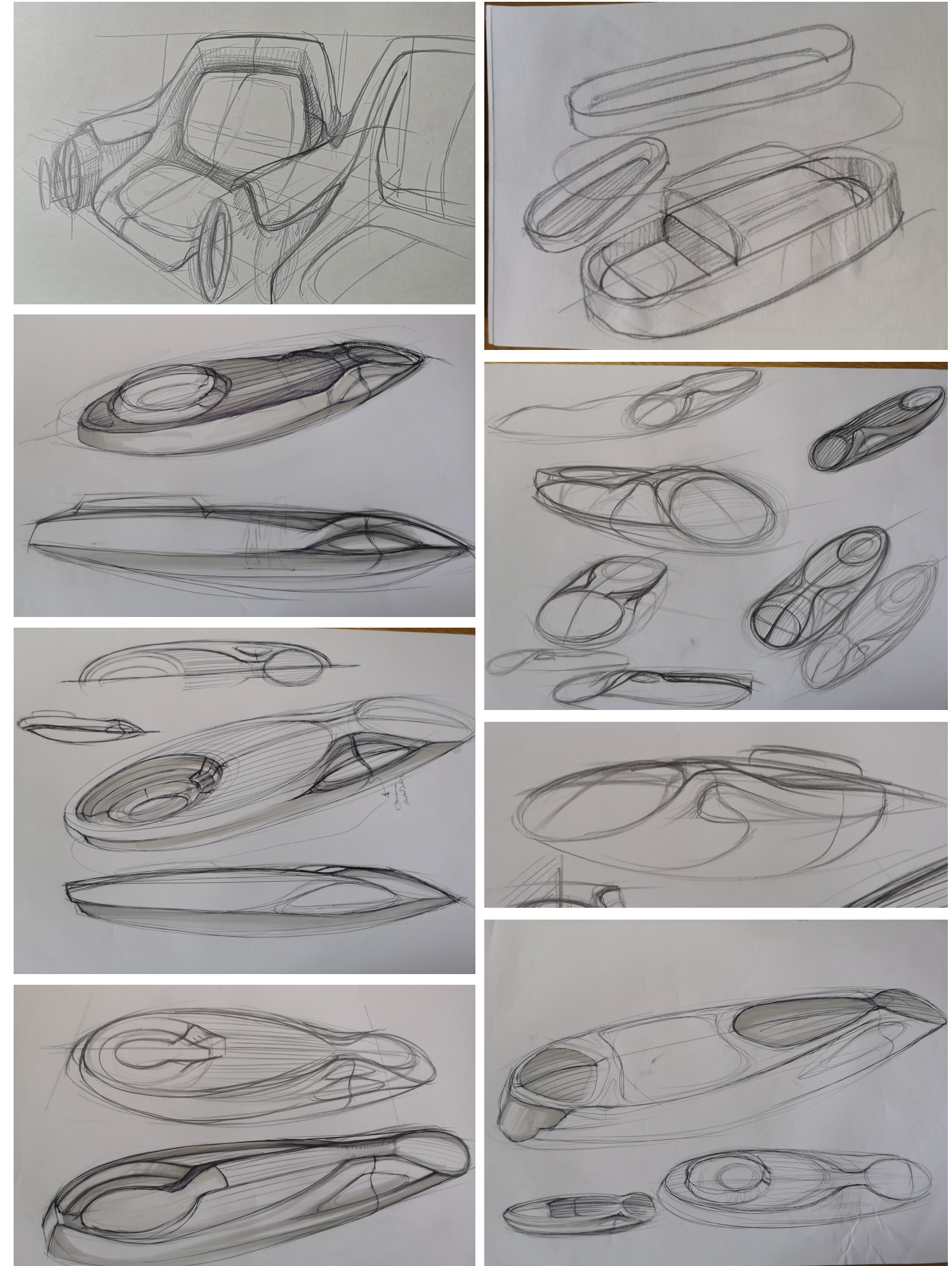
The first is a two-seater, luxury sport boat with a front centre driving position and two seats that work as sunbathing beds.

The second is an autonomous cruiser focused on luxury and comfort, designed for cruising, with comfortable seating layout and sunbathing space for all the passengers.





