

# Digital Obsession Workshop. Advances in Architectural Geometry

Rhino Level 1 – Nurbs Modeling. Damascus – Syria. July 5<sup>th</sup> – 10<sup>th</sup> 2011

## **Instructor:**

**M.Arch.Aref Maksoud** (MAG LAB Director- Barcelona/Spain - Damascus/Syria)

Assistant Professor in Biodigital Architecture Master and PHD Program. ESARQ-UIC Barcelona/Spain

Professor - Lecturer for the 3rd year in "Architectural Composition - Architecture in Digital Age"

## **Guest Lecturers:**

**Arch.Sawsan Mansour** (Ibdaat executive manager - prof.lecturer in Damascus University - Faculty of civil engineer)

**Dr.Prof.Mohamad Yasser Al Aioubi** (Head of industrial department in AIU - Arab International University)

## **Team:**

**Nour Arabi Katbi** (MAG LAB - Barcelona/Spain - Damascus/Syria)



# Task and Objective

The task of the studio was to develop the design of parametric panel – Adaptive System, getting advantage from the new parametrical software Rhinoceros. It represented materials of the project, such as plans, sections, renderings and digital animation. All of them had to be architectural.

The objective was to extract information from the researches as an input in order to generate the new 3D space (parametric panel–exhibition object). Later on the input was being put as an output, showing the whole design process and applying the new obtained skills taught during the Rhino workshop.





# Abilities

## The Students Achieve

In this workshop the participants concentrated on design processes in order to explore architectural potentials seen and done by digital tools. The students finished the workshop knowing how to generate design processes through digital tools and how to apply this knowledge to create architectural proposals and physical prototypes.

In this comprehensive 5-day class they learned how to create and edit accurate free-form 3-D NURBS models. This fast-moving class covered most of Rhino's functionality, including the most advanced surfacing commands.

After this course the students were expected to be able to:

- move comfortably around the Rhino modeling window
- identify when free form or precision modeling is required
- create and edit curves, surfaces and solids
- use modeling aids for accuracy
- produce simple renderings of the Rhino models





# Rhino Level 1. Nurbs Modeling

## Day 1

Digital Obsession Workshop “Advances in Architectural Geometry” has begun with the speech of Prof. Aref Maksoud about the main tasks and results of the workshop, in the meantime representing the projects of MAGLAB, that have been accomplished by the design software Rhinoceros.

Afterwards the participants had an opportunity to gain knowledge about real architectural projects made by MAG Company, which is assumed to be a “godfather” of MAGLAB organization. The students showed the high interest in discussion about the structural forms and geometry as well, which led their minds to get ready for a creative and full-time work.



## Day 2

The second day of workshop started with the lecture about Morphology of Architecture, explaining its outcome from primary to digital point. During the media presentation, M. Arch. Aref Maksoud proved the function of the shapes and forms coming out from nature, such as plants or animals.

After two hours of teaching, participants were prepared to start their own research in order to develop an individual project. Students were encouraged to set their minds free, create without any design limits and work in the mood boards, blogging first panels. In the meanwhile, Professor Maksoud was open to everyone aiming for consultancy and individual revision.

Afterwards the main role was played by Digital Tool Class, where participants obtained skills and knowledge about using Rhinoceros, creating 3D models.





# Rhino Level 1. Nurbs Modeling

## Day 3

During the third day of the workshop, participants stayed mainly focused on modeling with digital tools. The base intermediate edit and surfacing commands were shortly repeated by professor, so students could easily consolidate with an individual project research and continue working on the first concept.

For the further enhancement of Rhinoceros skills, participants kept on following M. Arch. A.Maksoud's lectures, shown on video beamer.

As a result, those practical lessons improved students' capabilities and led to the point, where they were able to model a project and this time – on their own.



## Day 4

Thursday's task, given to each participant, was to work and develop the final project – extract all the information collected from researches and successfully apply to the real prototype.

After individual revision and consultancy, the team was pleased to welcome and attend the lecture of Prof. Mohamad Yasser Al Aioubi, known for his deep interest in computer science and long studies at the University of Oxford and Birmingham. He introduced the youth to the Digital Fabrication, explaining project's simulation using Rhino CAM and CNC Machine.

Those two technologies combined together will provide Workshop's participants with an opportunity to see their created model in real 3D dimensions.





# Rhino Level 1. Nurbs Modeling

Day 5

The final day has come. Digital Obsession Workshop has acknowledged participants as highly-trained experts of Rhinoceros Level 1. These obtained skills assure their projects to be accomplished in the dynamic and algorithmic way, as well as remain useful for the future perspectives. The students were focused on drawings and renderings, also preparing themselves for the final presentation, where everyone was asked to explain their project's concept and idea it was born from.

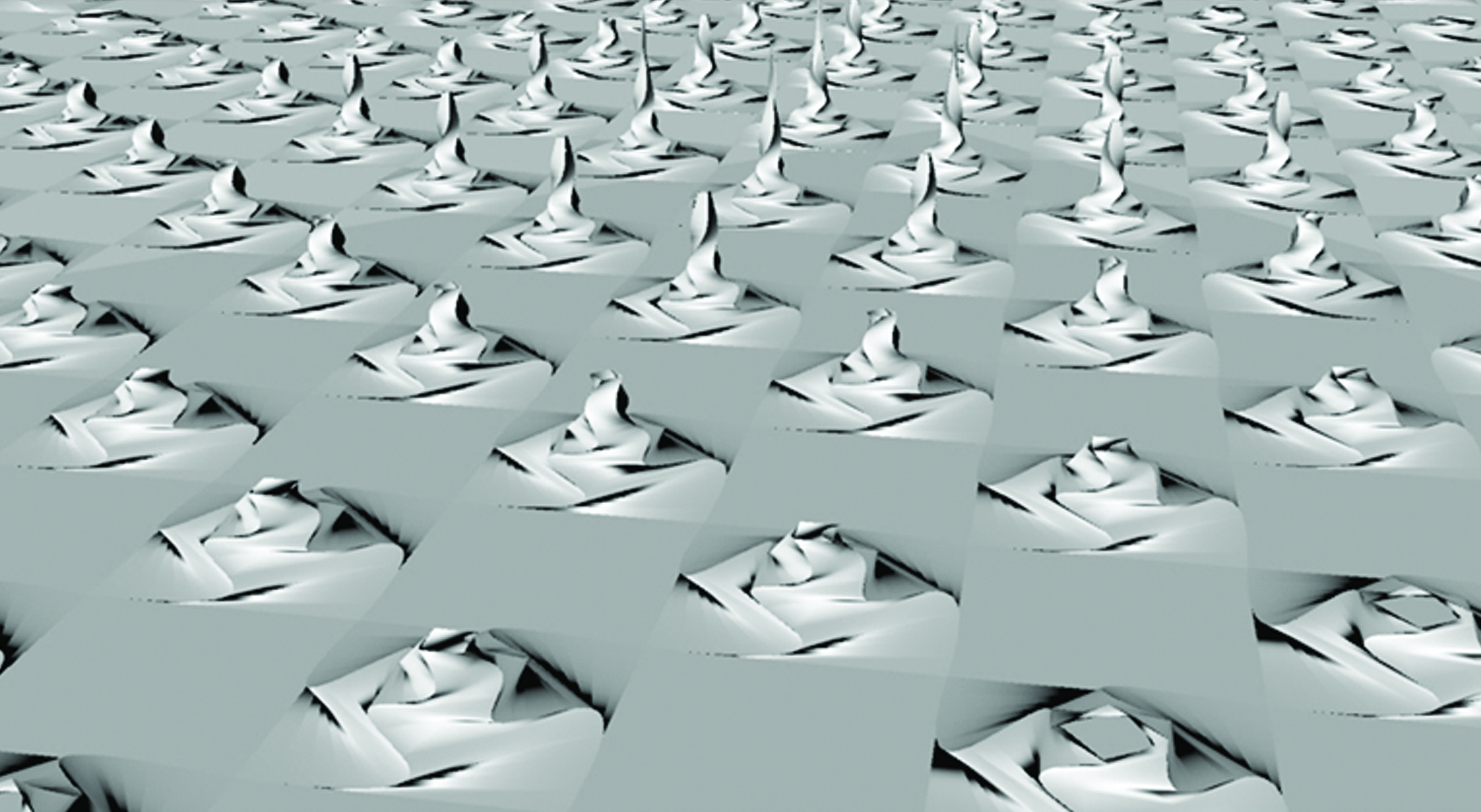
After this follows the CNC Machine part: each project was realized in 3D dimensions with the help of Rhino CAM and CNC cutting tools. For the last touch comes the certificates ceremony, where each student was being thanked for participating and sharing their own ideas during Rhinoceros workshop.