Luxury Sport Boat

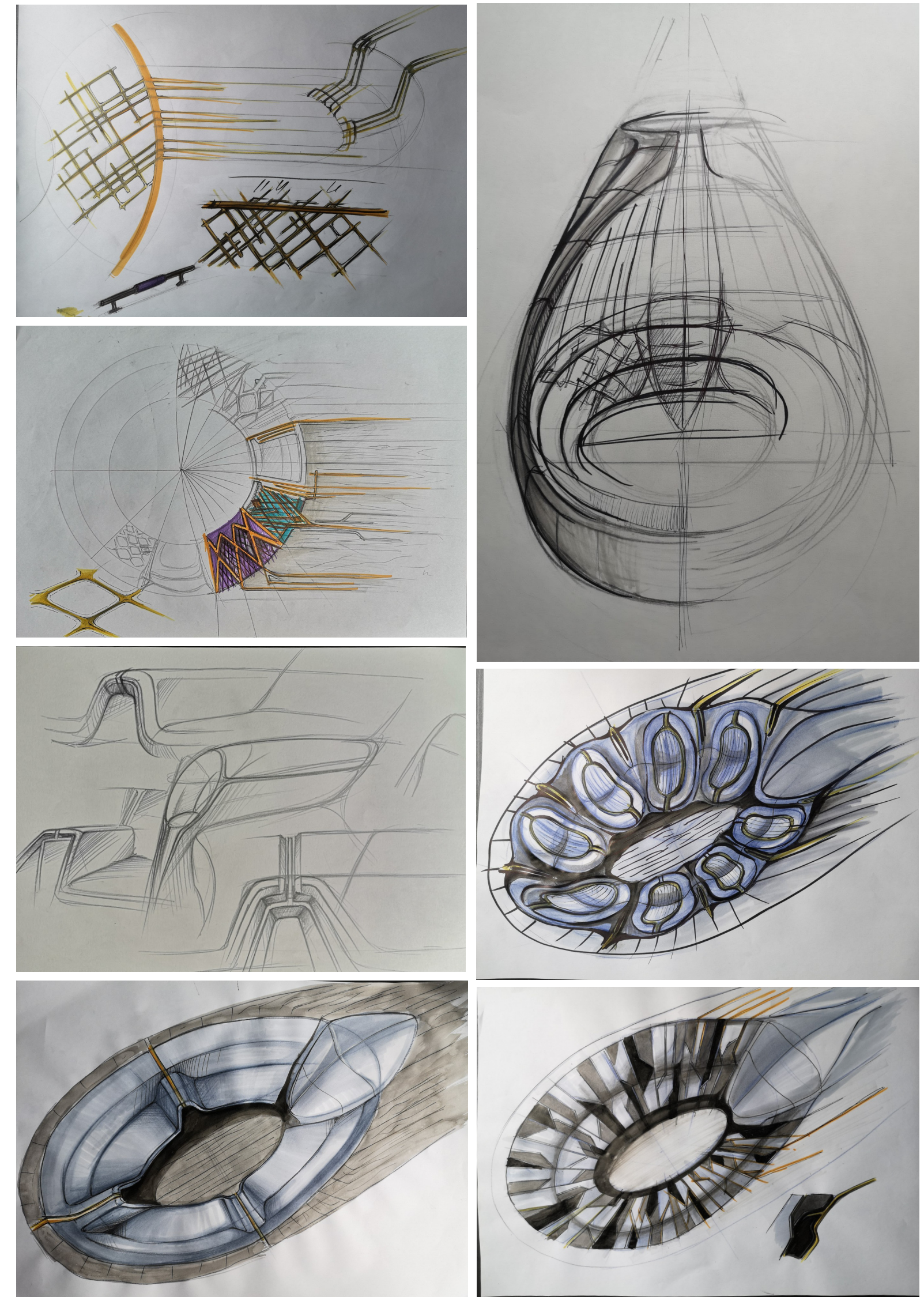


The Cruiser



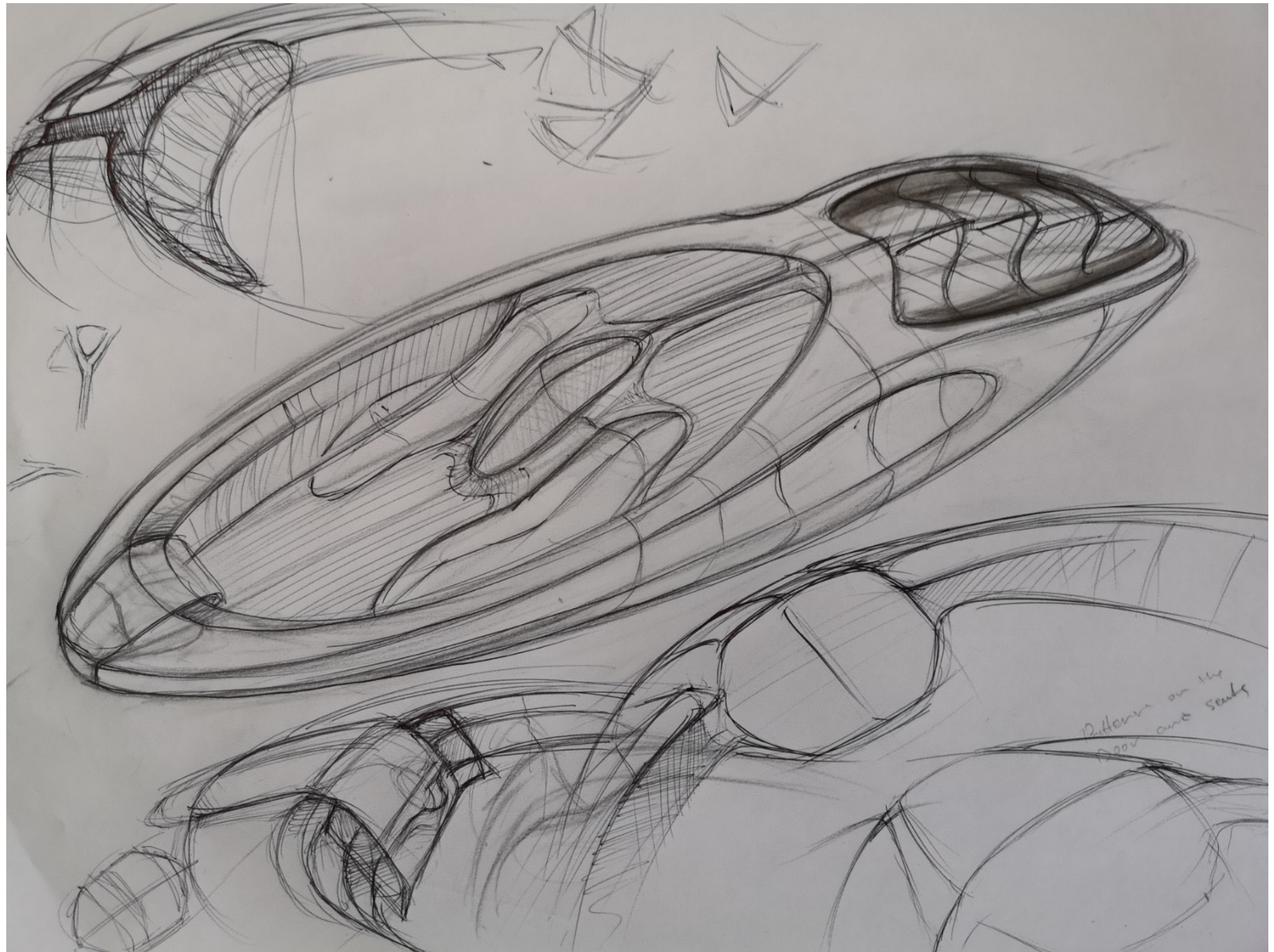
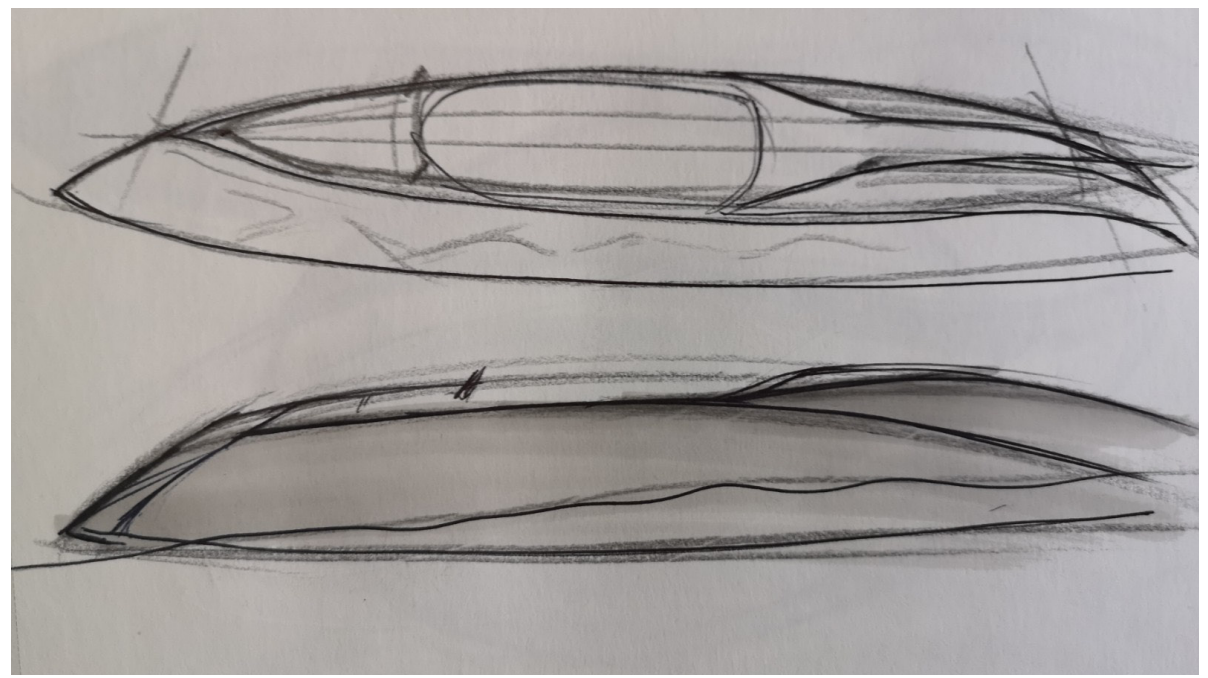
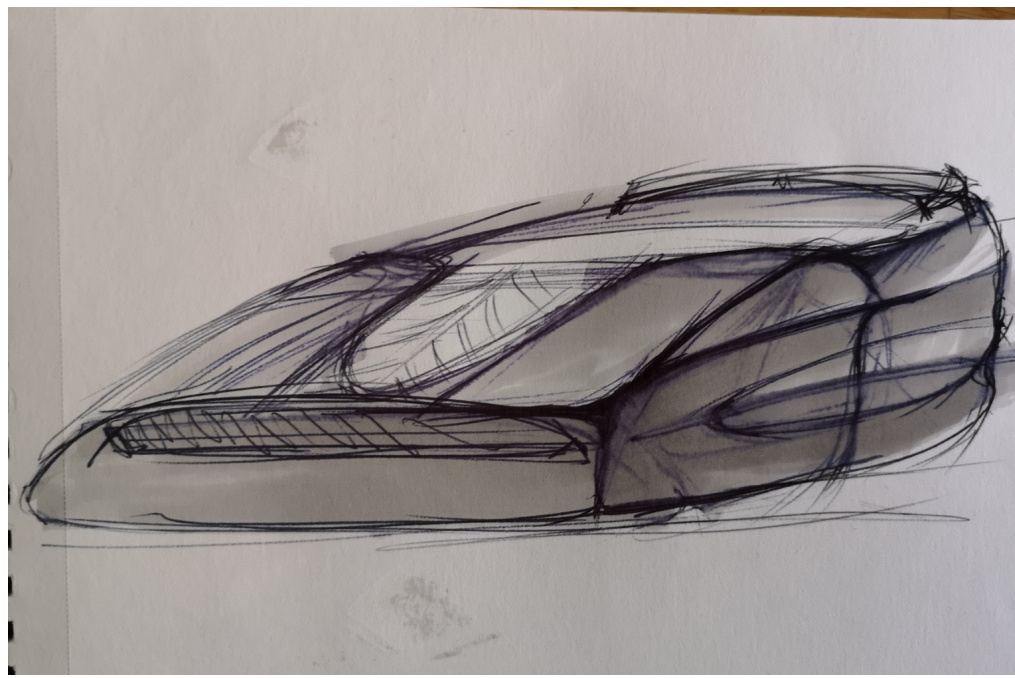
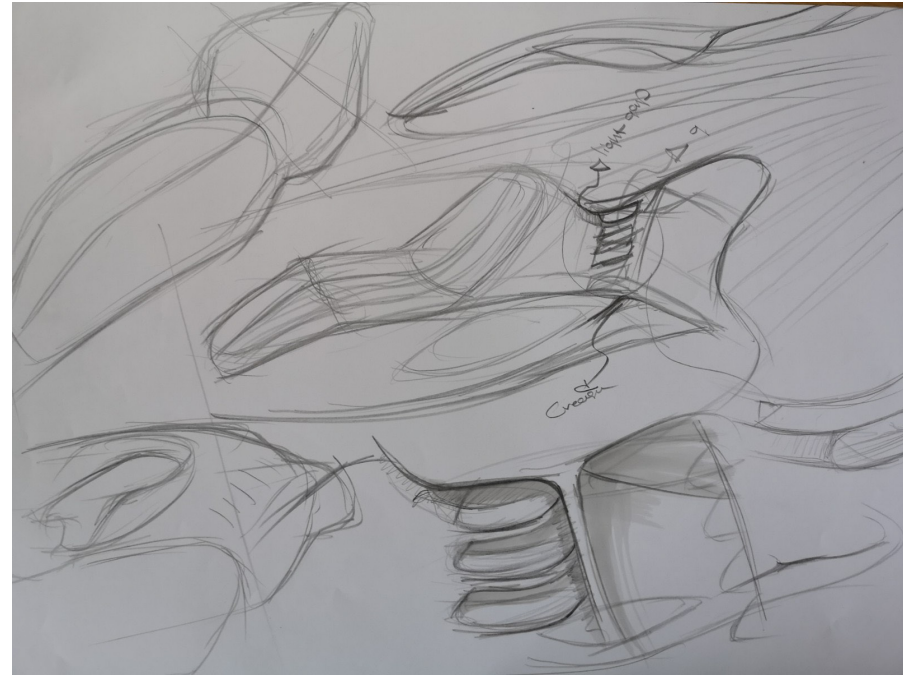
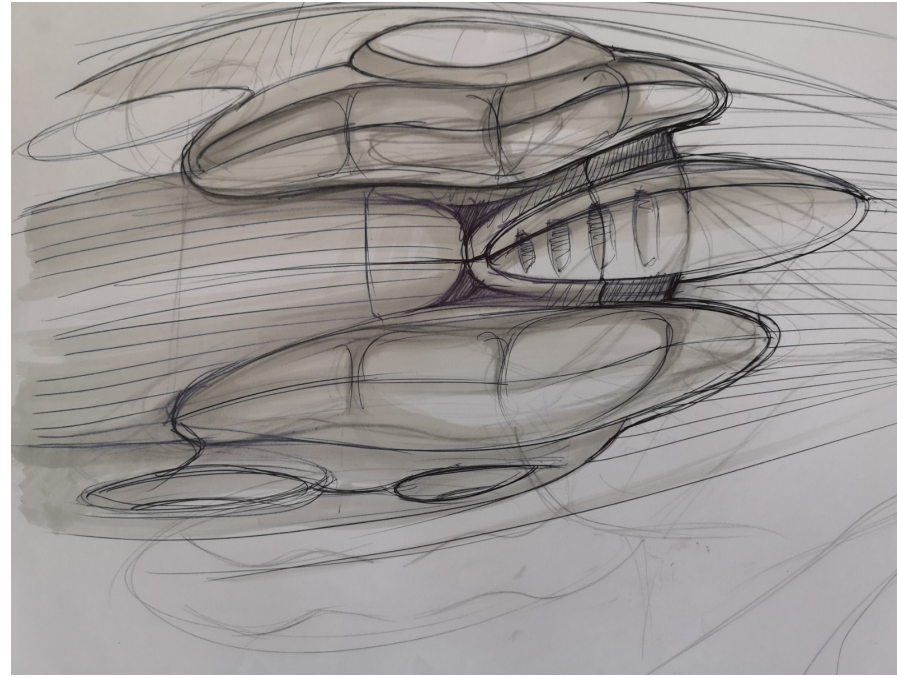