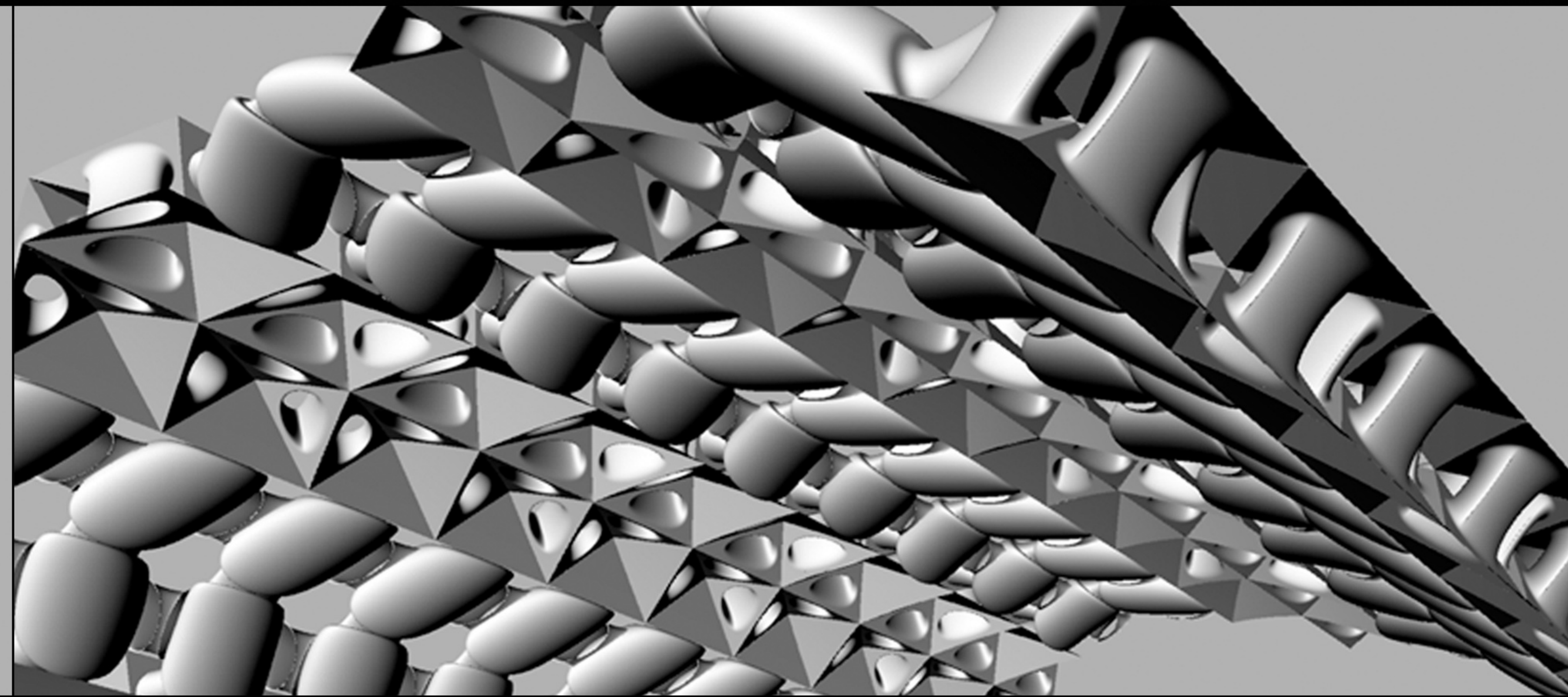
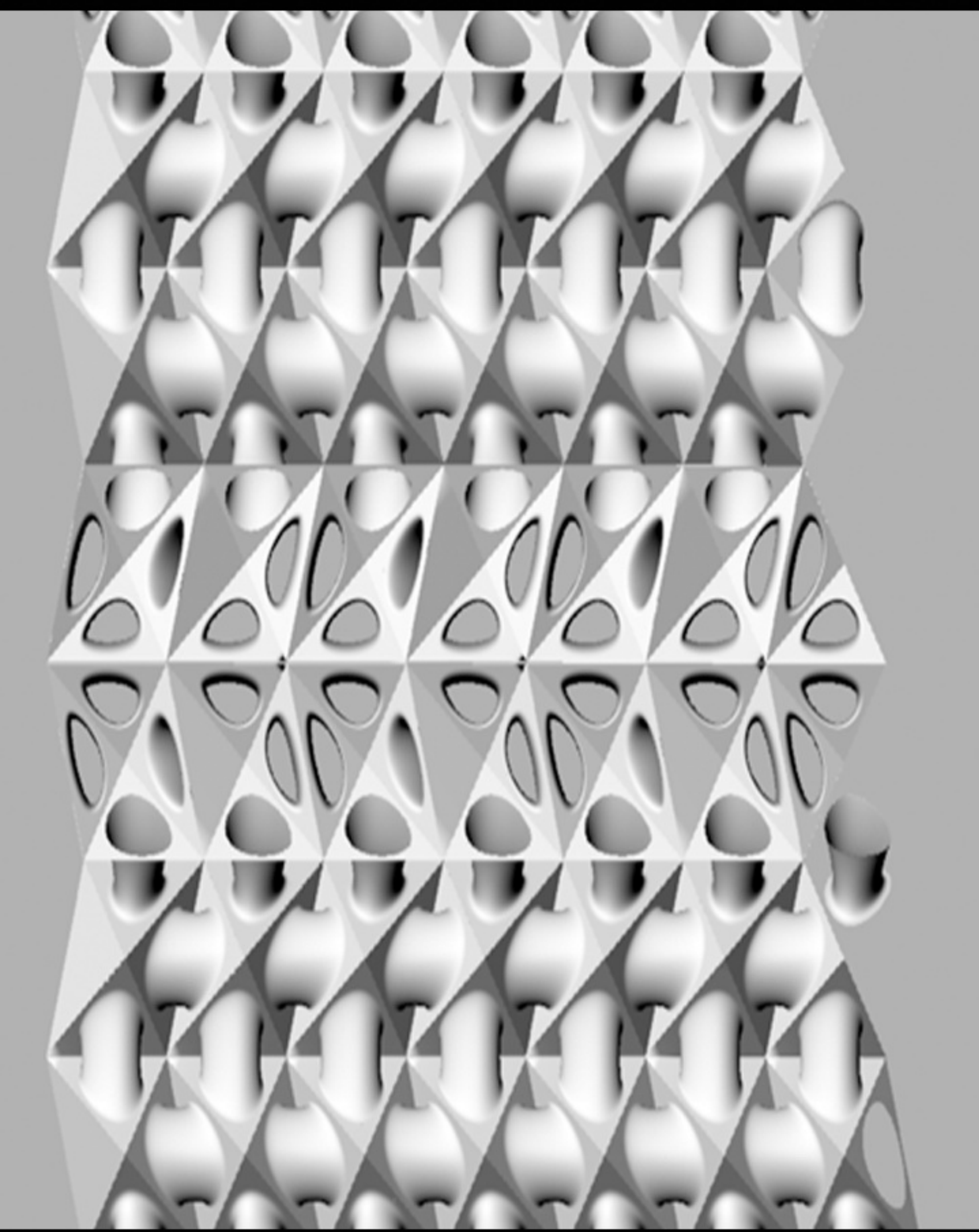
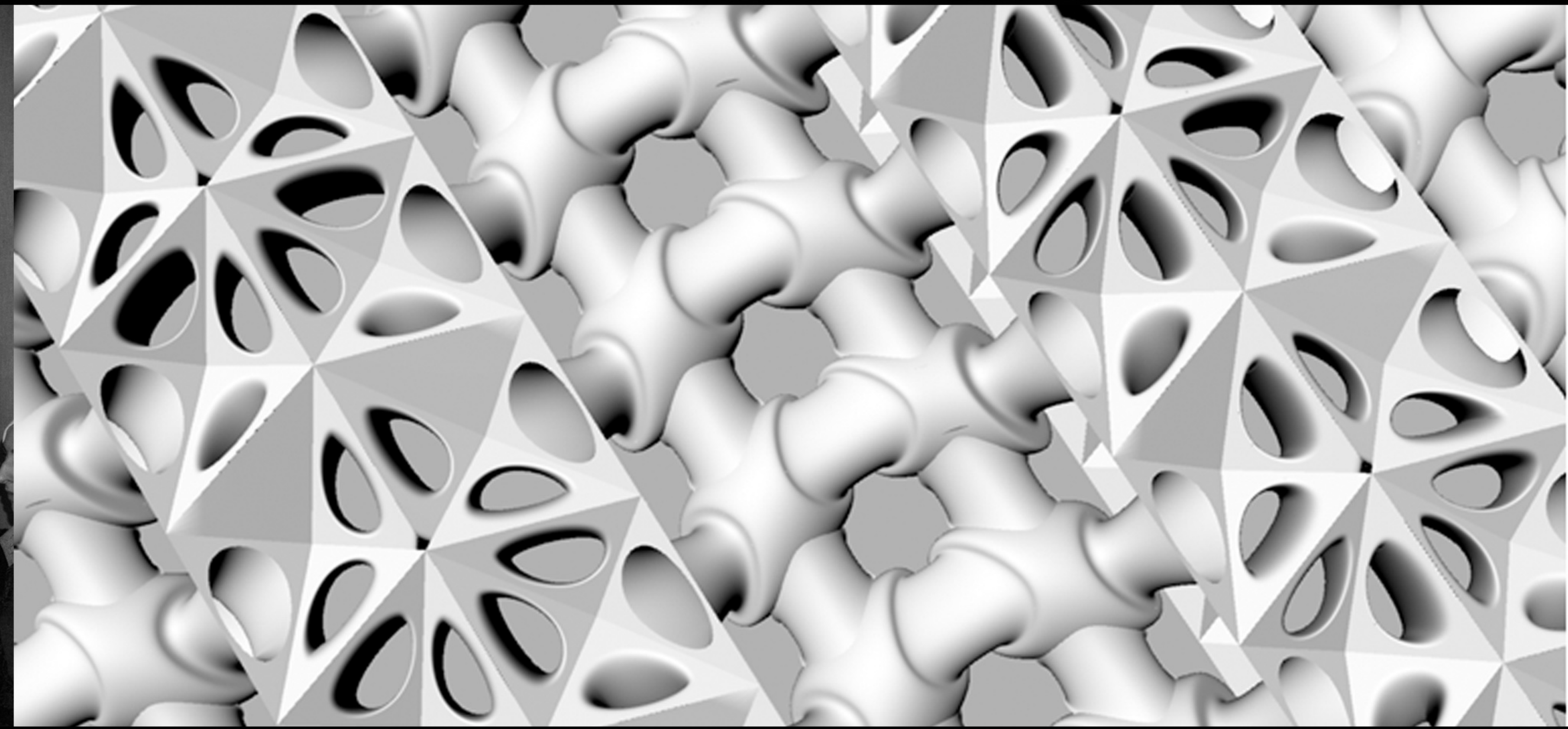


# PROJECTS

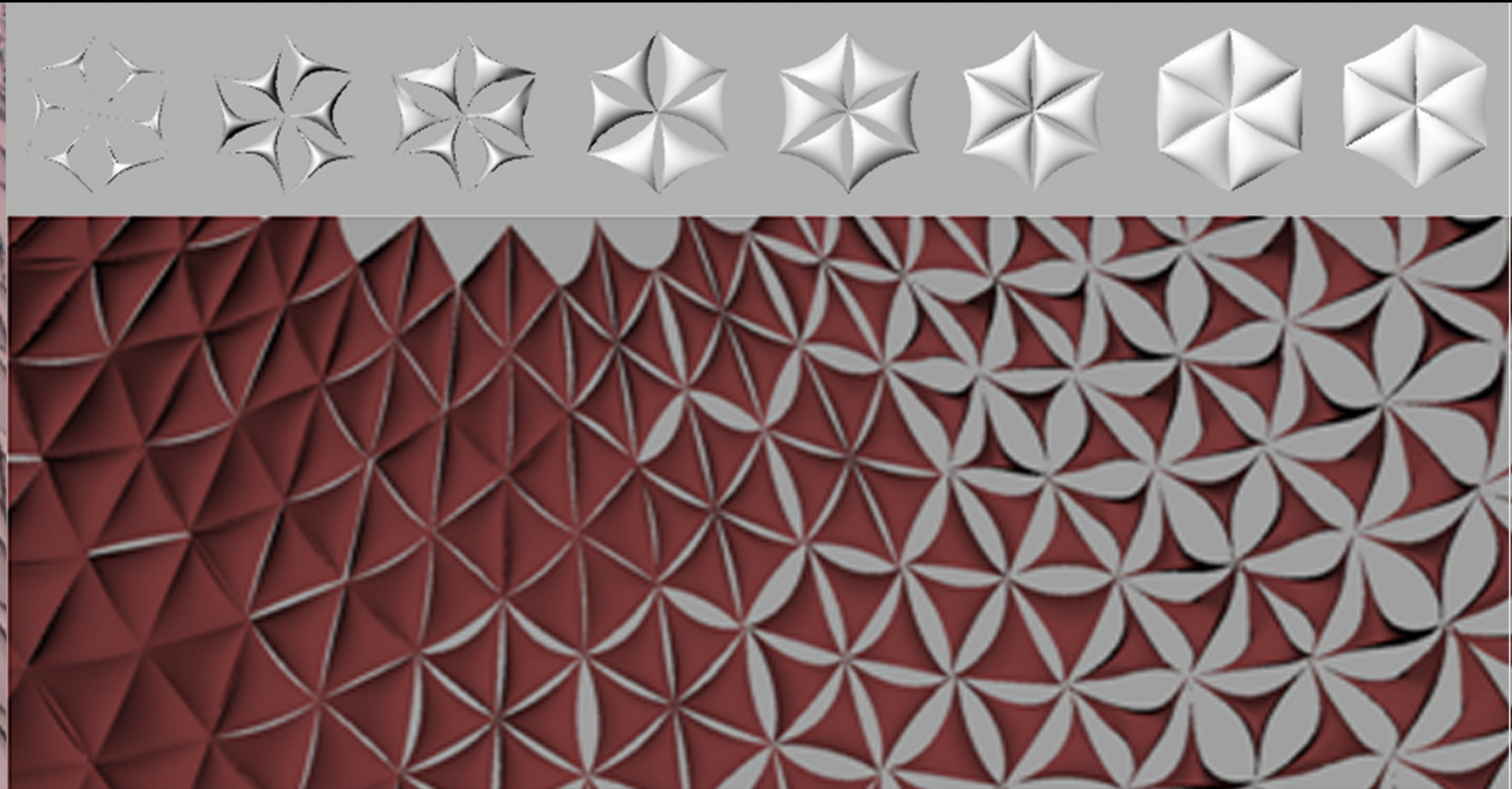
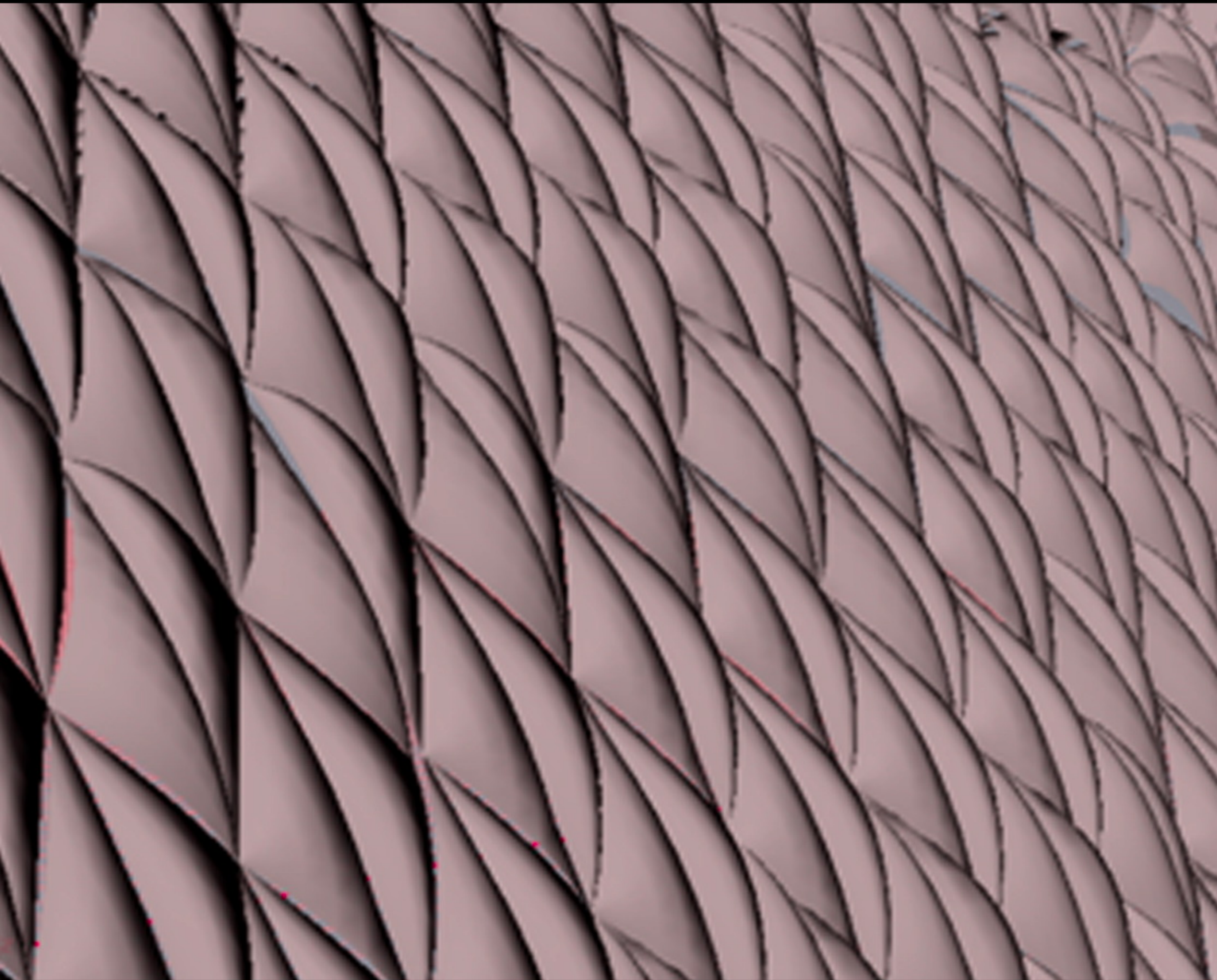
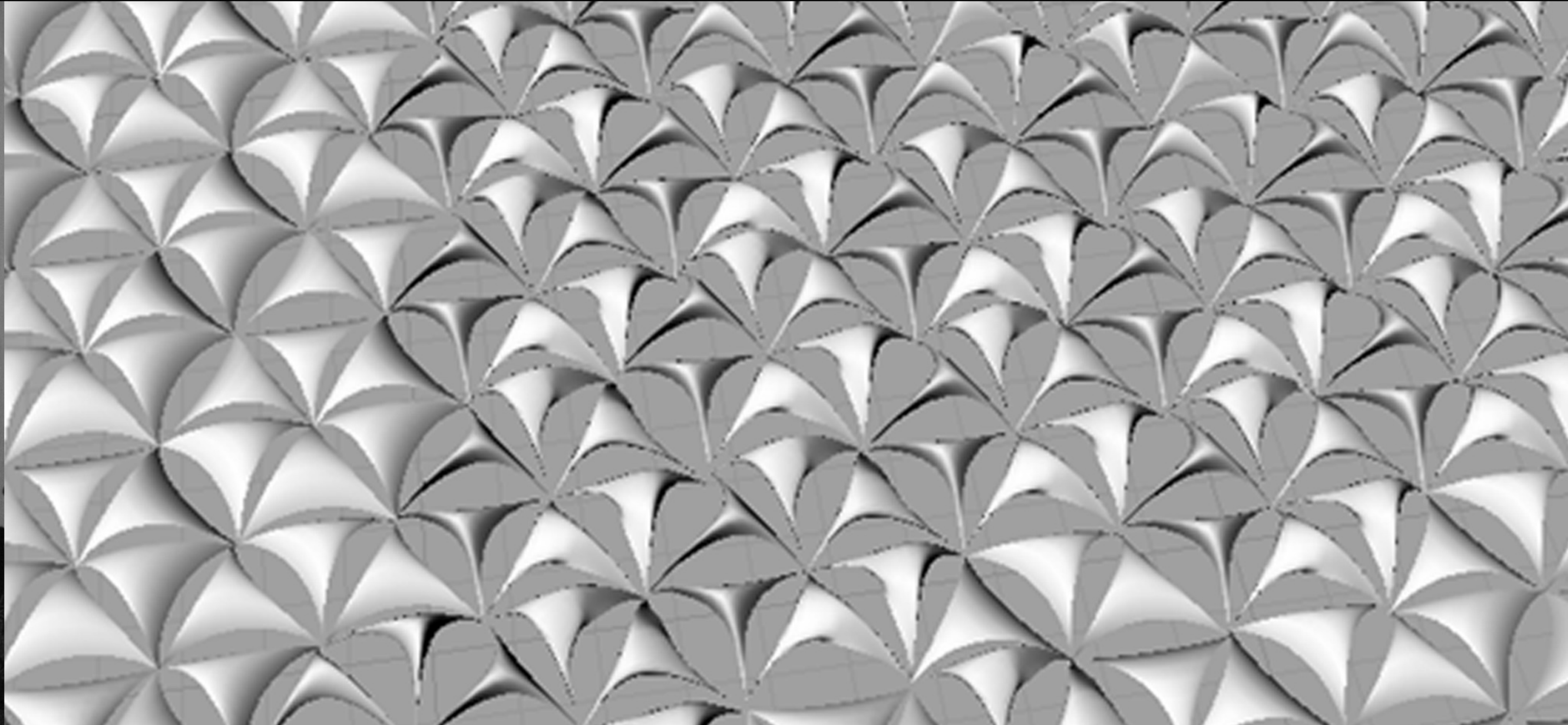
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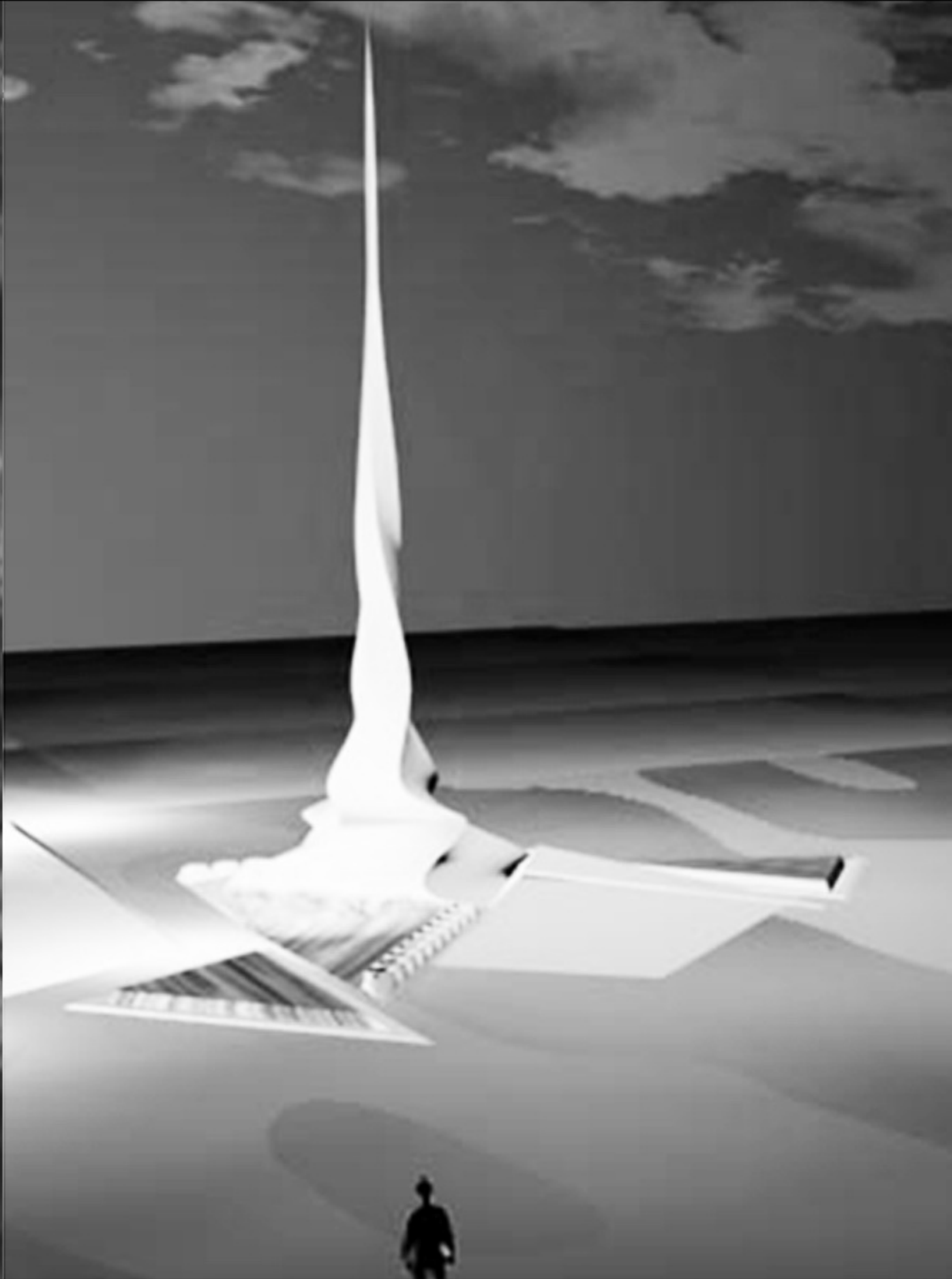
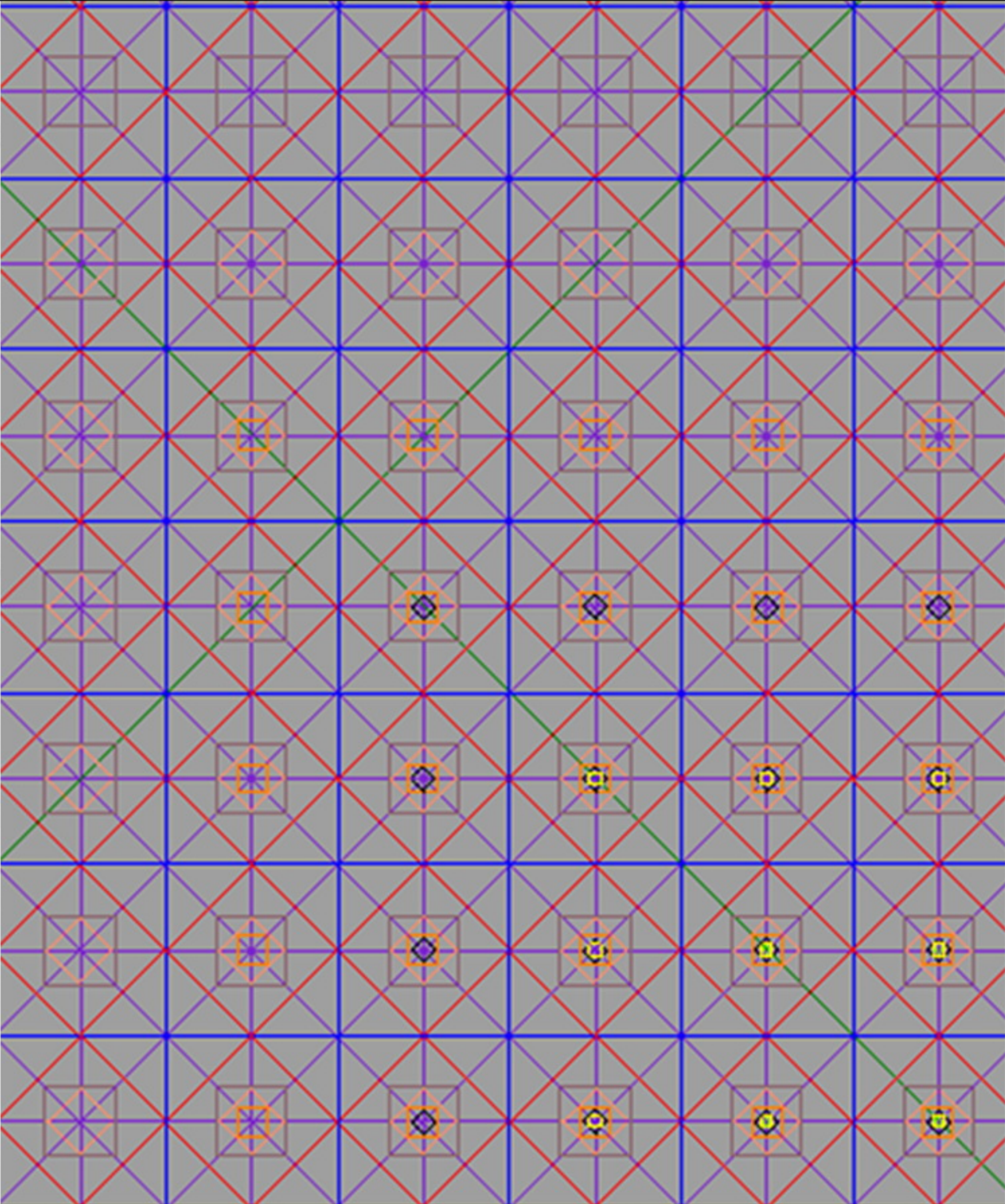
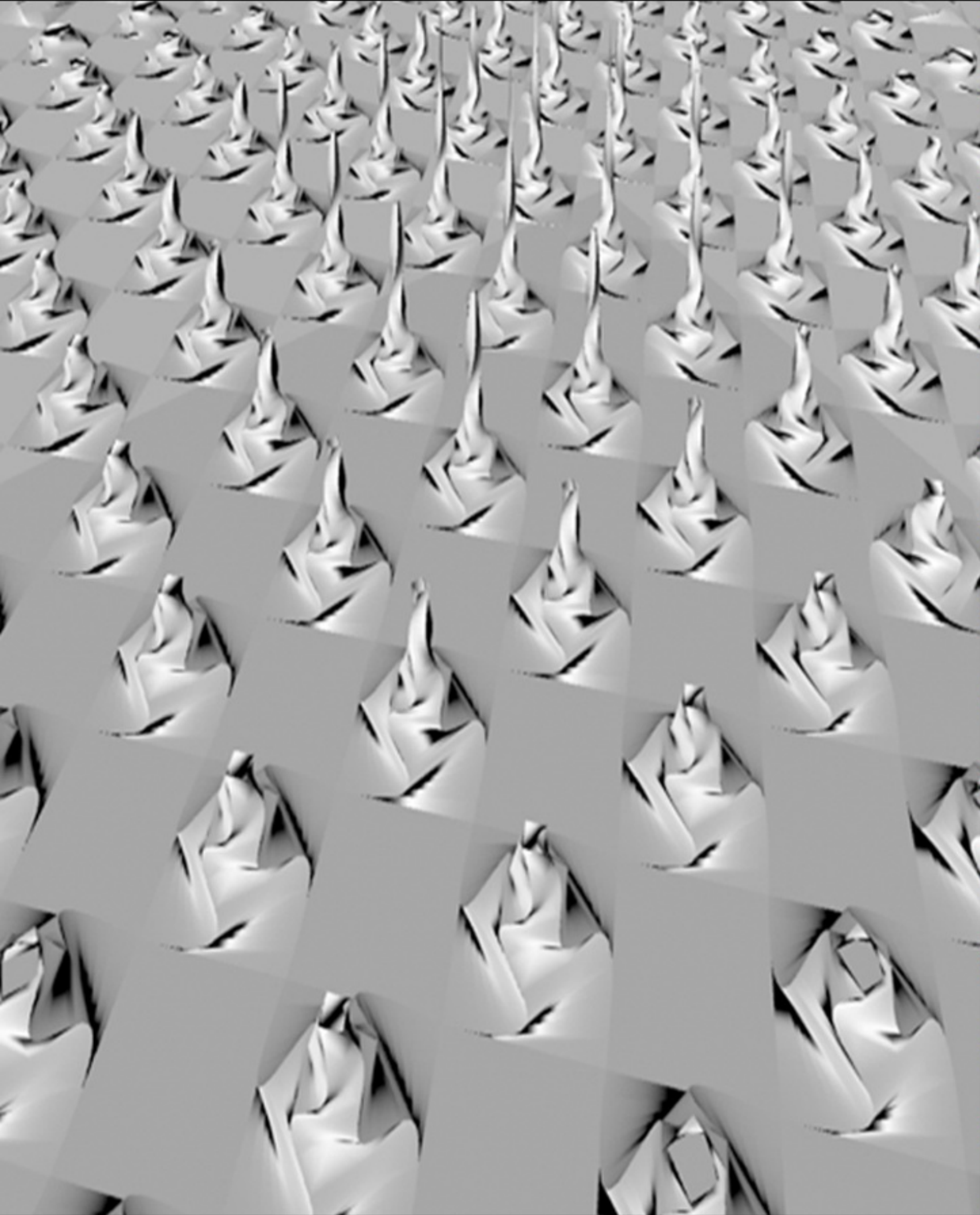
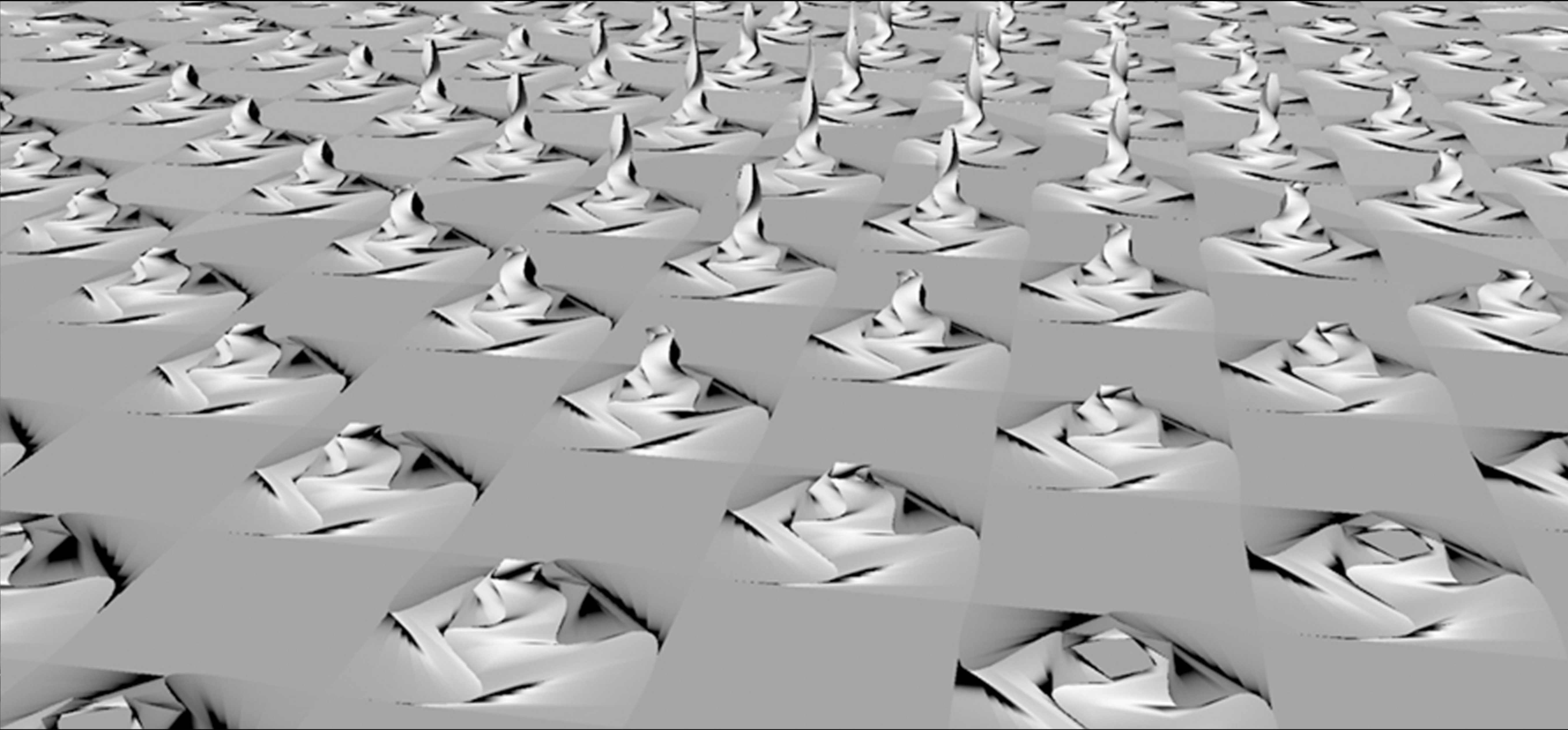