Luxury Sport Boat



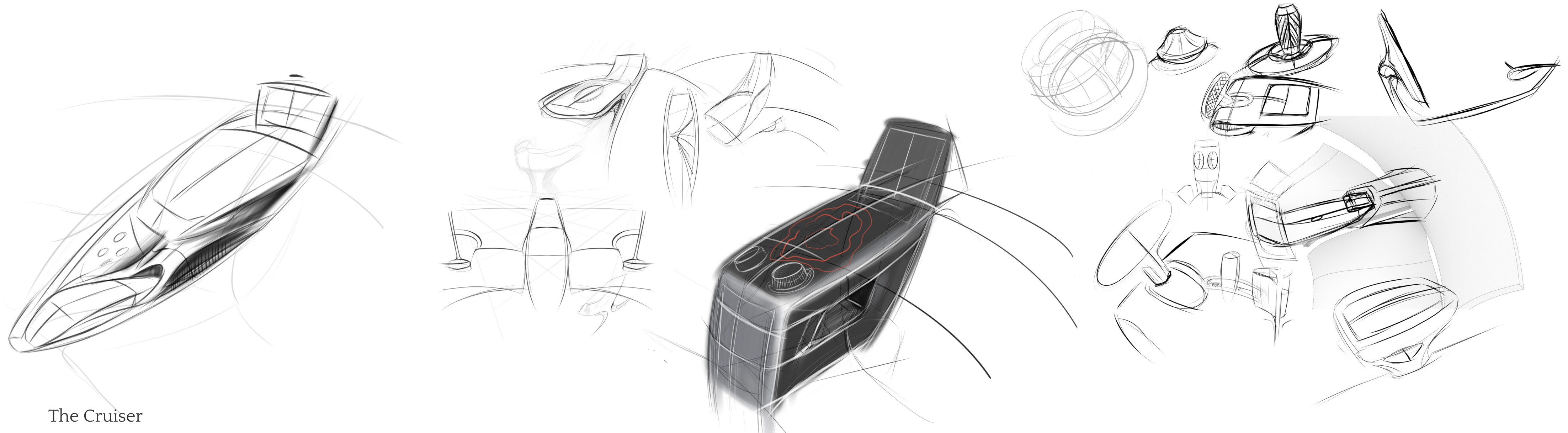
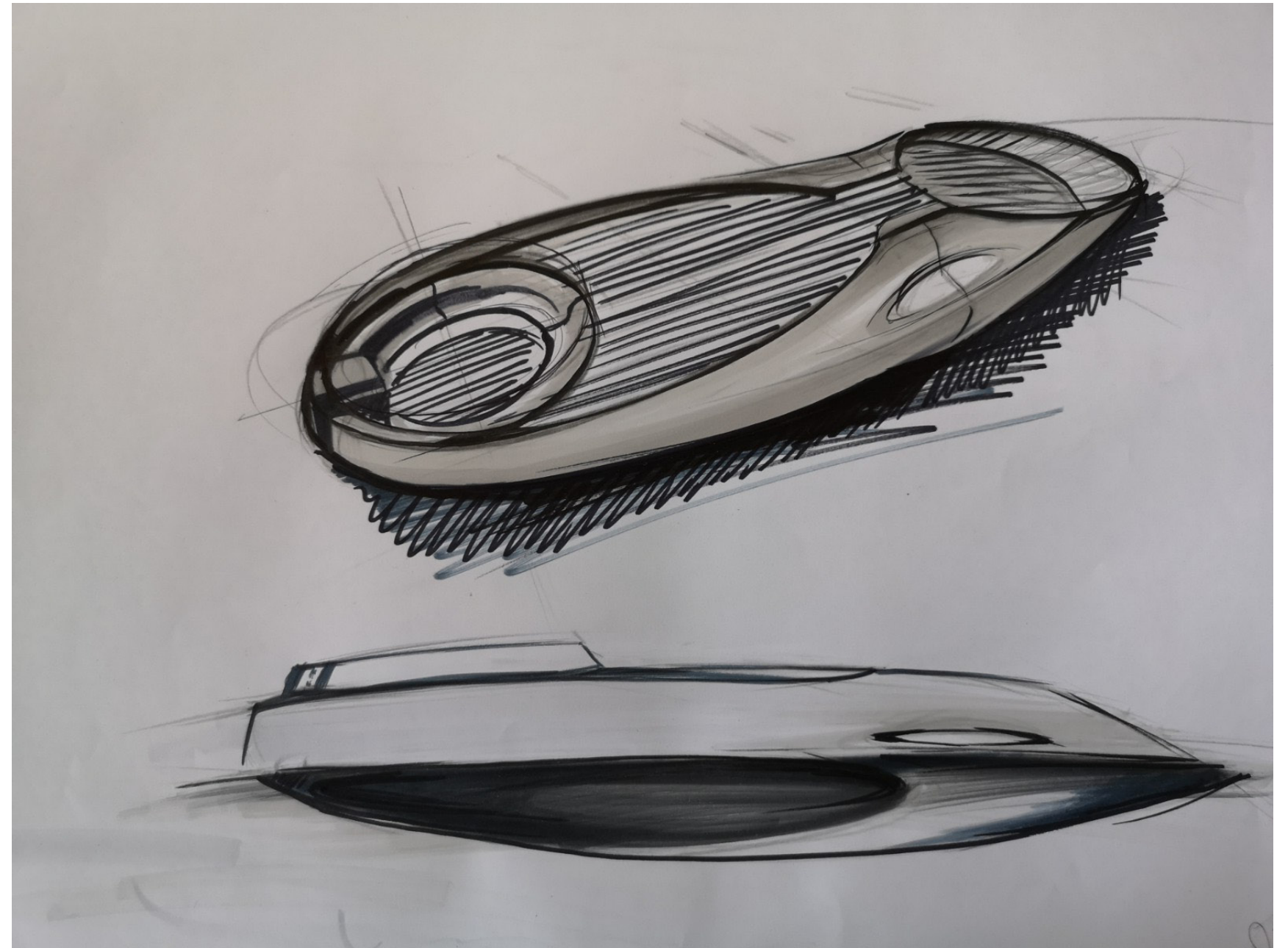
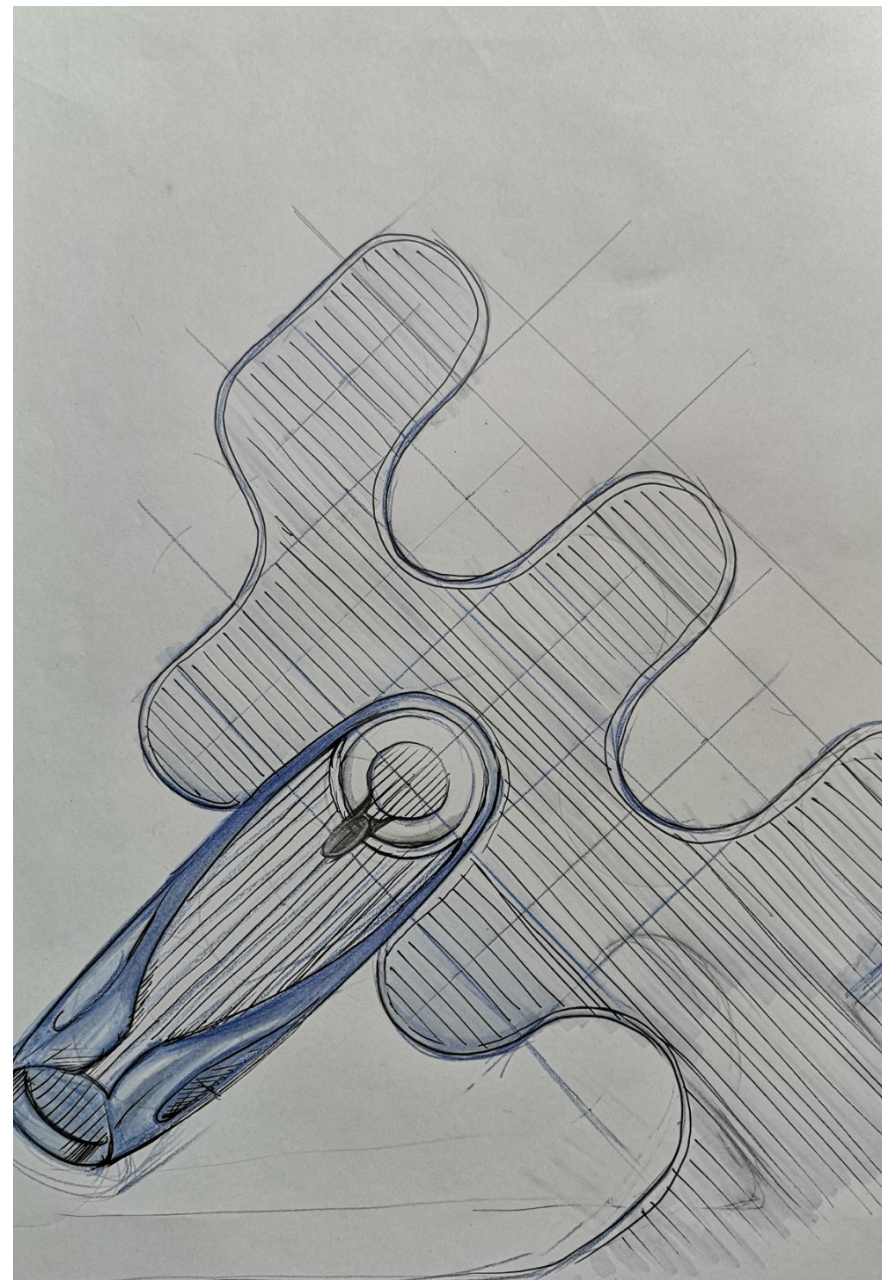
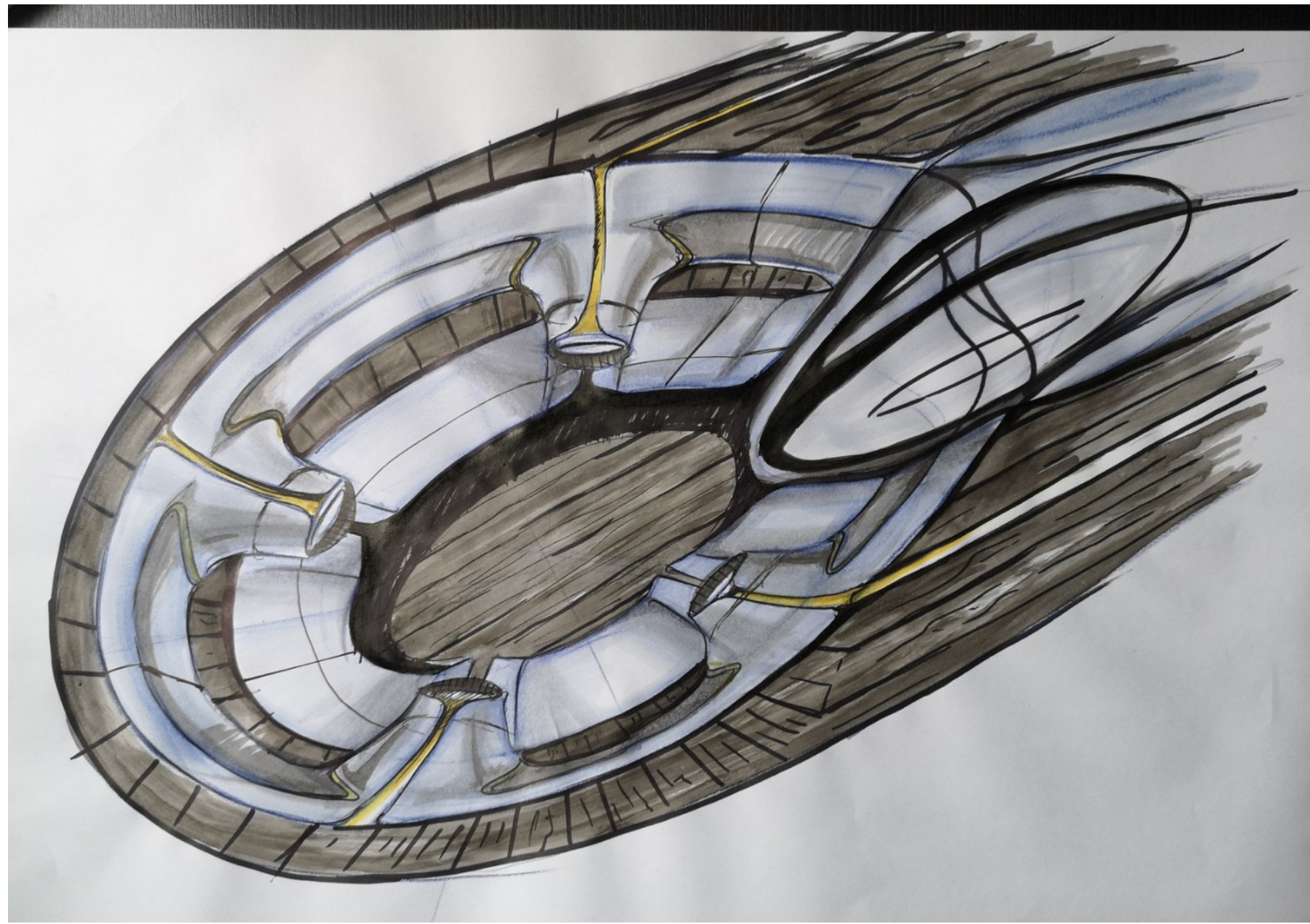
The Cruiser