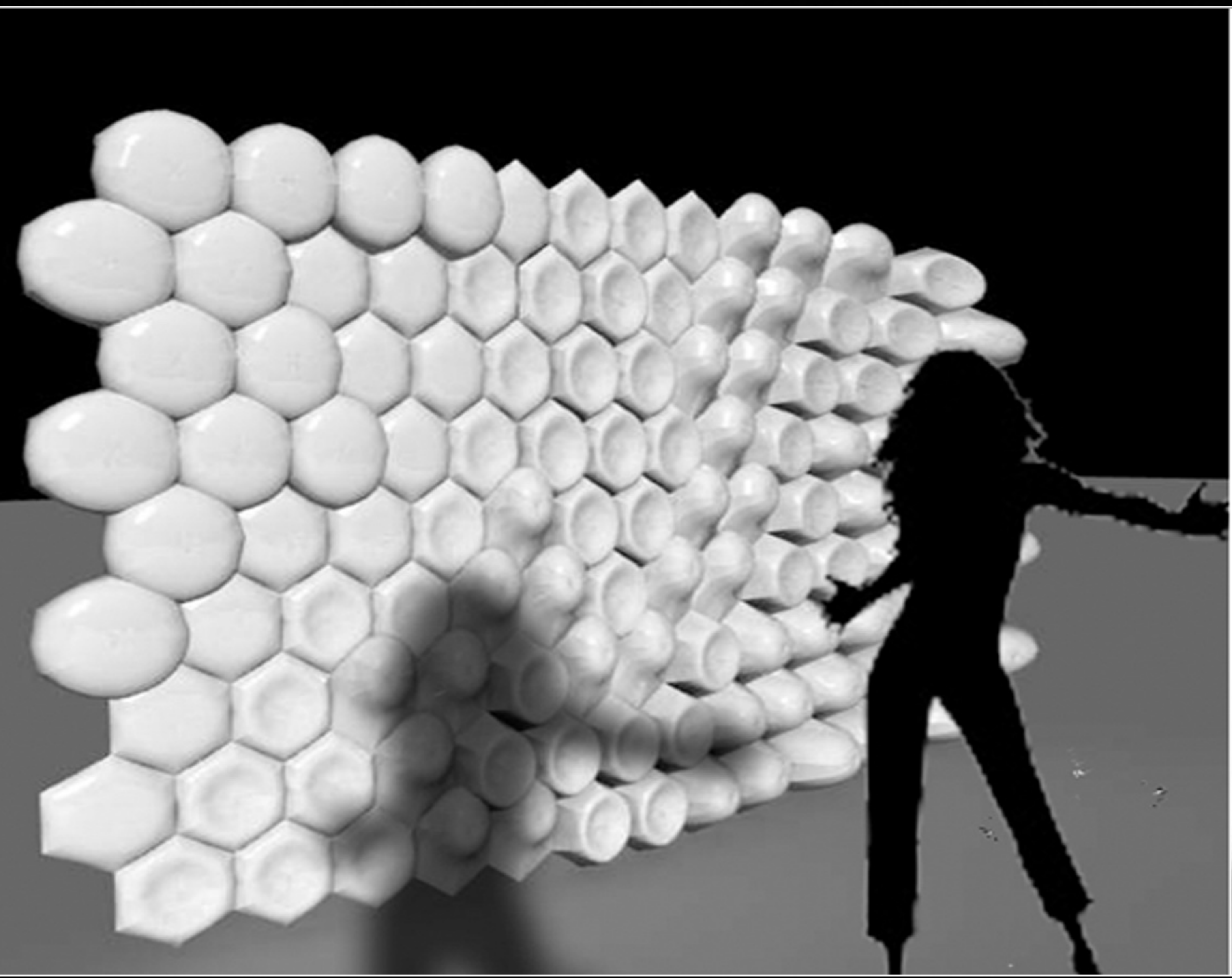
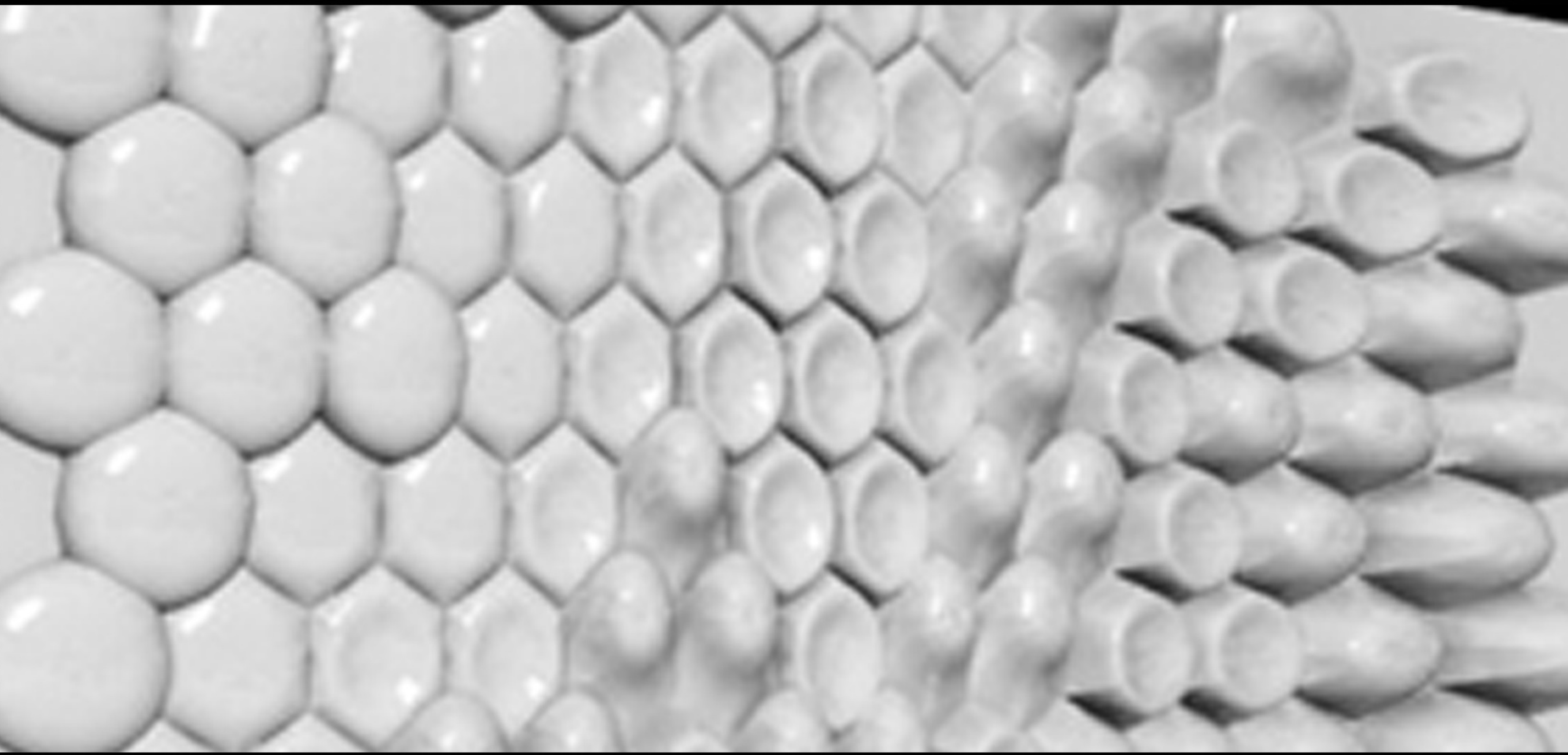
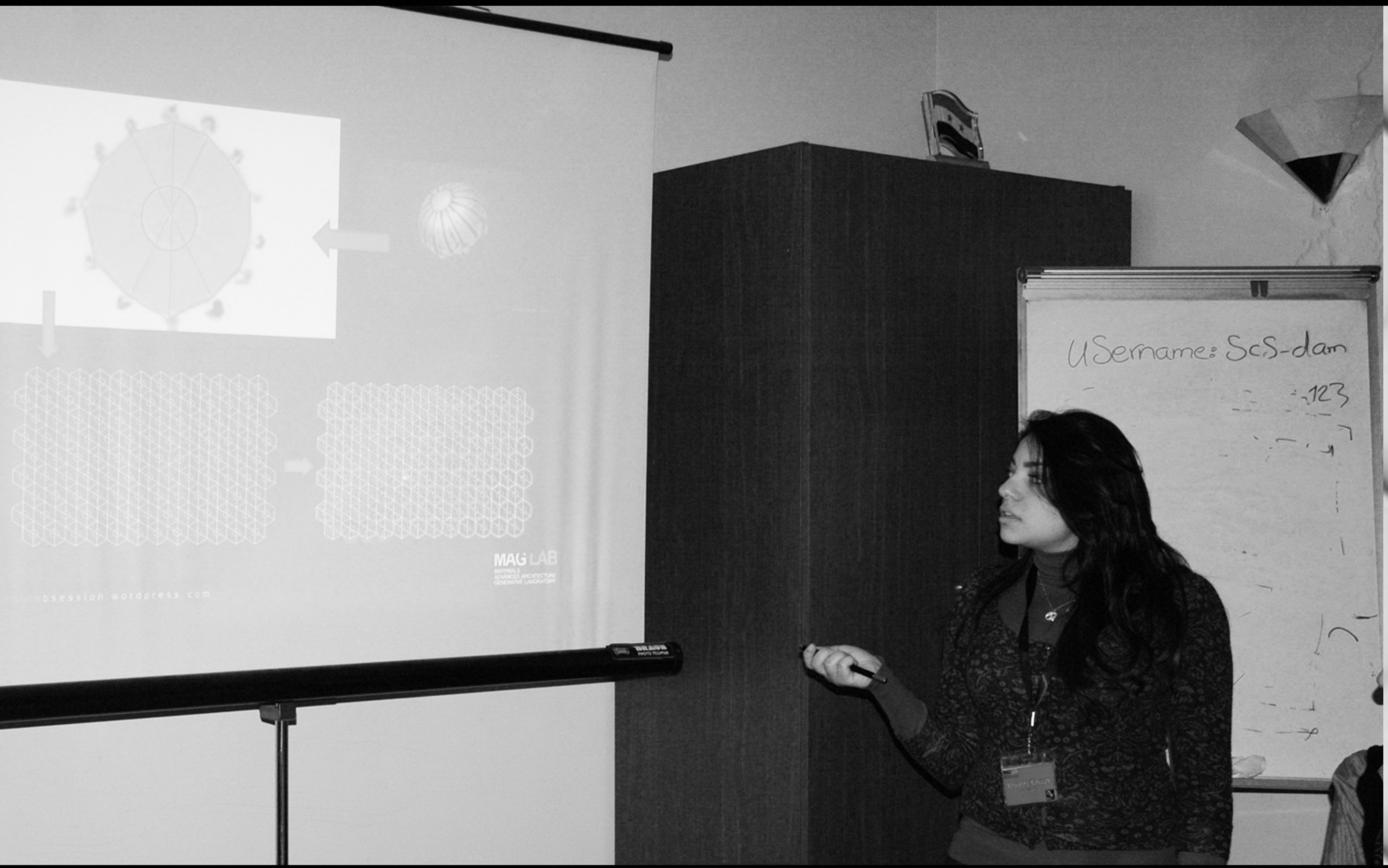




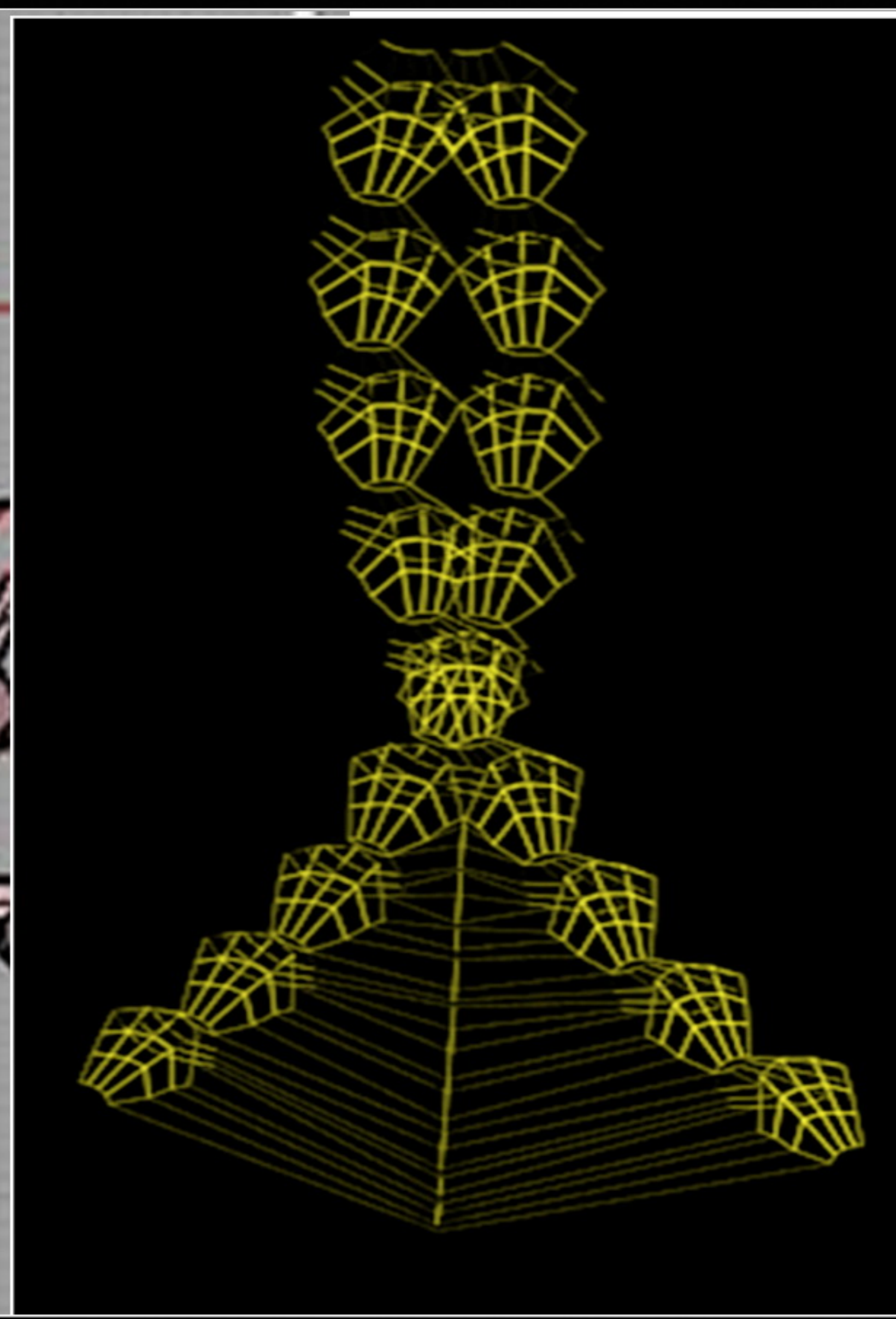
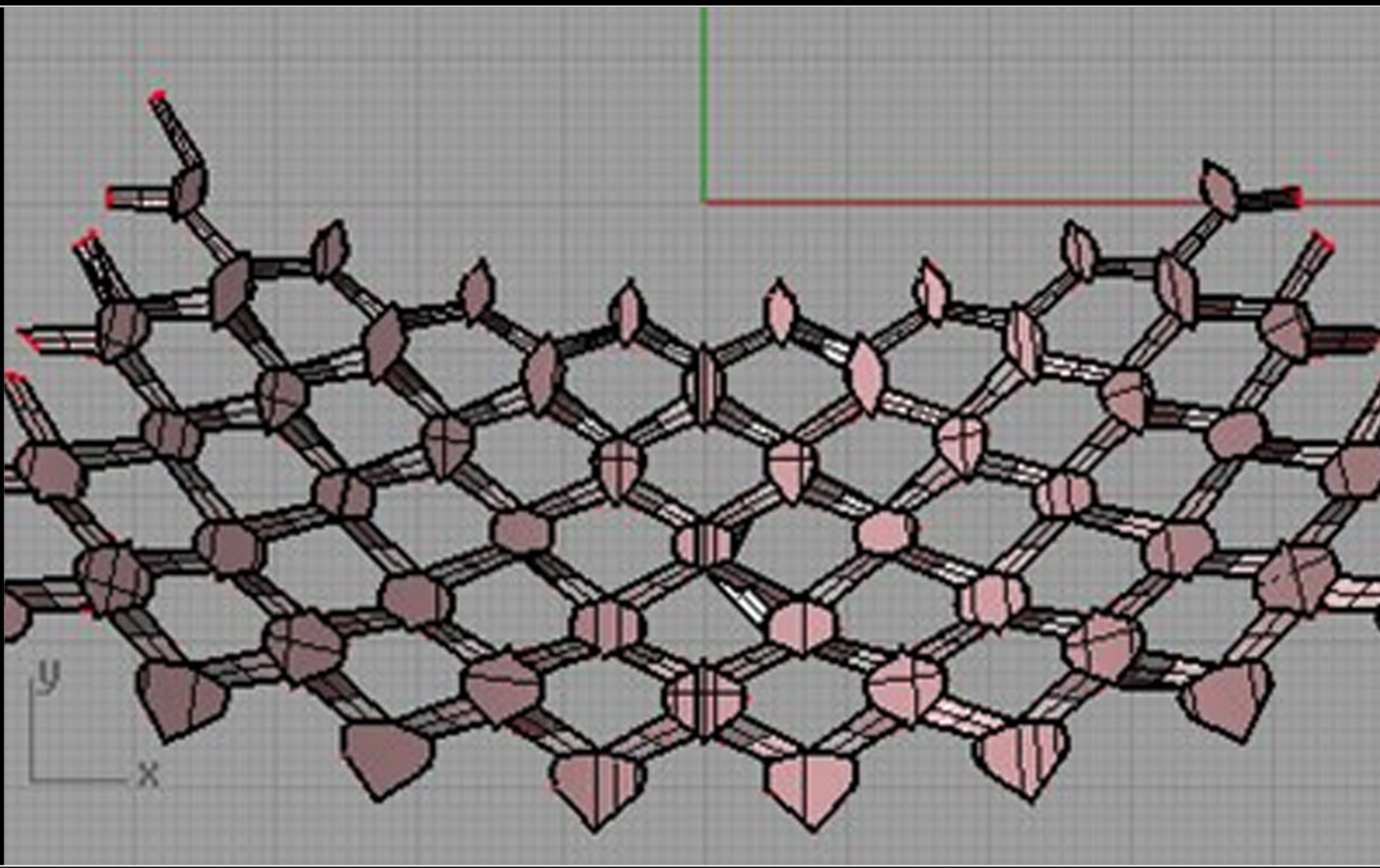
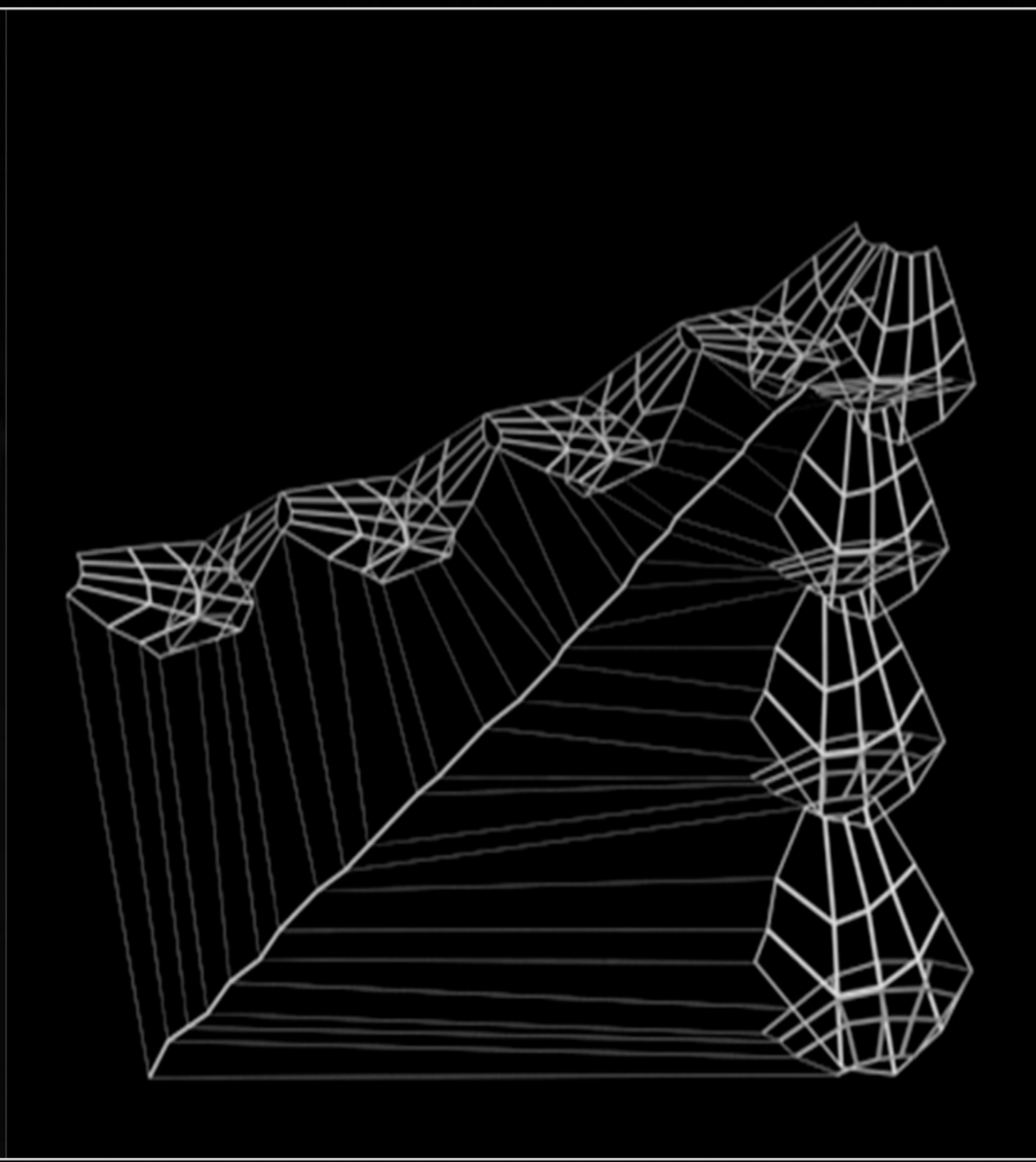
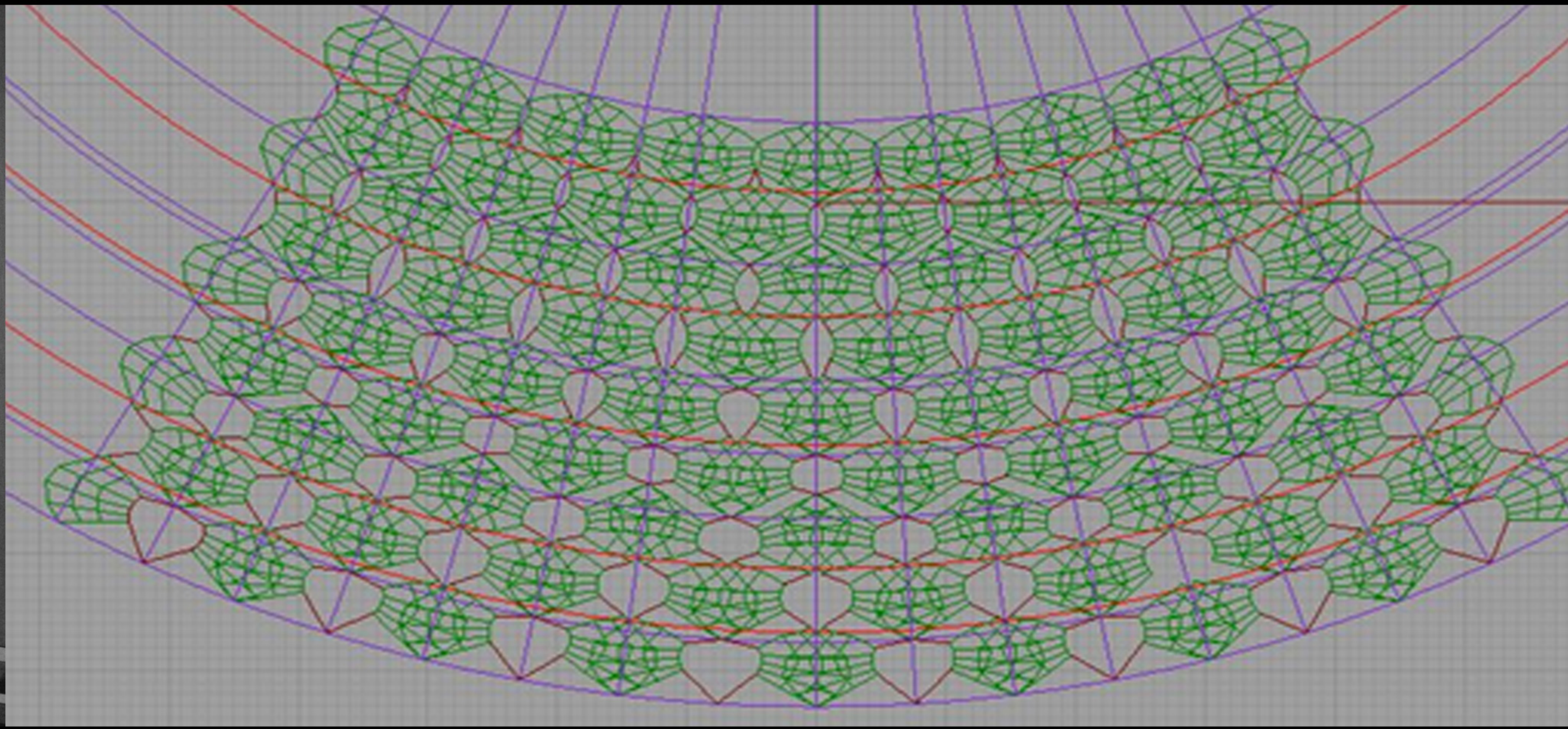
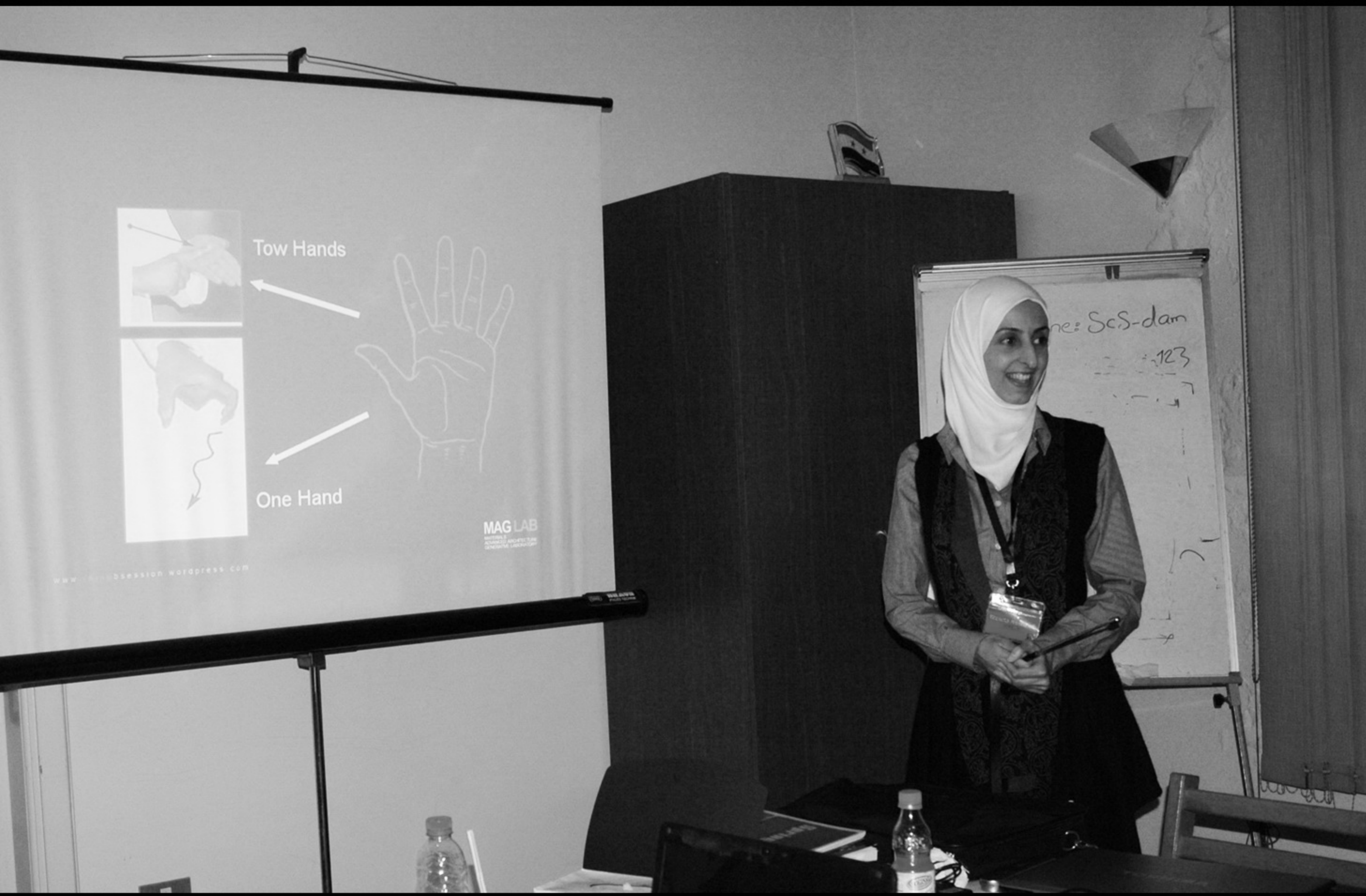