Luxury Sport Boat

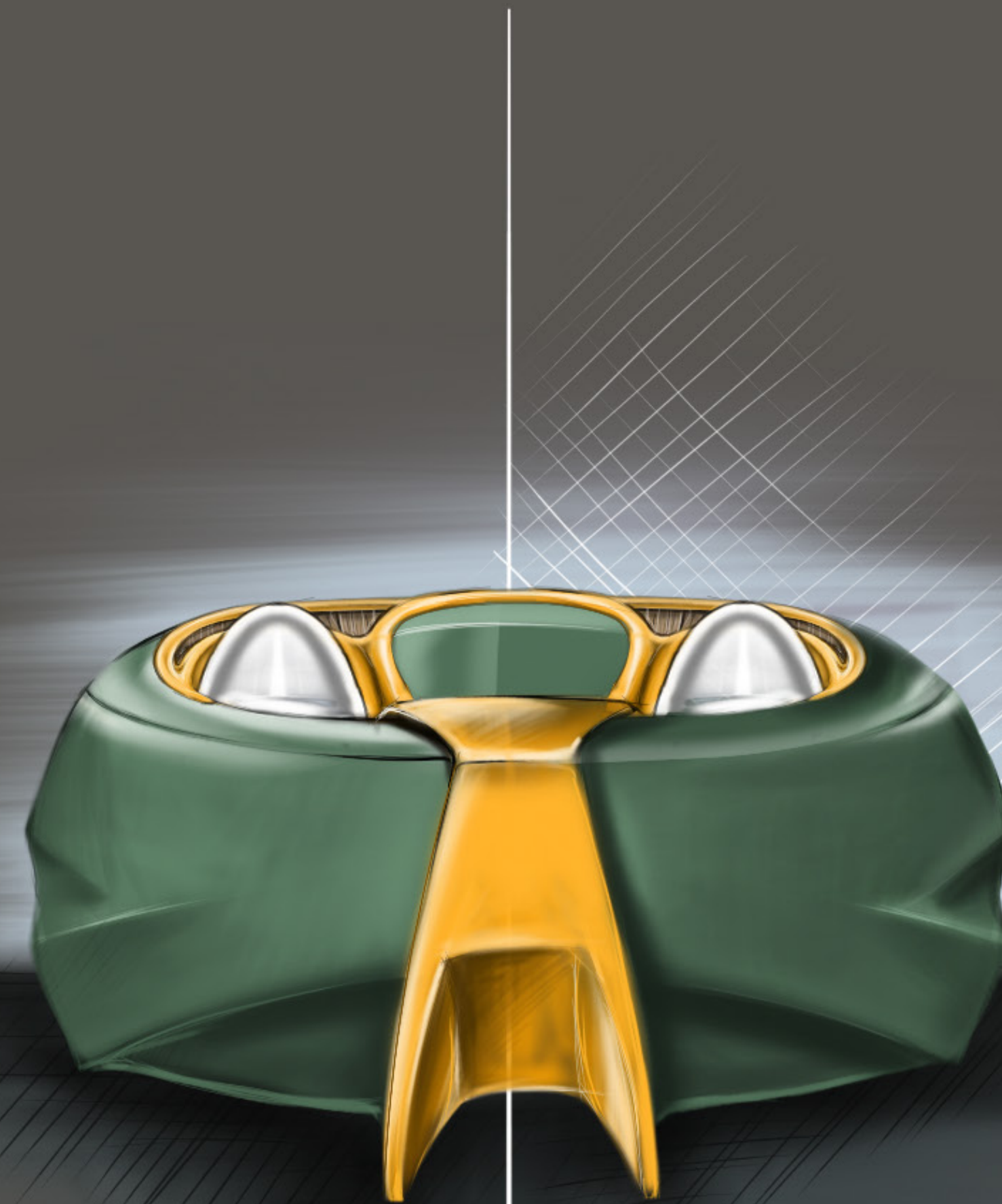




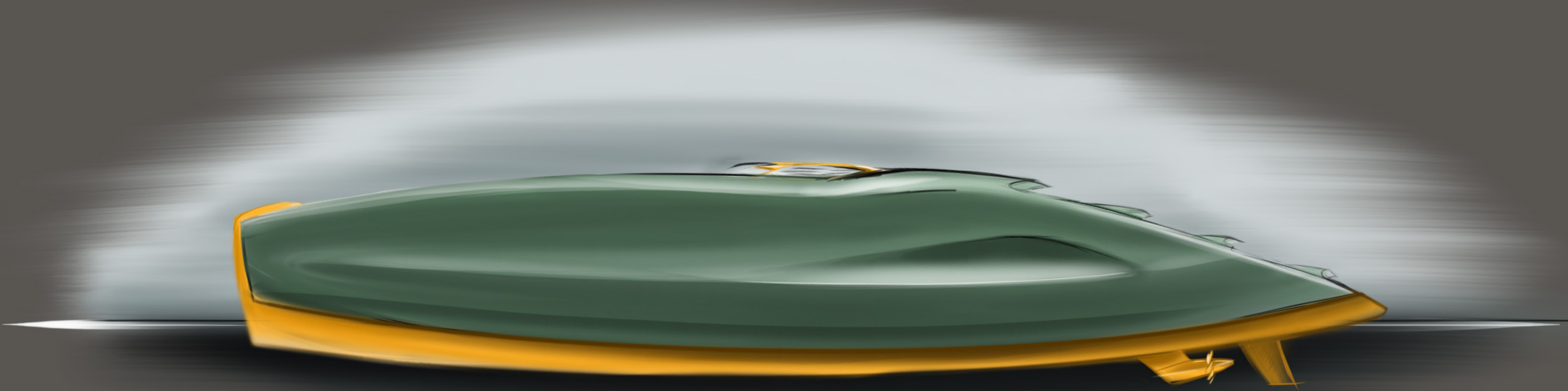
The Cruiser

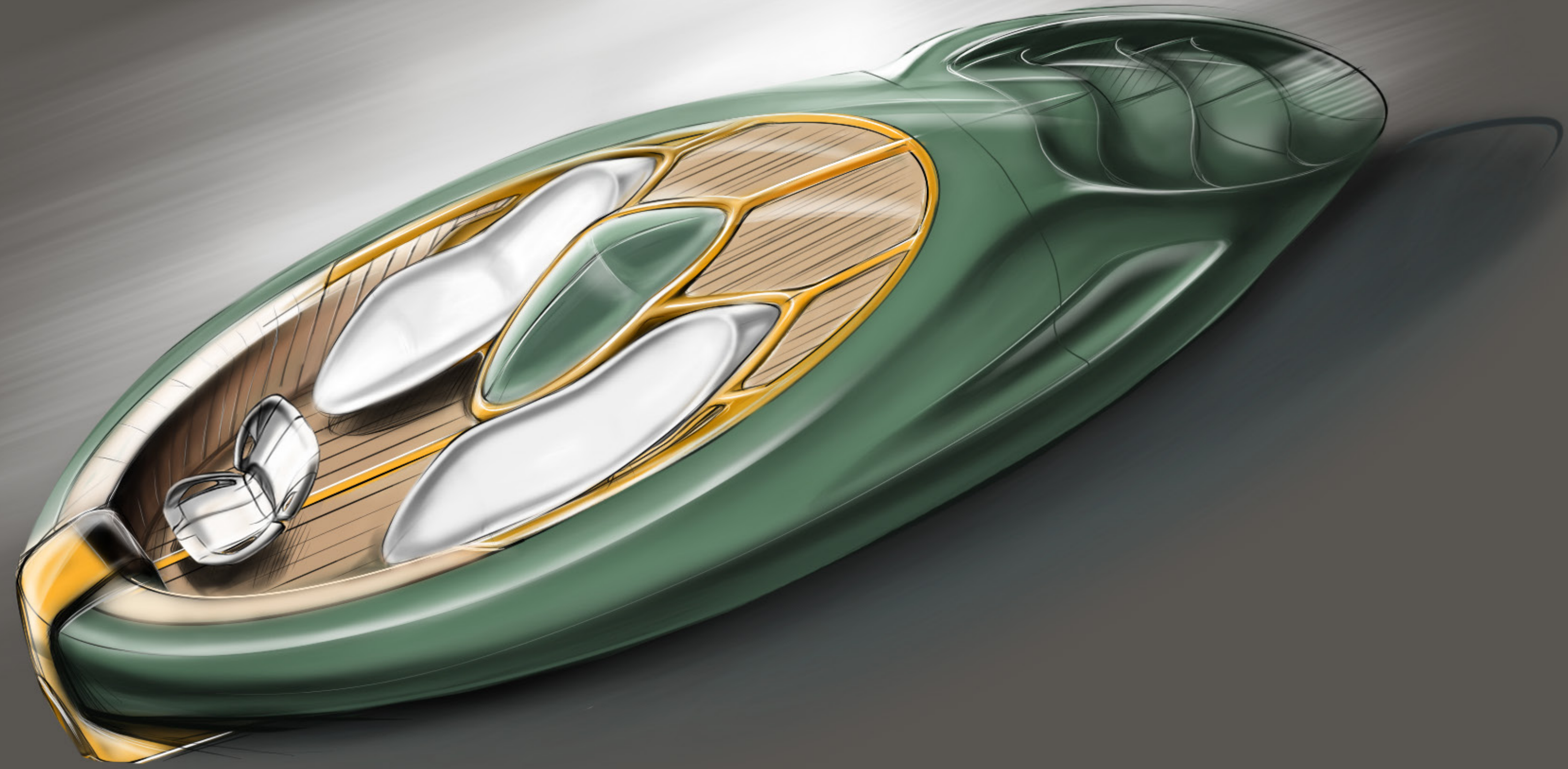


**LUXURY SPORT BOAT  
FINAL SKETCH**



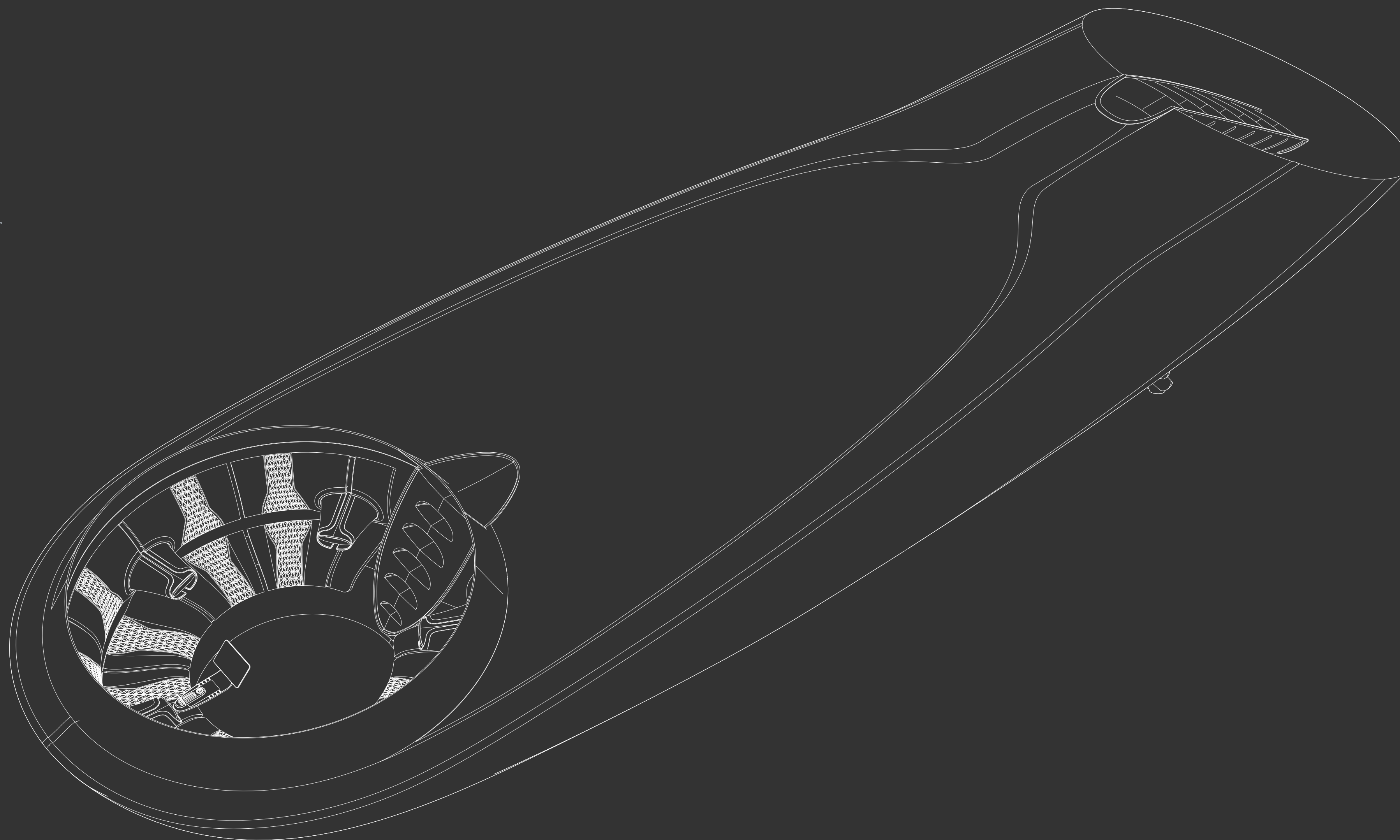




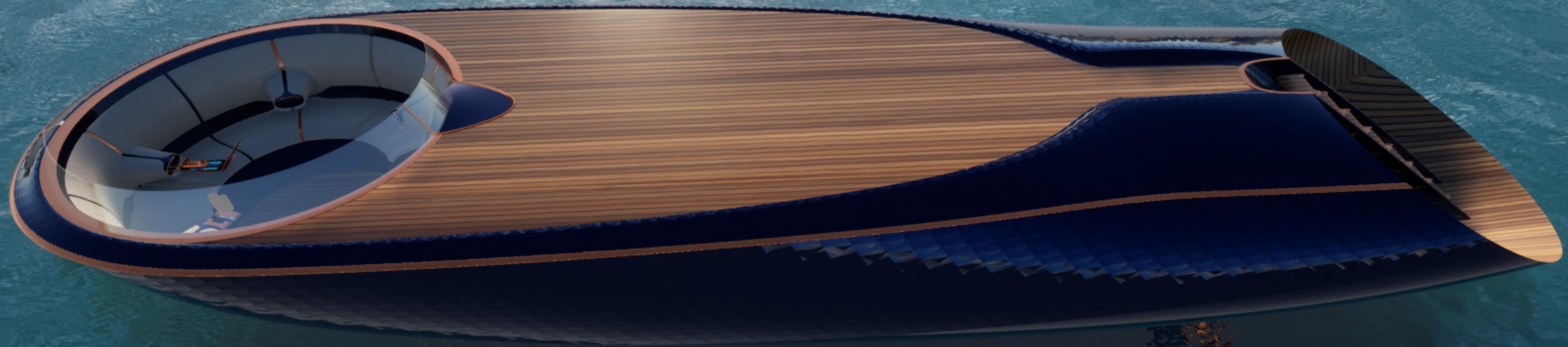




After talking with my supervisor Steinar Killi, he advised me to continue with the Cruiser concept.





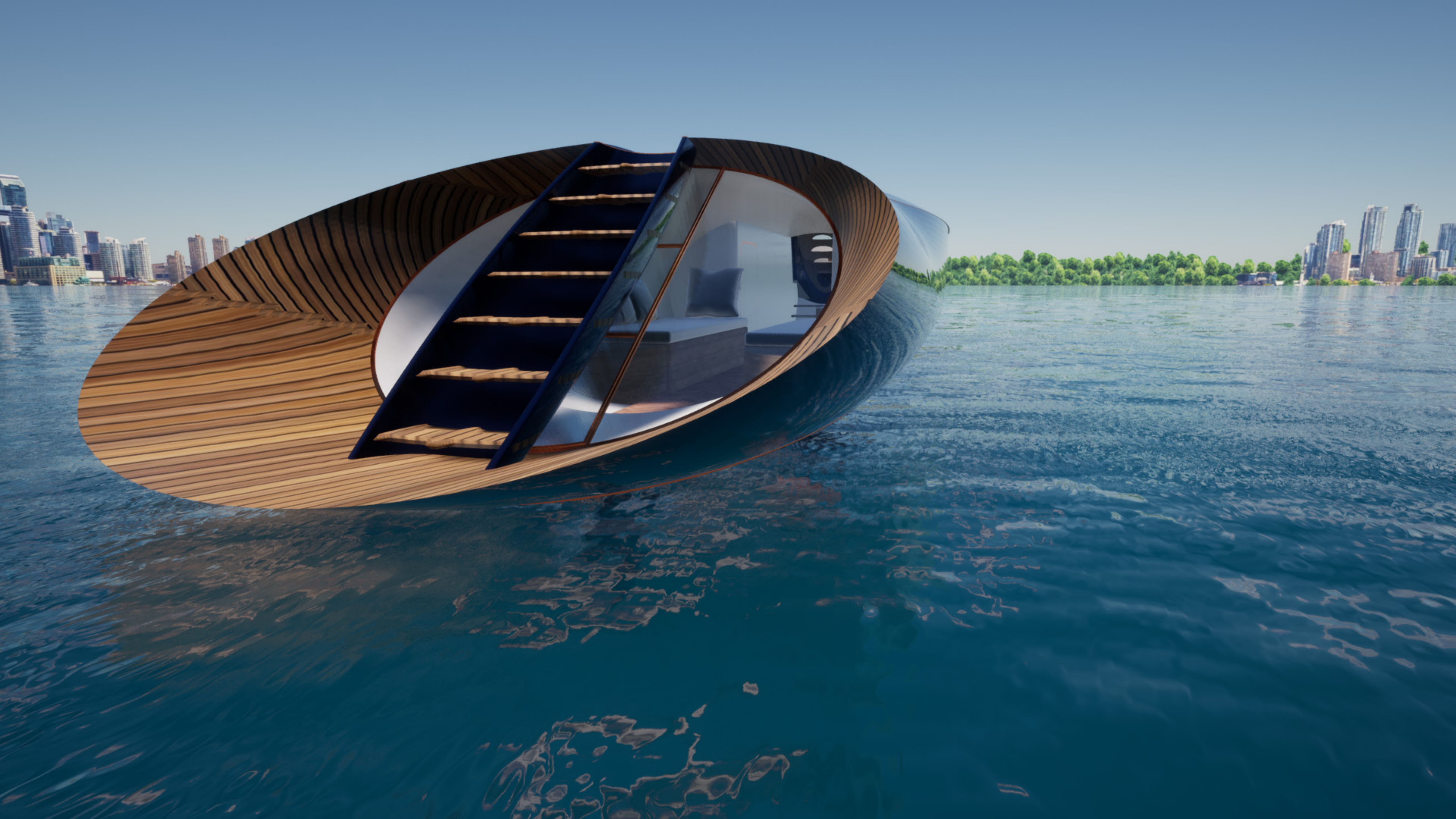


The boat is a 13 meters cruiser designed with the idea of having a big sunbathing space enough to accommodate all the passengers, with smart and minimalist controllers leaving more space for the users. Furthermore, by following the aesthetics guidelines and using circles for the design of the seating area creating a friendly space where passengers are facing each other also integrating the tables in the armrests with cups and bottle holders, as well as the controllers leaving an open space to move with comfort.