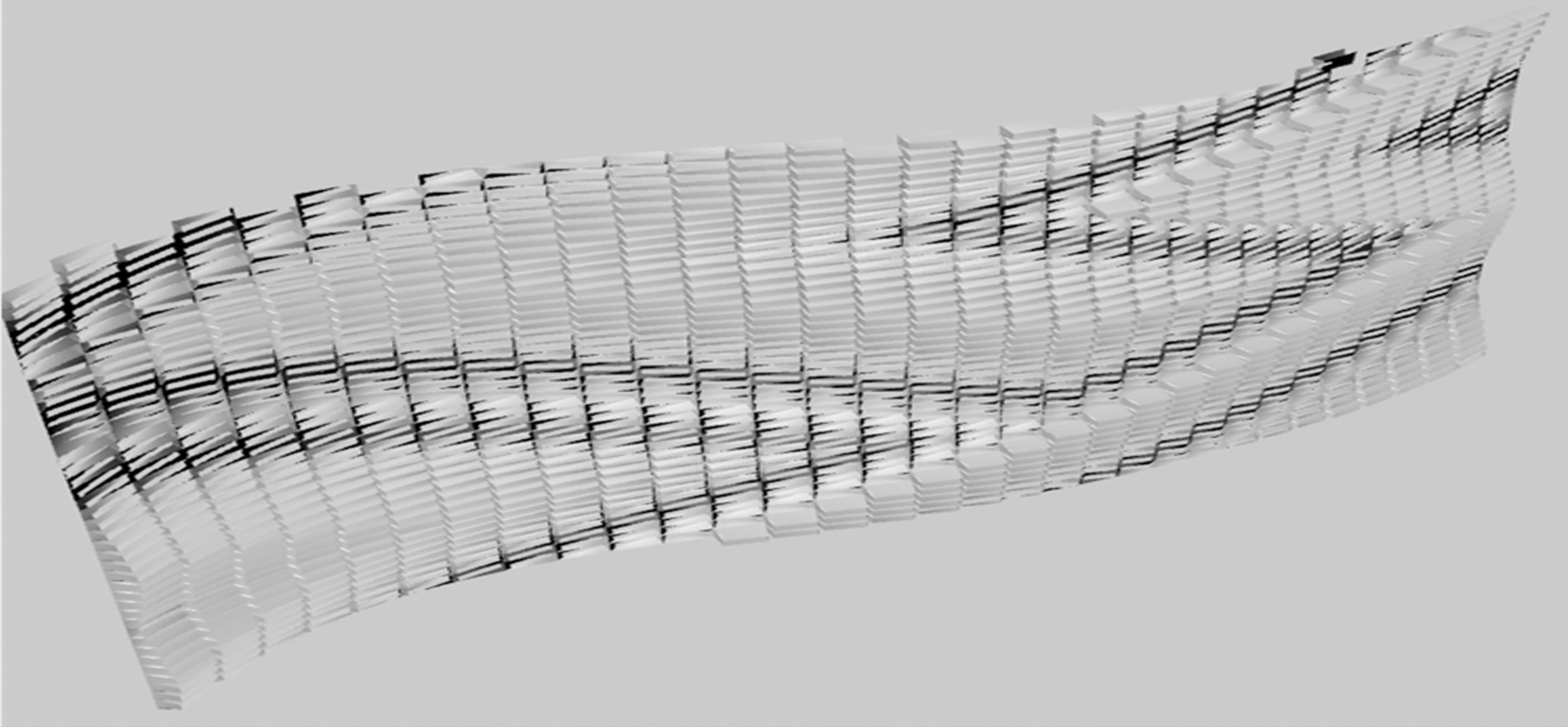
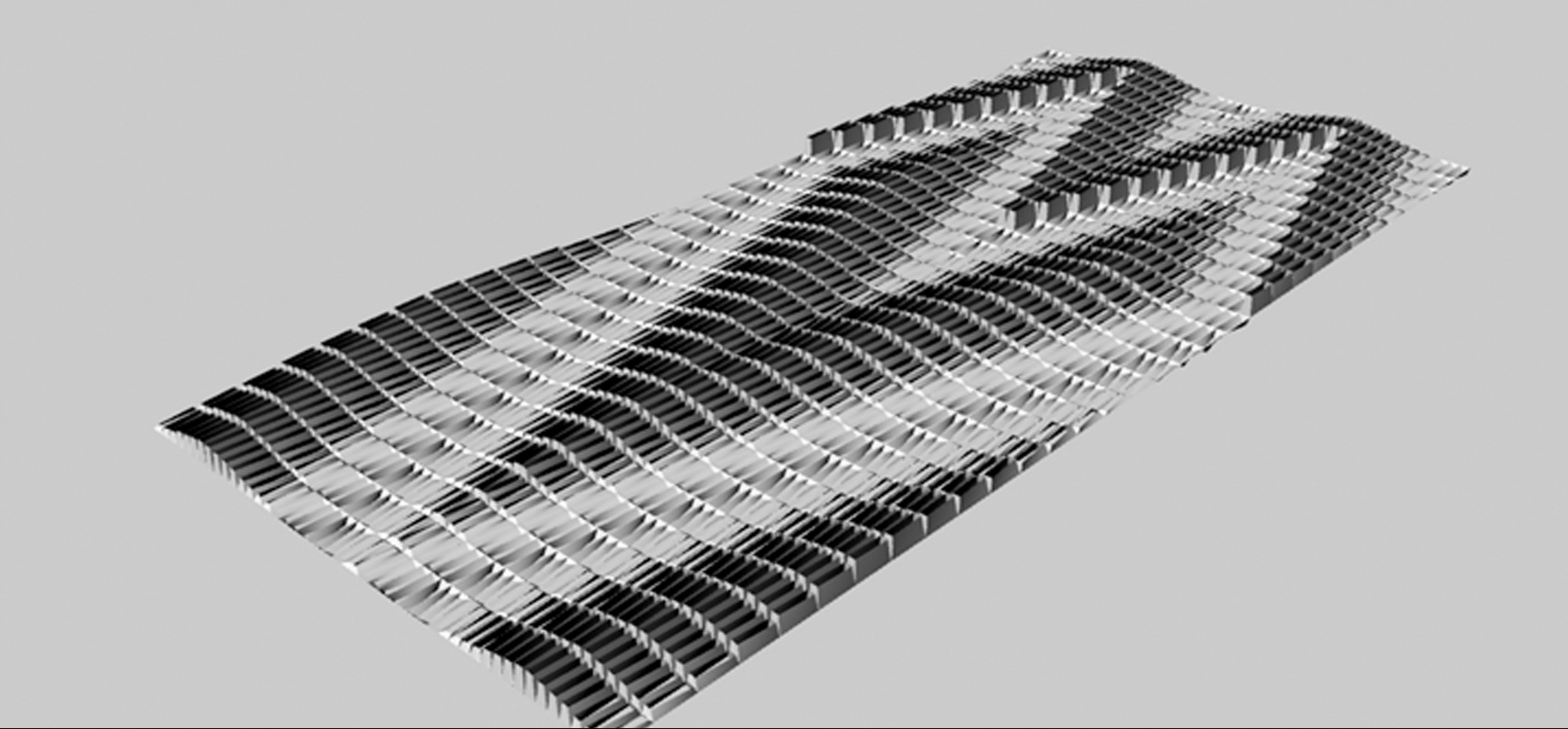