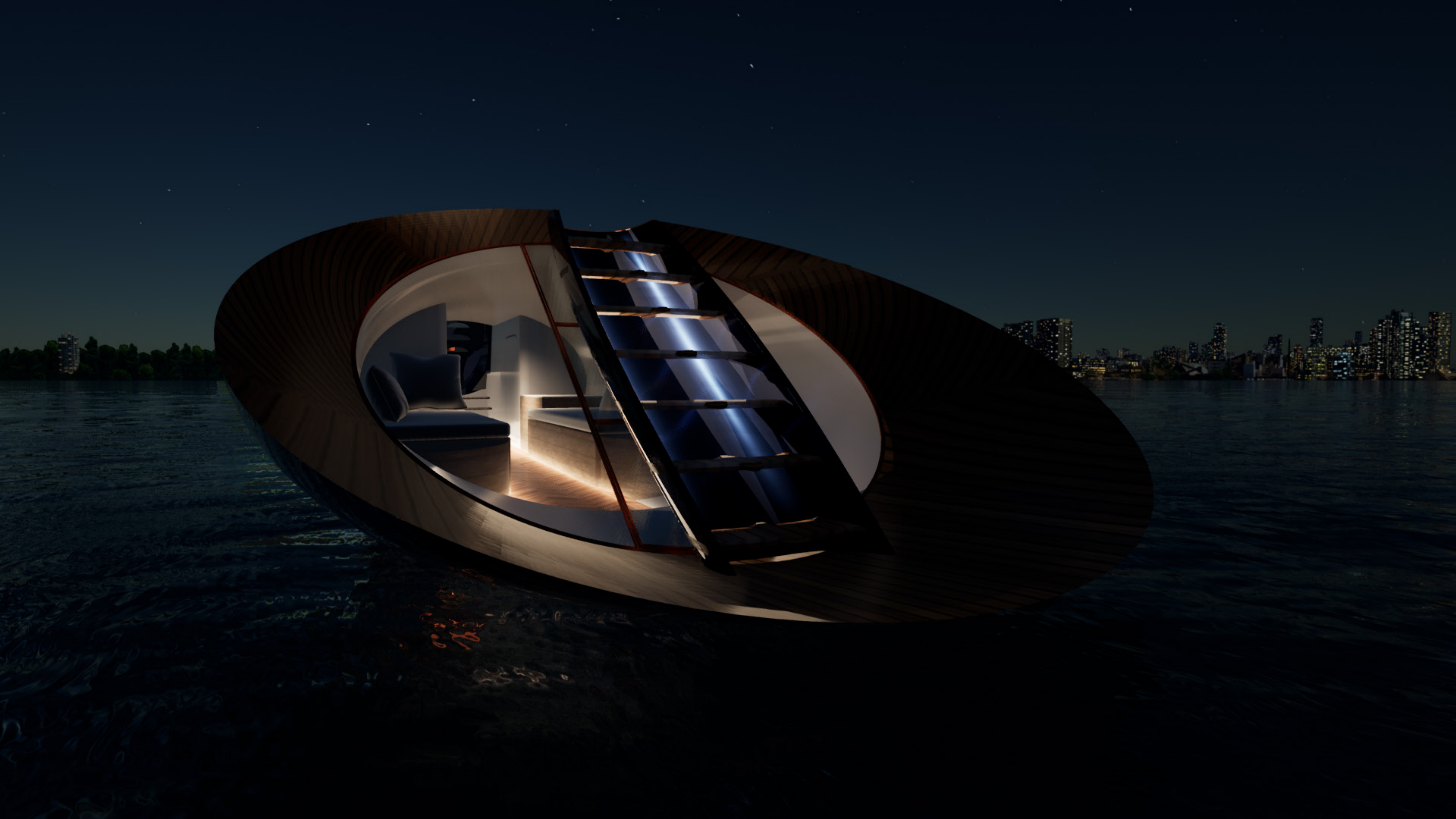




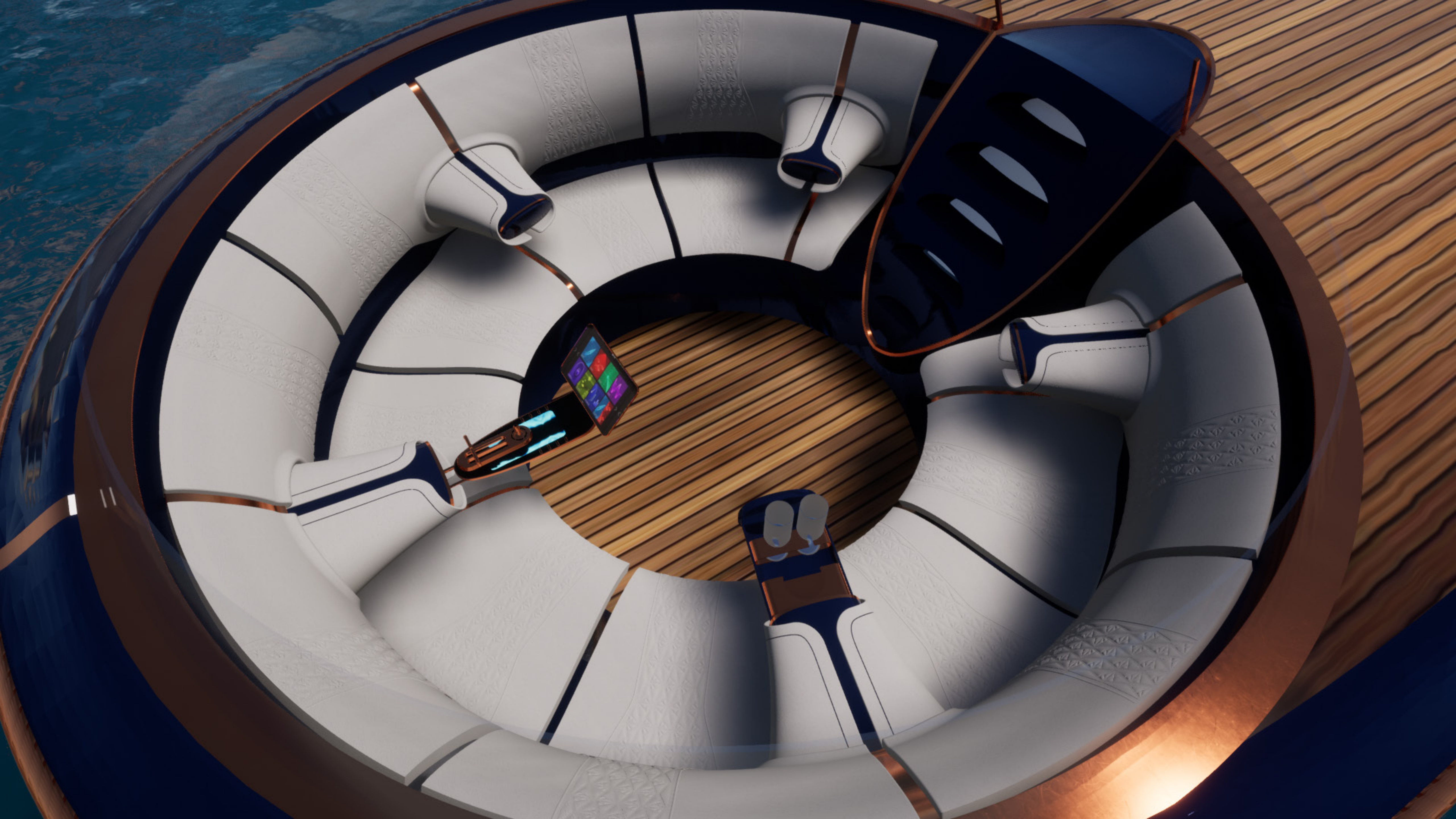




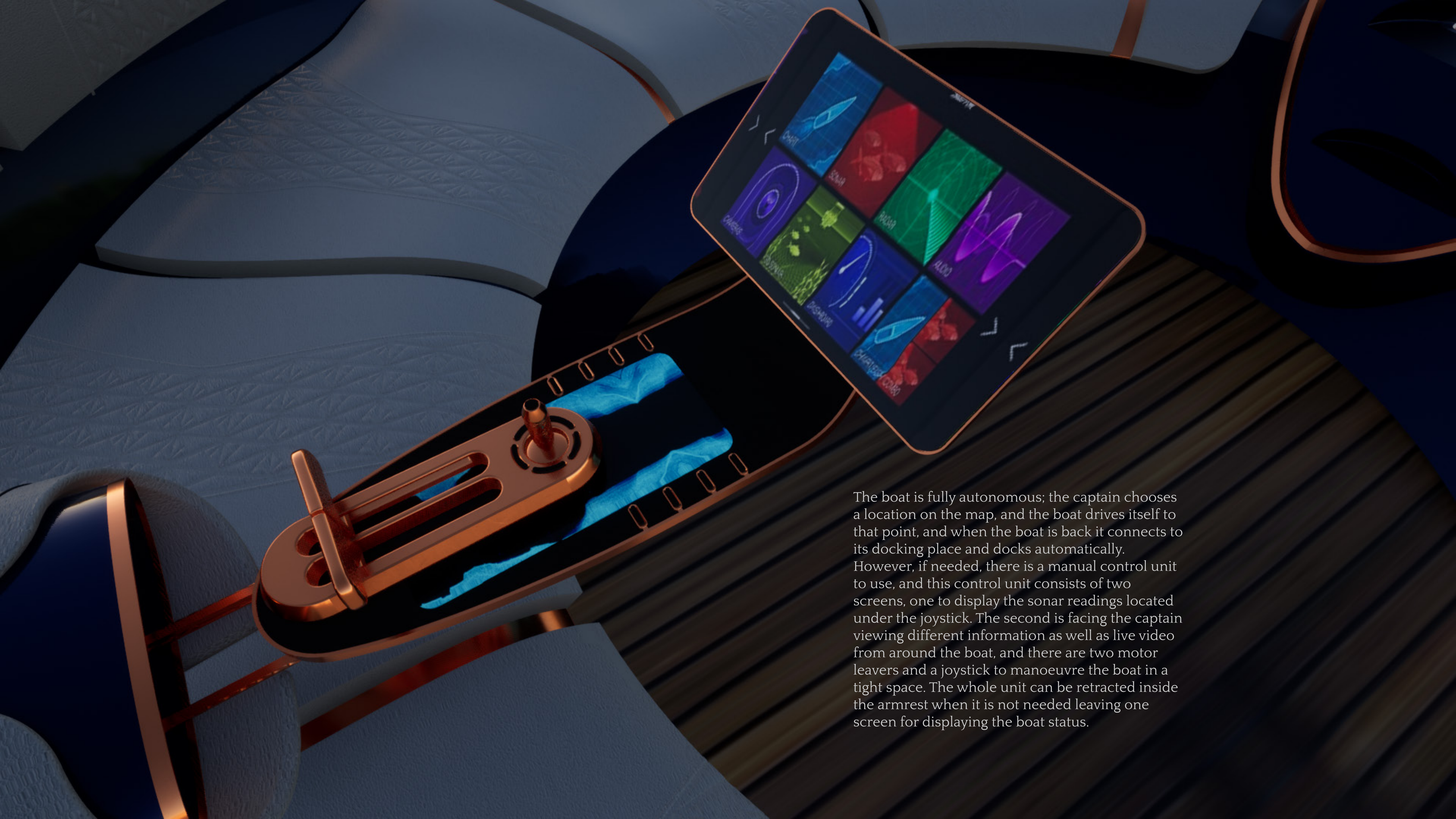






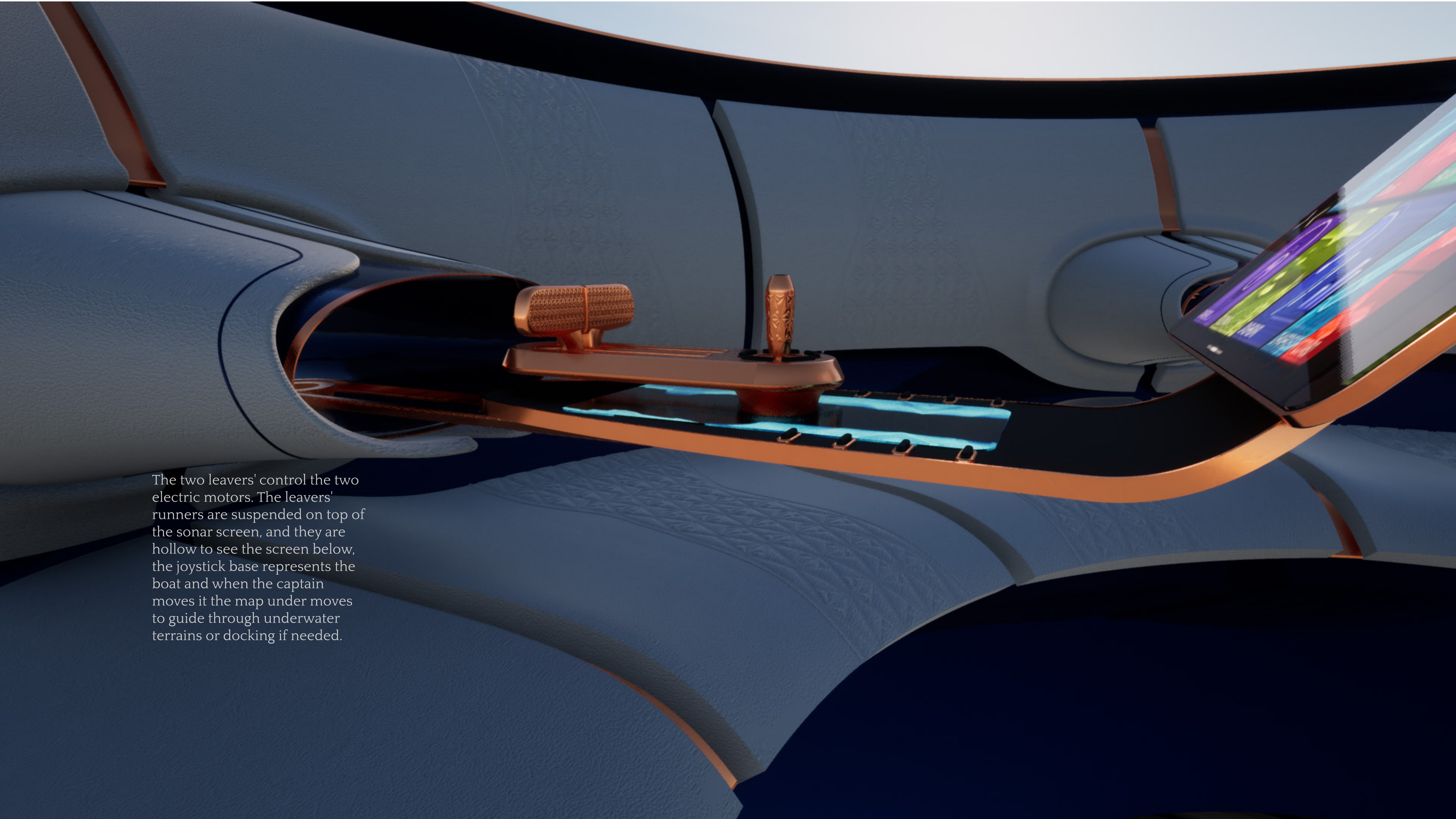






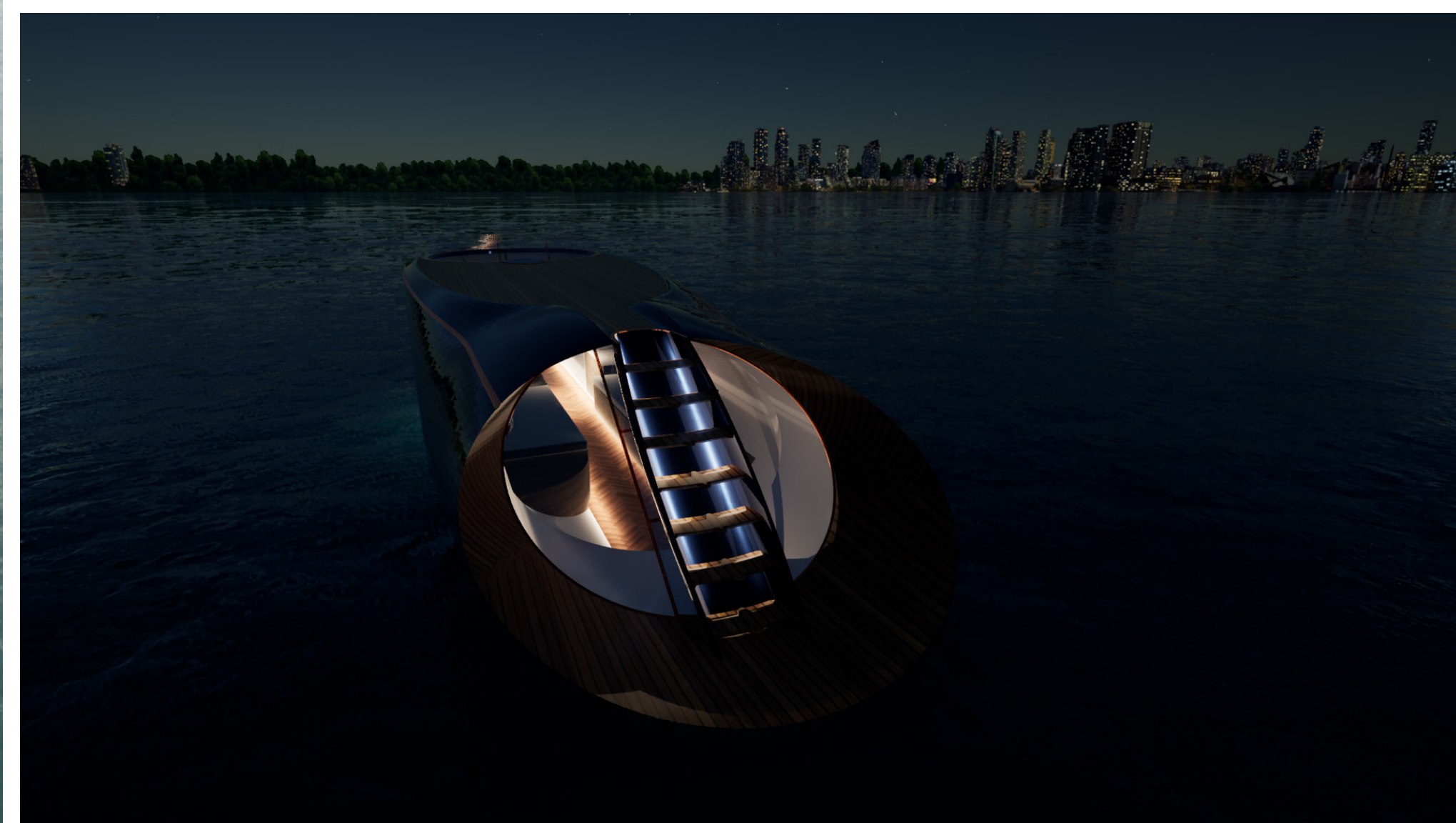
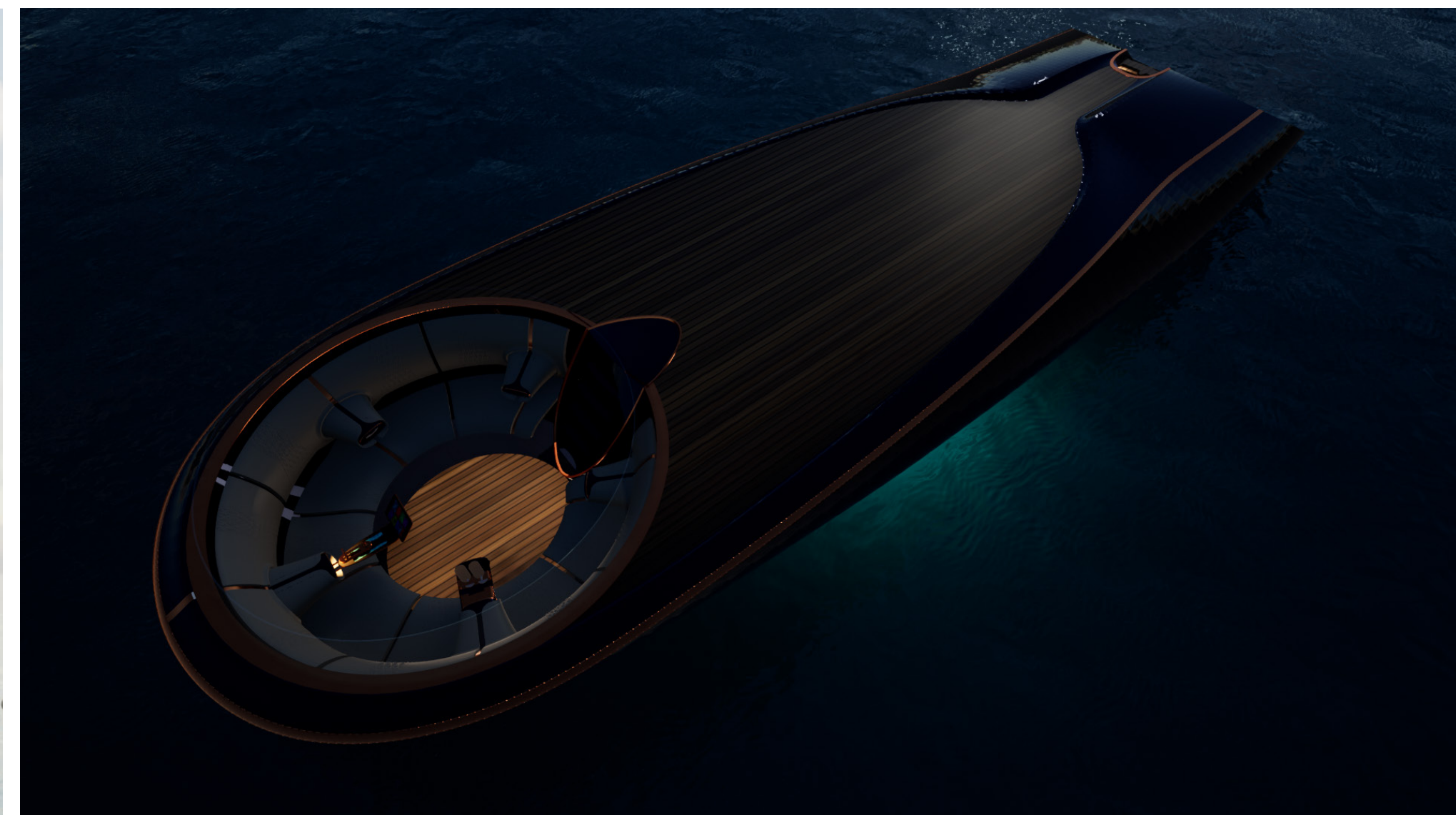
The boat is fully autonomous; the captain chooses a location on the map, and the boat drives itself to that point, and when the boat is back it connects to its docking place and docks automatically. However, if needed, there is a manual control unit to use, and this control unit consists of two screens, one to display the sonar readings located under the joystick. The second is facing the captain viewing different information as well as live video from around the boat, and there are two motor levers and a joystick to manoeuvre the boat in a tight space. The whole unit can be retracted inside the armrest when it is not needed leaving one screen for displaying the boat status.





The two leavers' control the two electric motors. The leavers' runners are suspended on top of the sonar screen, and they are hollow to see the screen below, the joystick base represents the boat and when the captain moves it the map under moves to guide through underwater terrains or docking if needed.







The boat has direct access from the cabin through a glass door to the stern platform, with this open space will remove the claustrophobic feeling.