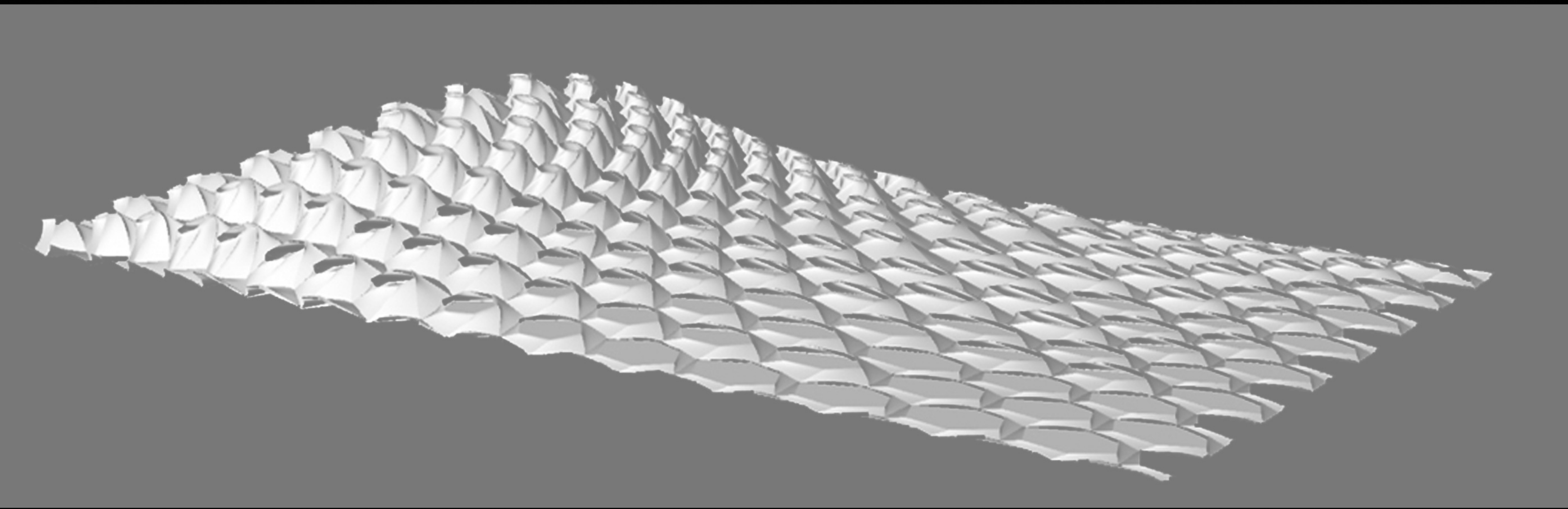
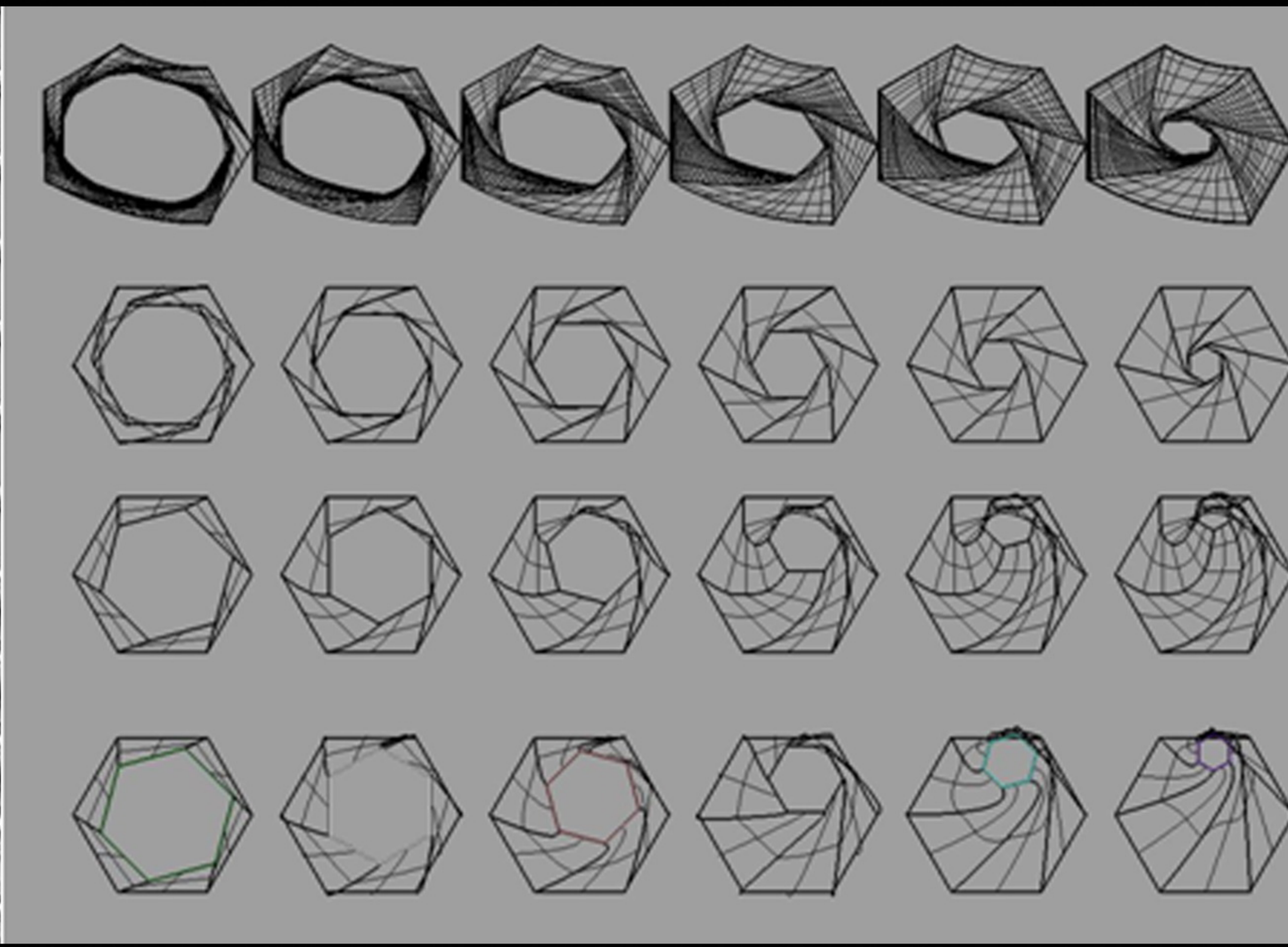
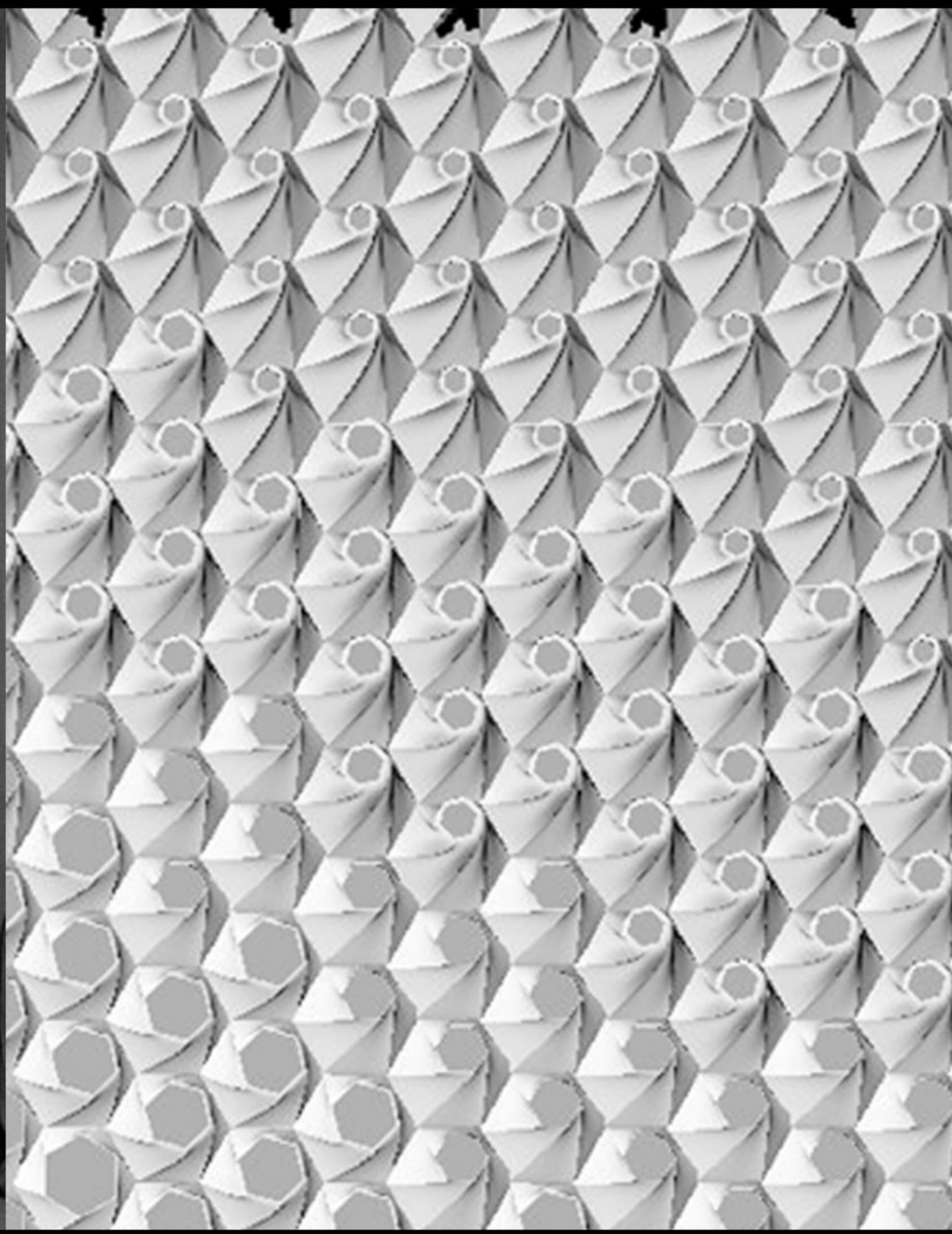