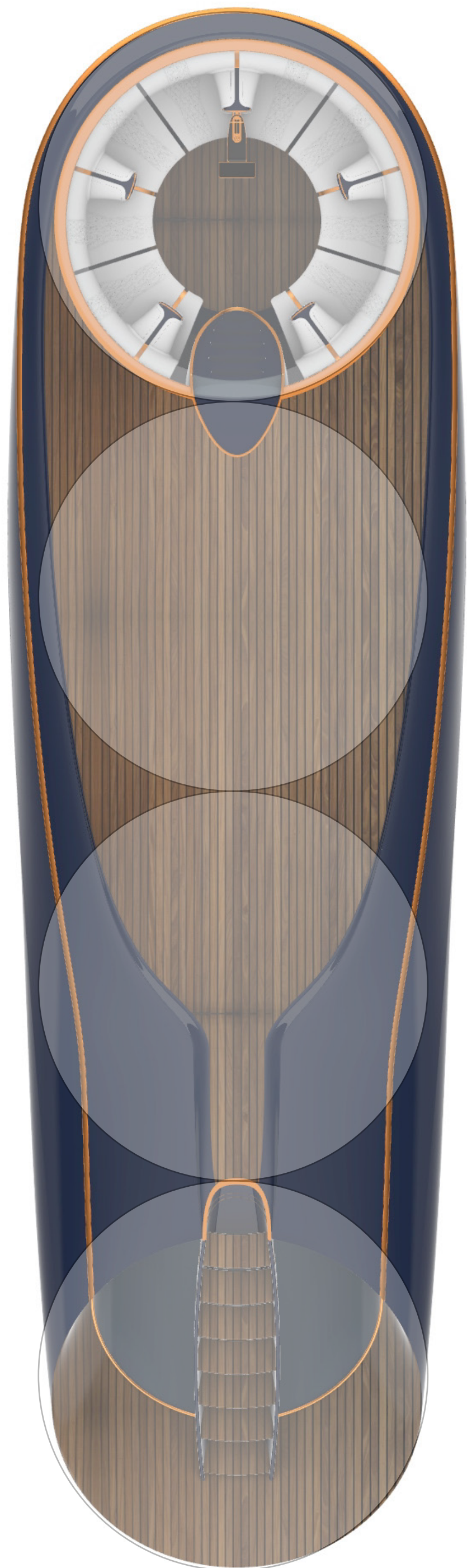
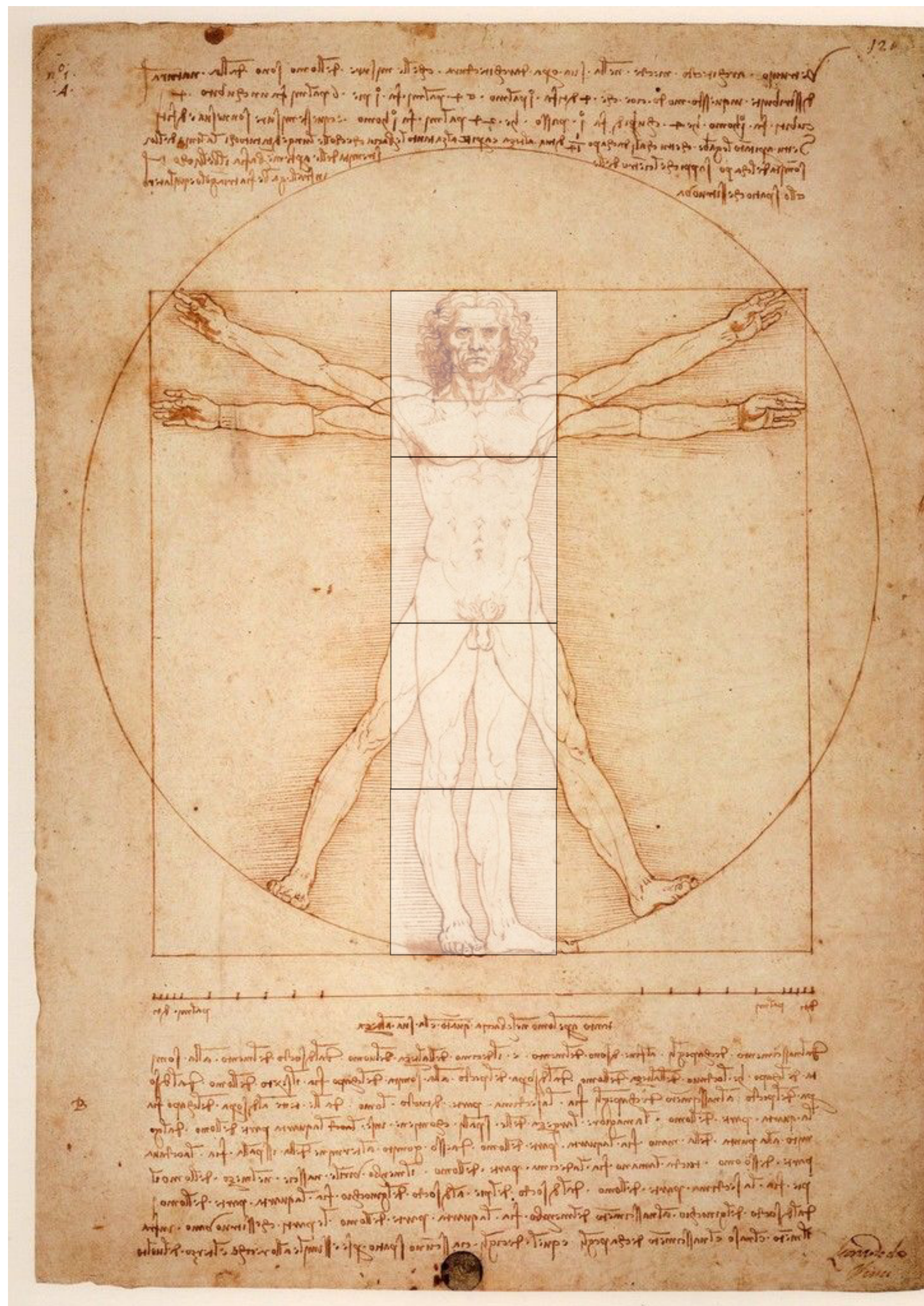
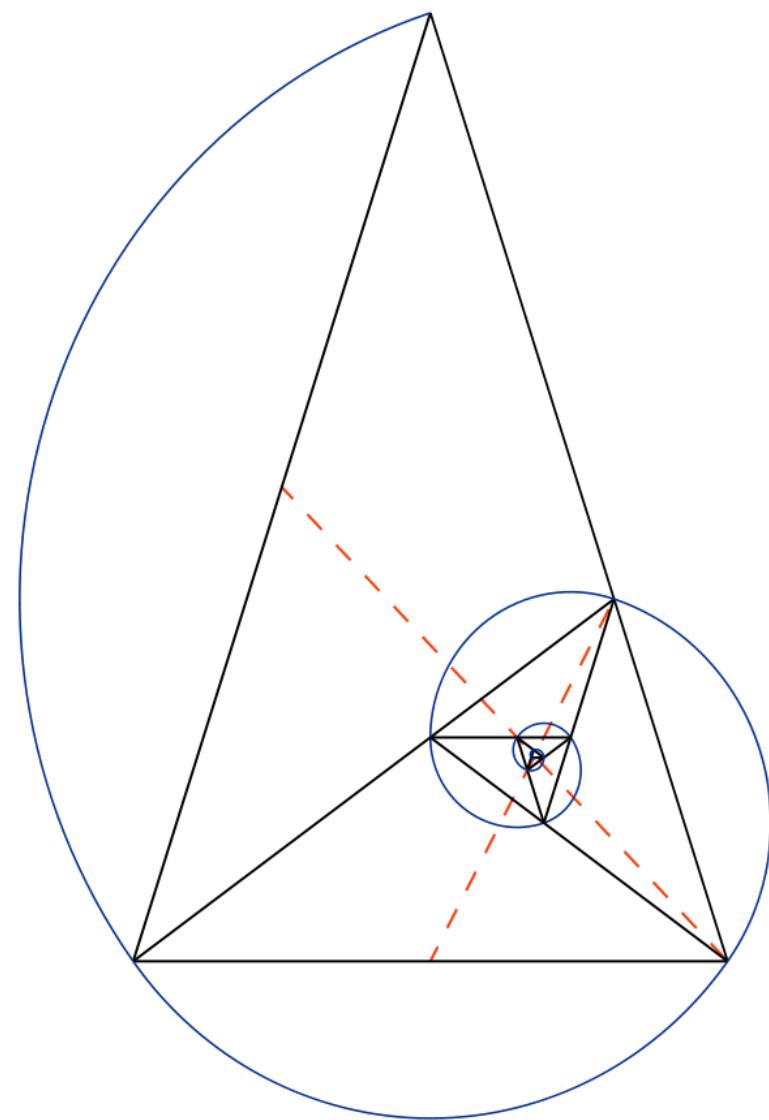


By keeping the clean and symmetric layout and surfaces using long geometrical lines of brass on a dark blue background, and creating sharp contrast in colours, yet connecting the spaces around the boat and presenting the boat in a contemporary art deco composition to deliver a timeless and elegant design.

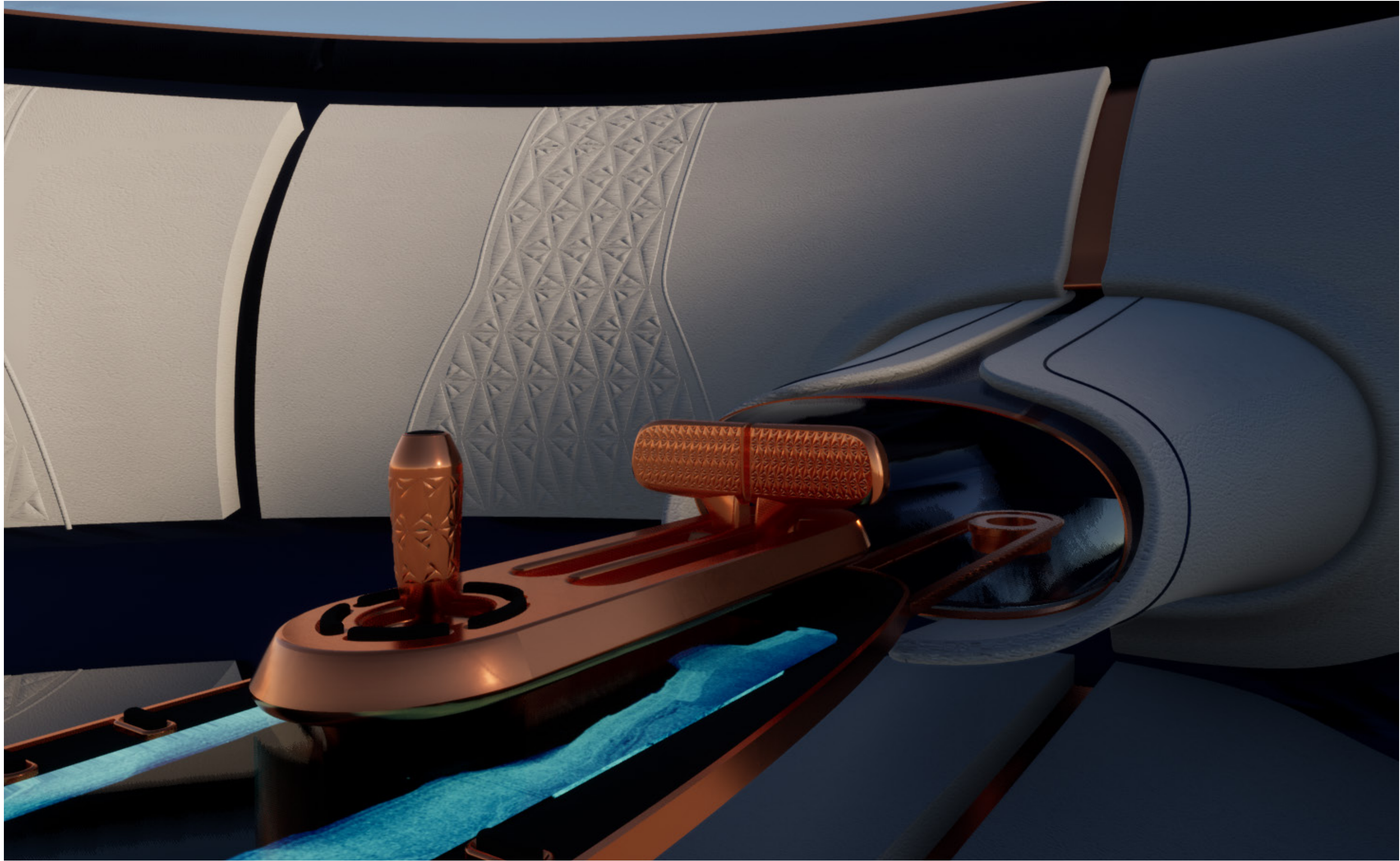




The proportions are based on the Vitruvian man, using the seating circle as measuring unit four circles for the length, and one circle for the width and height, and the golden rule to arrange spaces, so the ratio between the seating circle and the sunbathing area is 1:1.618 and between the sunbathing and seating, to the whole boat is also 1:1.618. The patterns on the seats and the controllers are triangles that shape the Fibonacci number.

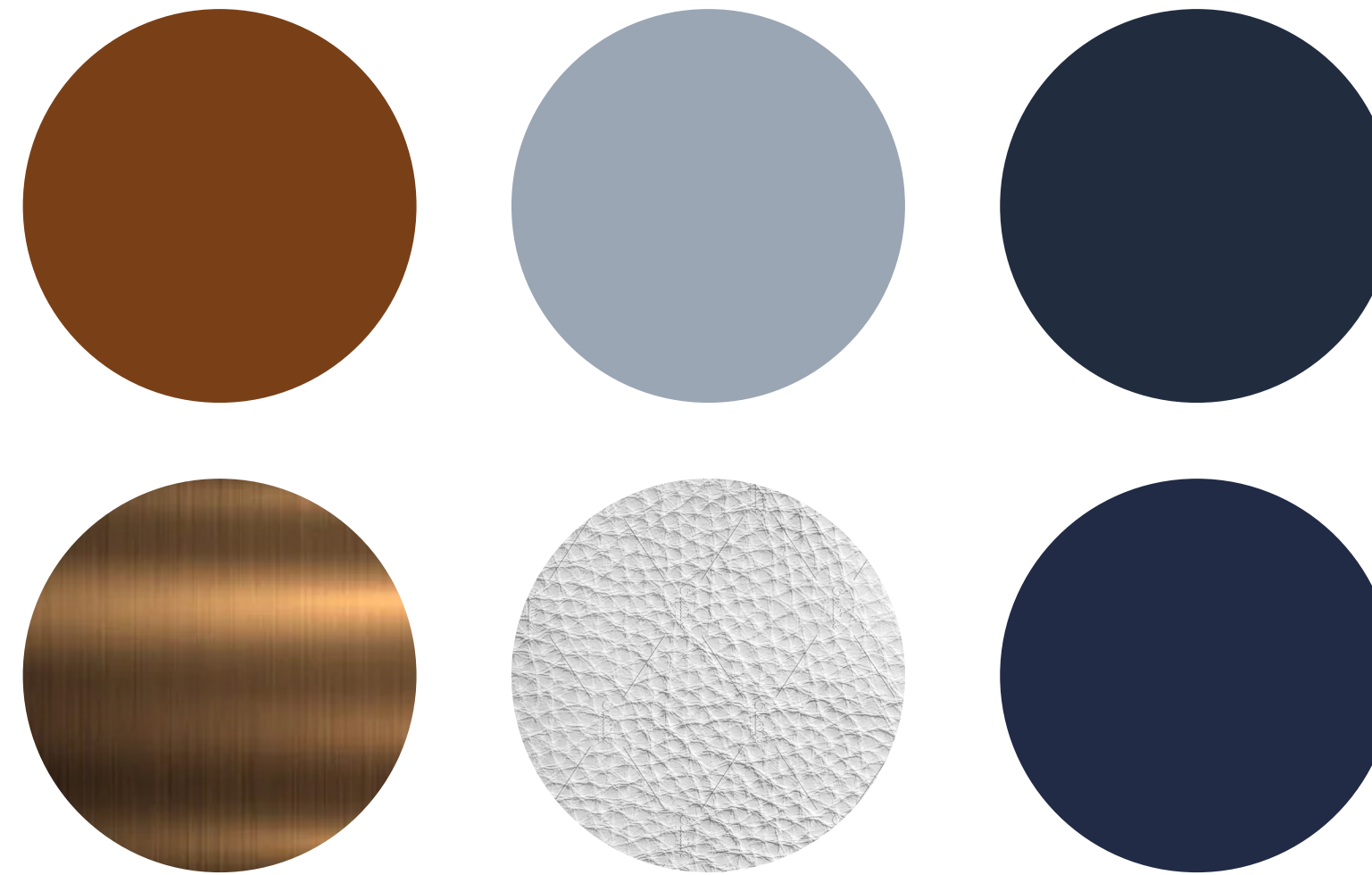








Based on the experiment by Sagmeister & Walsh in their book "Beauty." Showed that people preferred circles and curves as shapes and the blue from Leonardos' paintings. Therefore, I have selected Salvatore Mundi painting and extracted three colours; gold from the embroidery, blue from the cape, and white from the sleeve and matched them with materials to use, brass for gold, paint for blue and white for the seating area. Moreover, Using only circles and curves to create the surfaces and lines for the seating area, controllers, armrest, doors and even the stairs.

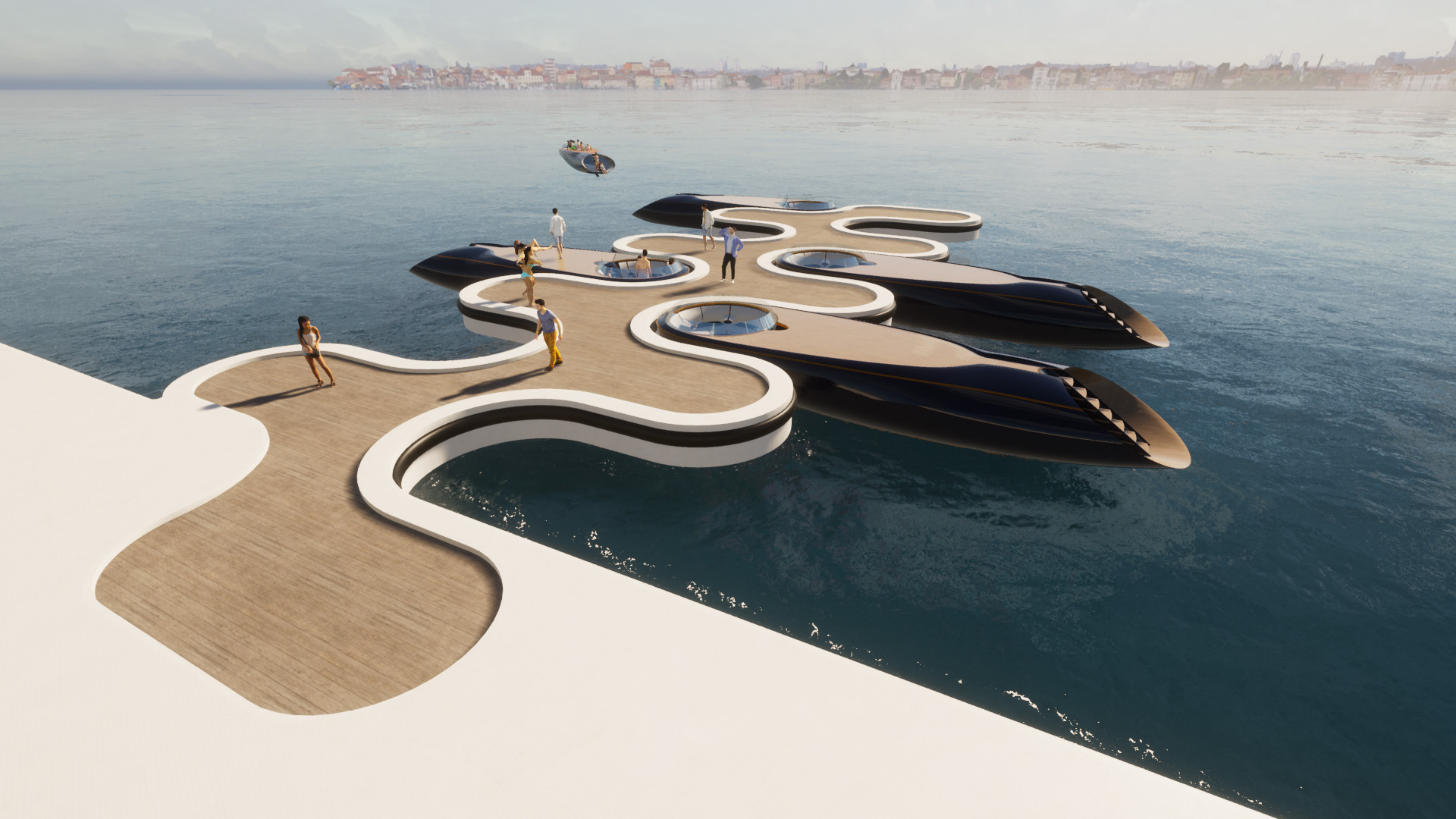




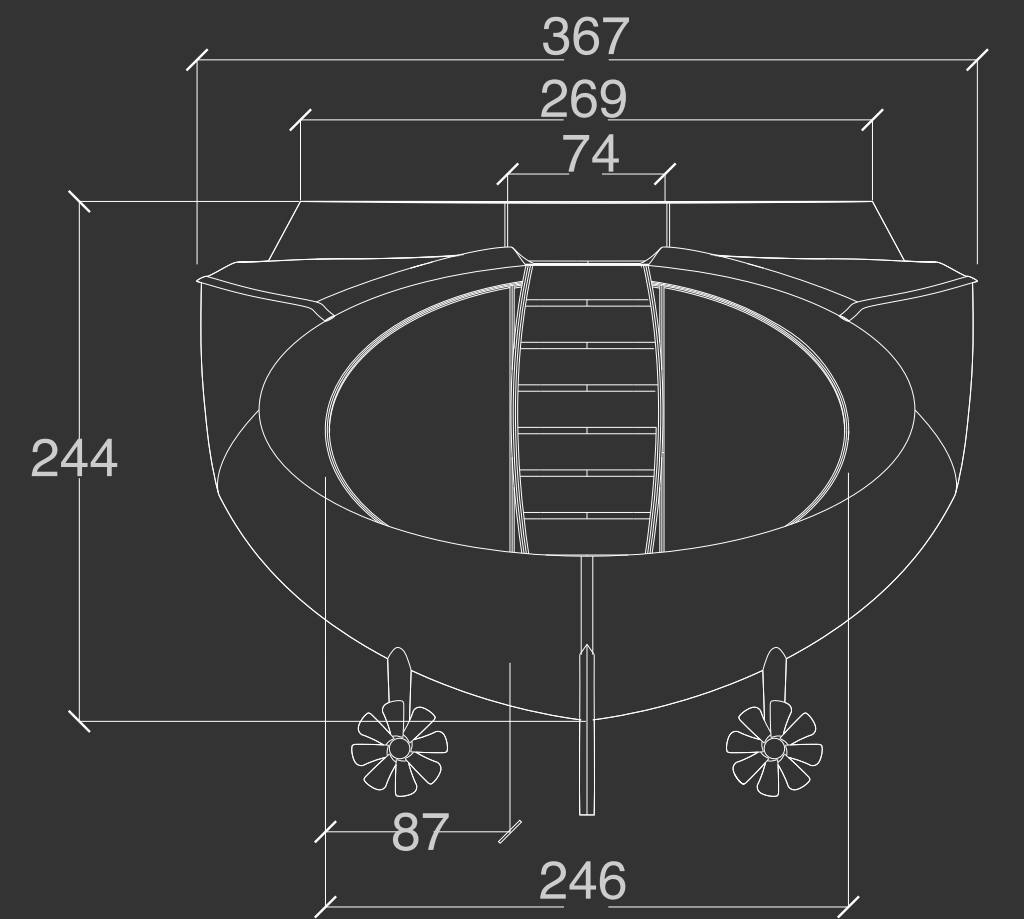
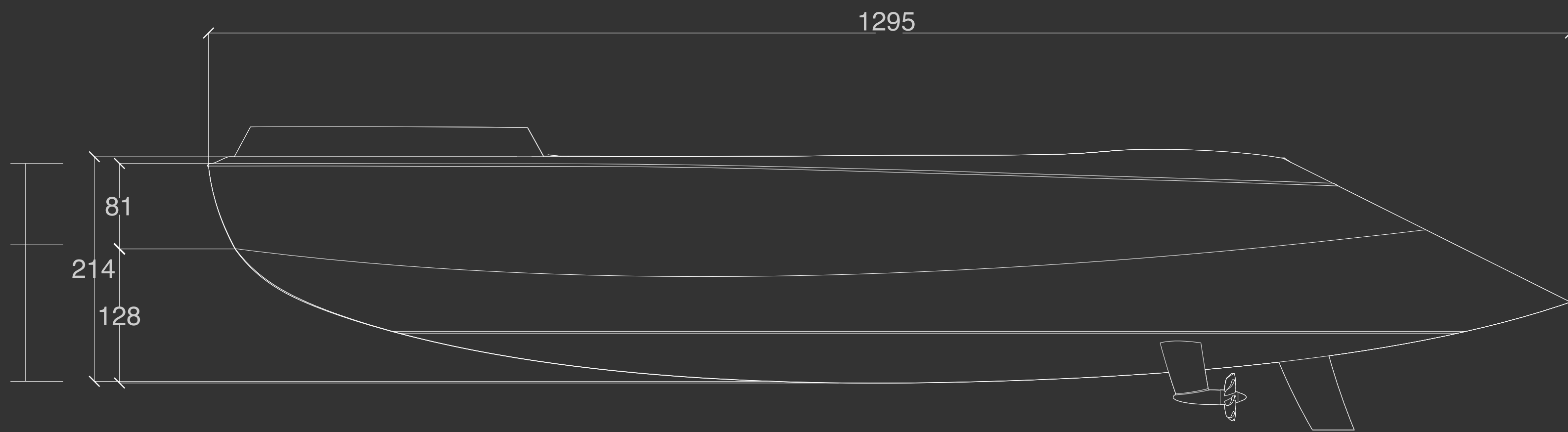
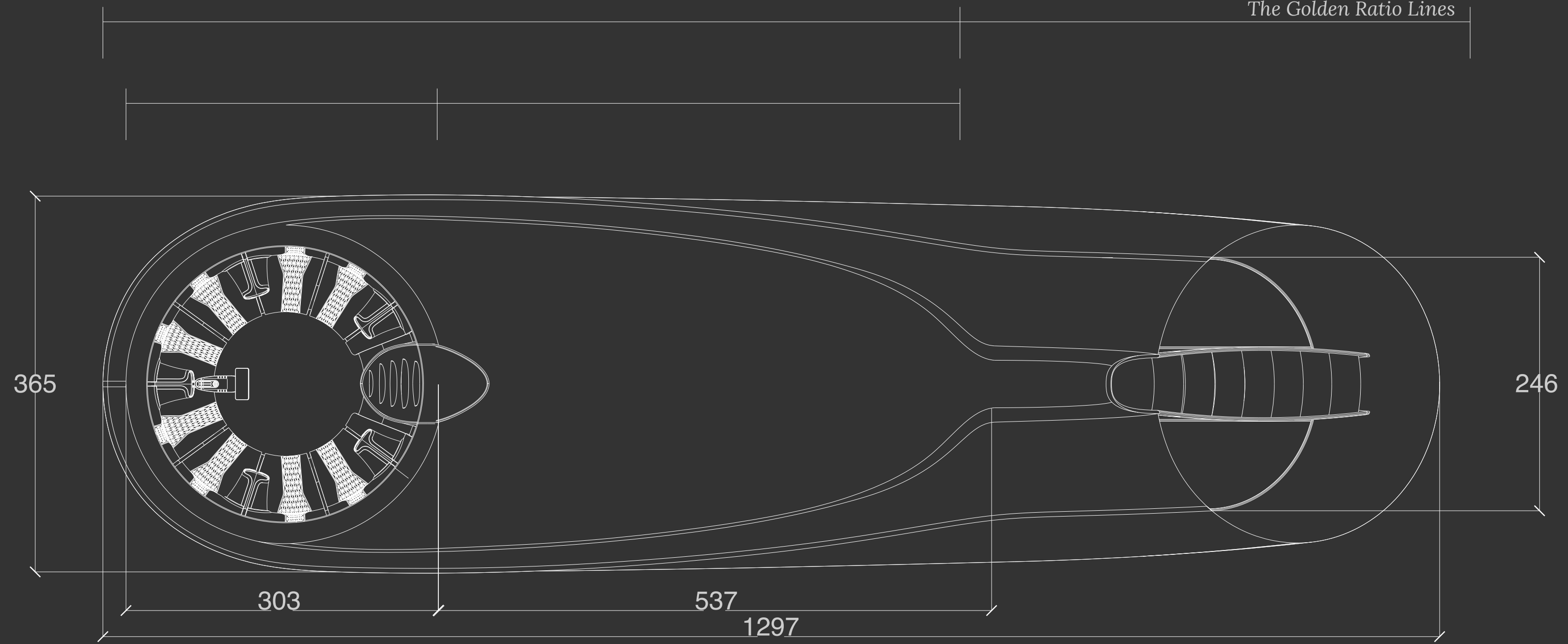


The docking platform with integrated dock bumpers is designed to complement the boat lines and create a beautiful landscape around the boat. Also, it has a functional purpose which is to help the boat dock safely through a system of sensors and cameras that are connected to the boat and help with the docking.











Beauty in design is genuinely vital, it adds values on emotional and functional levels, it can be taught, and it can be implemented following simple guidelines, and with unlimited results, these points are a premise that designers can use to achieve beautiful designs.

## **CONCLUSION**

Designing a boat using this process was a challenging yet rewarding task, as boats are very complex objects and should relate with each other with one visual language, as well as its surroundings.

These guidelines can be used as a design language since they have changed from just thoughts to be science and will continue testing and improve it on future designs and go into more aspects to create a comprehensive toolkit.

When I began designing machines, I also began to think that these objects, which sit next to each other and around people, can influence not only physical conditions but also emotions. They can touch the nerves, the blood, the muscles, the eyes and the moods of people.

Ettore Sottsass





I would like to thank The Oslo School of Architecture and Design, and its design institute director Rachel Troye for this opportunity, and all the teachers whom I have crossed through this beautiful experience, and also I would like to thank my supervisor Steiner Killi whom he generously supported me during the last two terms.

**THANK YOU**