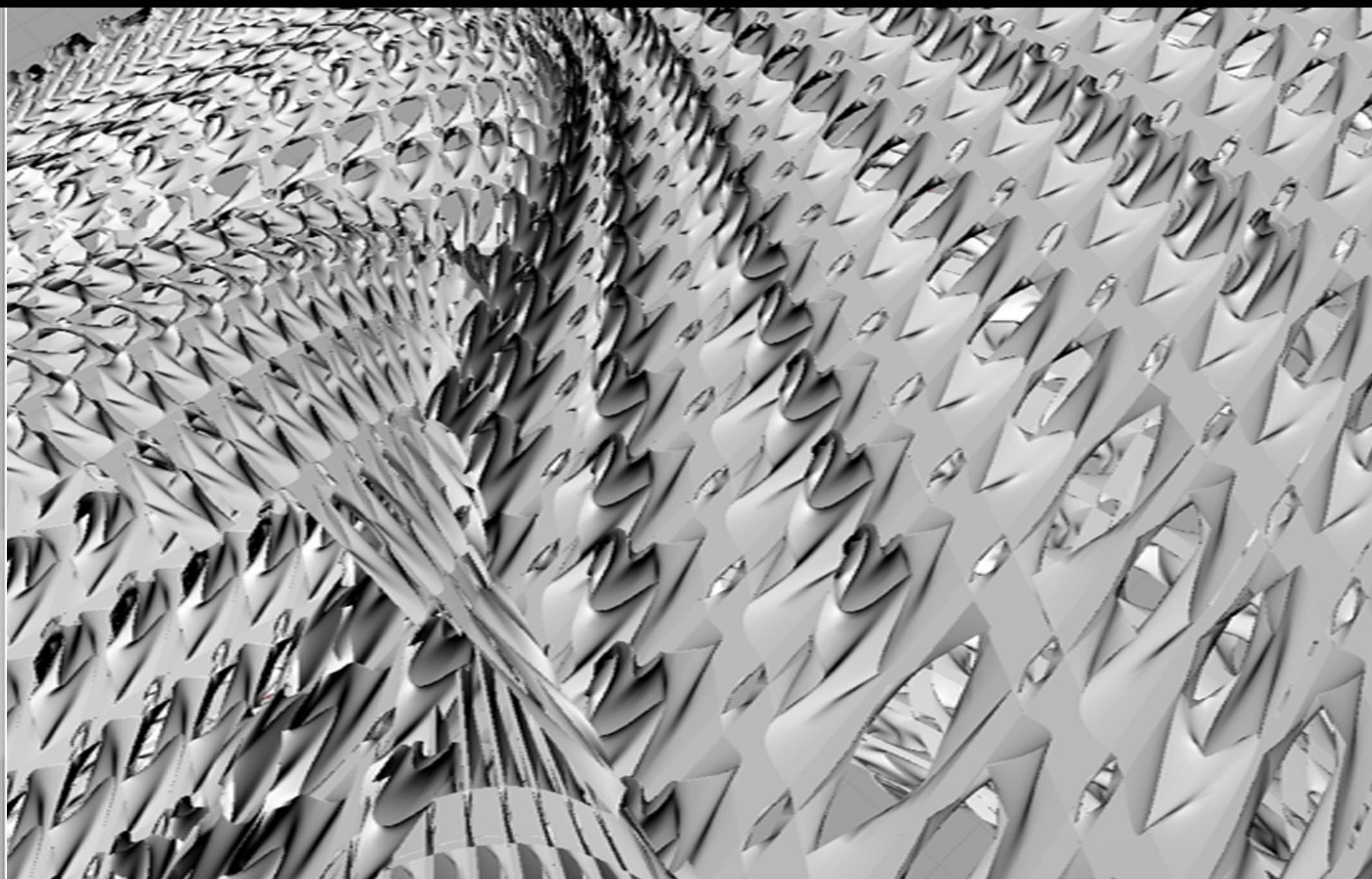
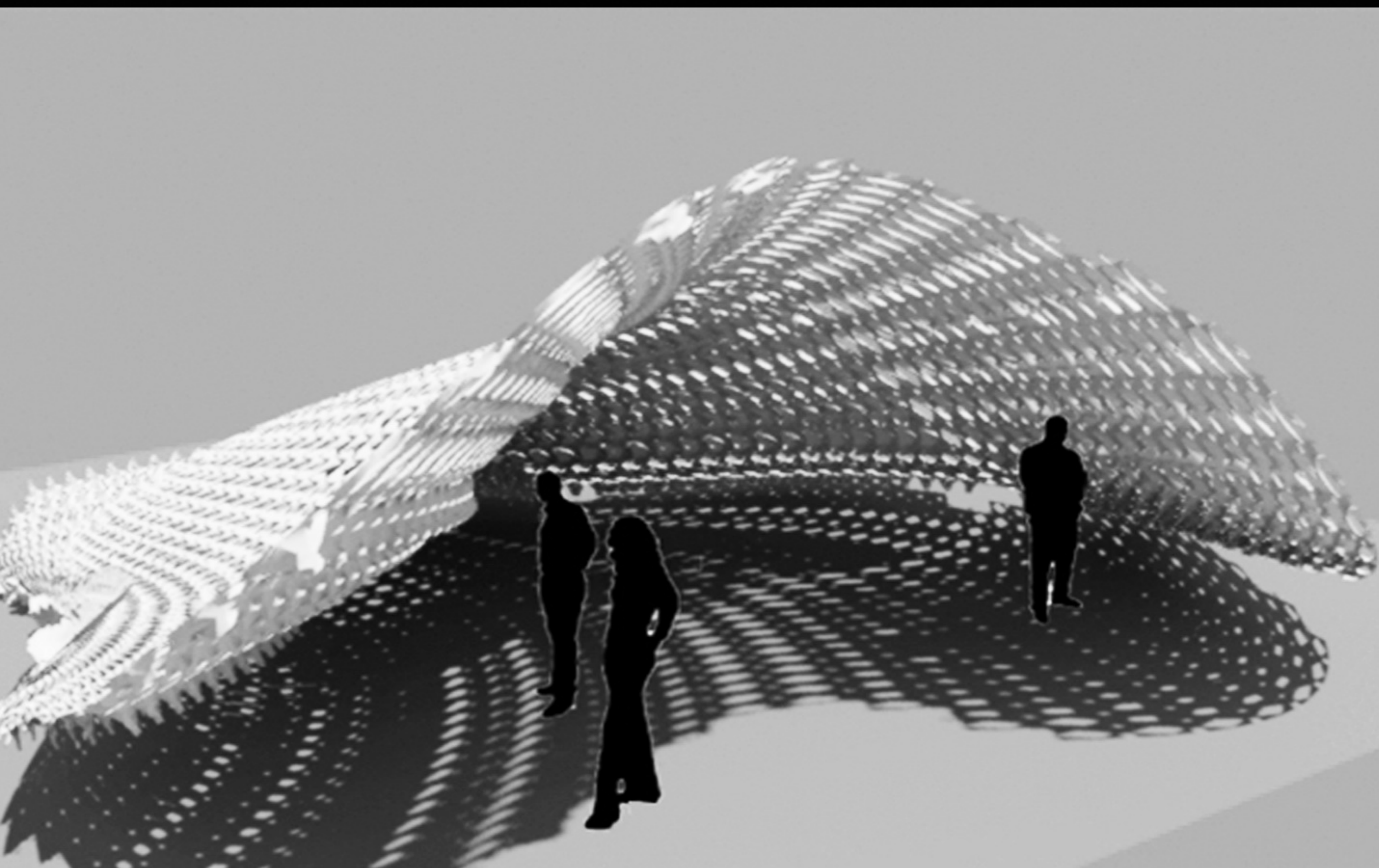
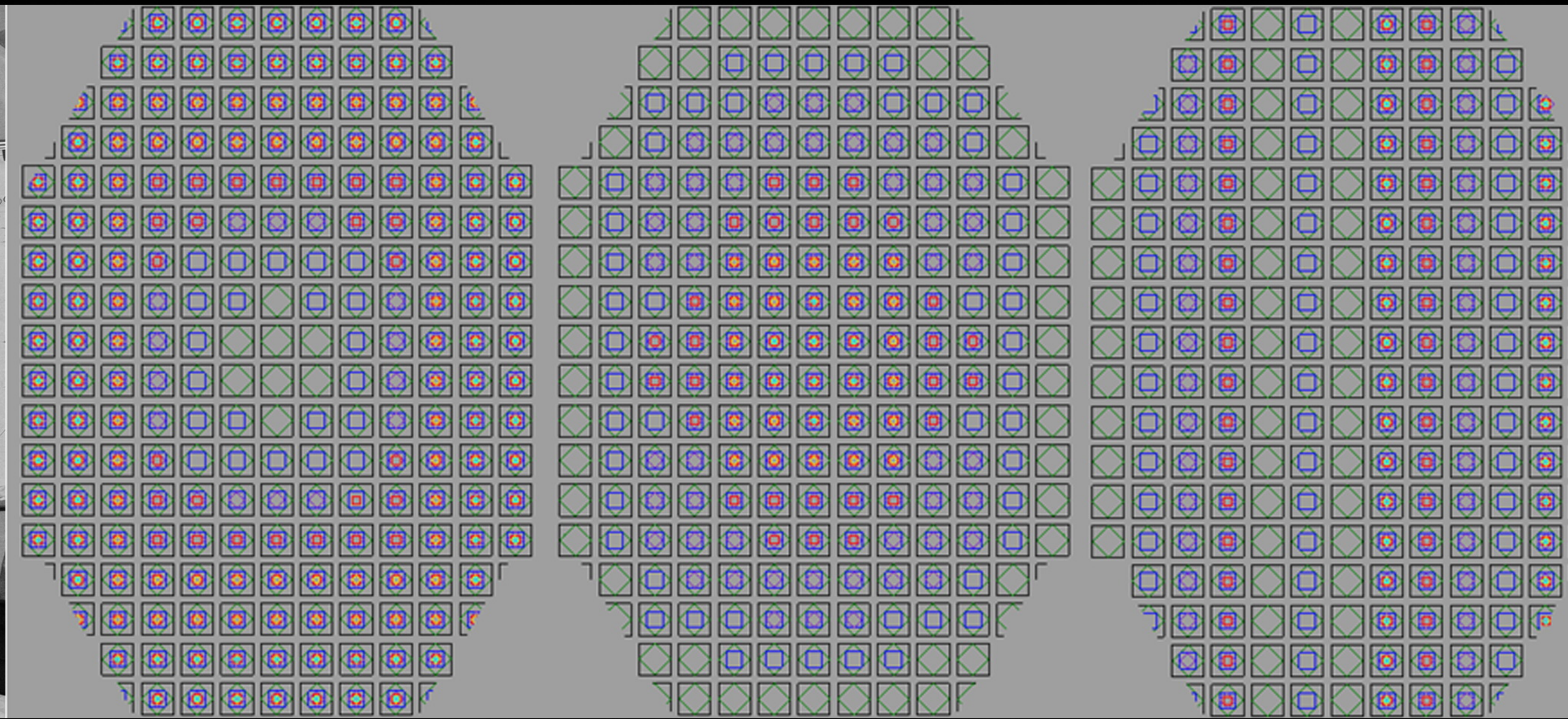




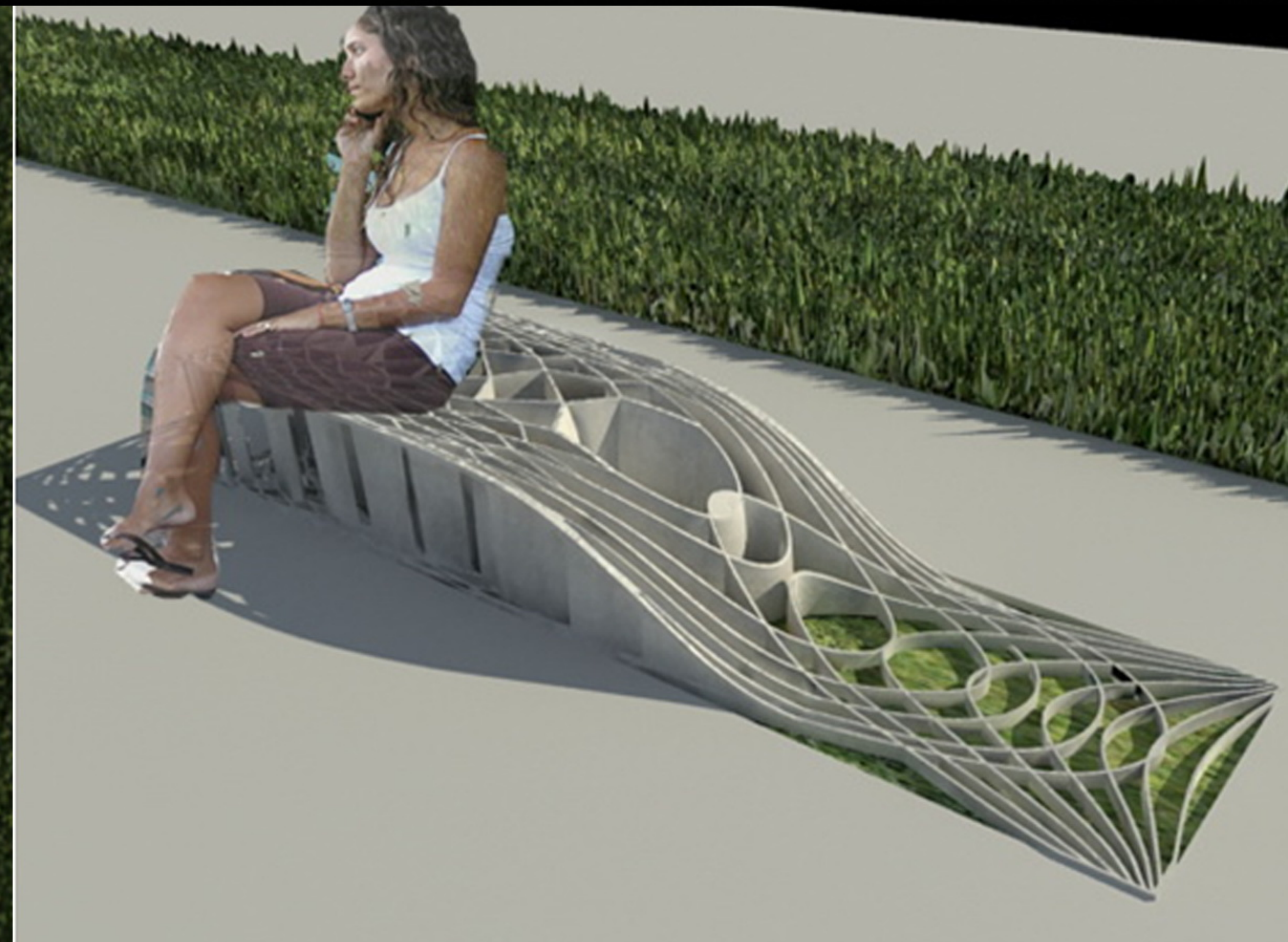
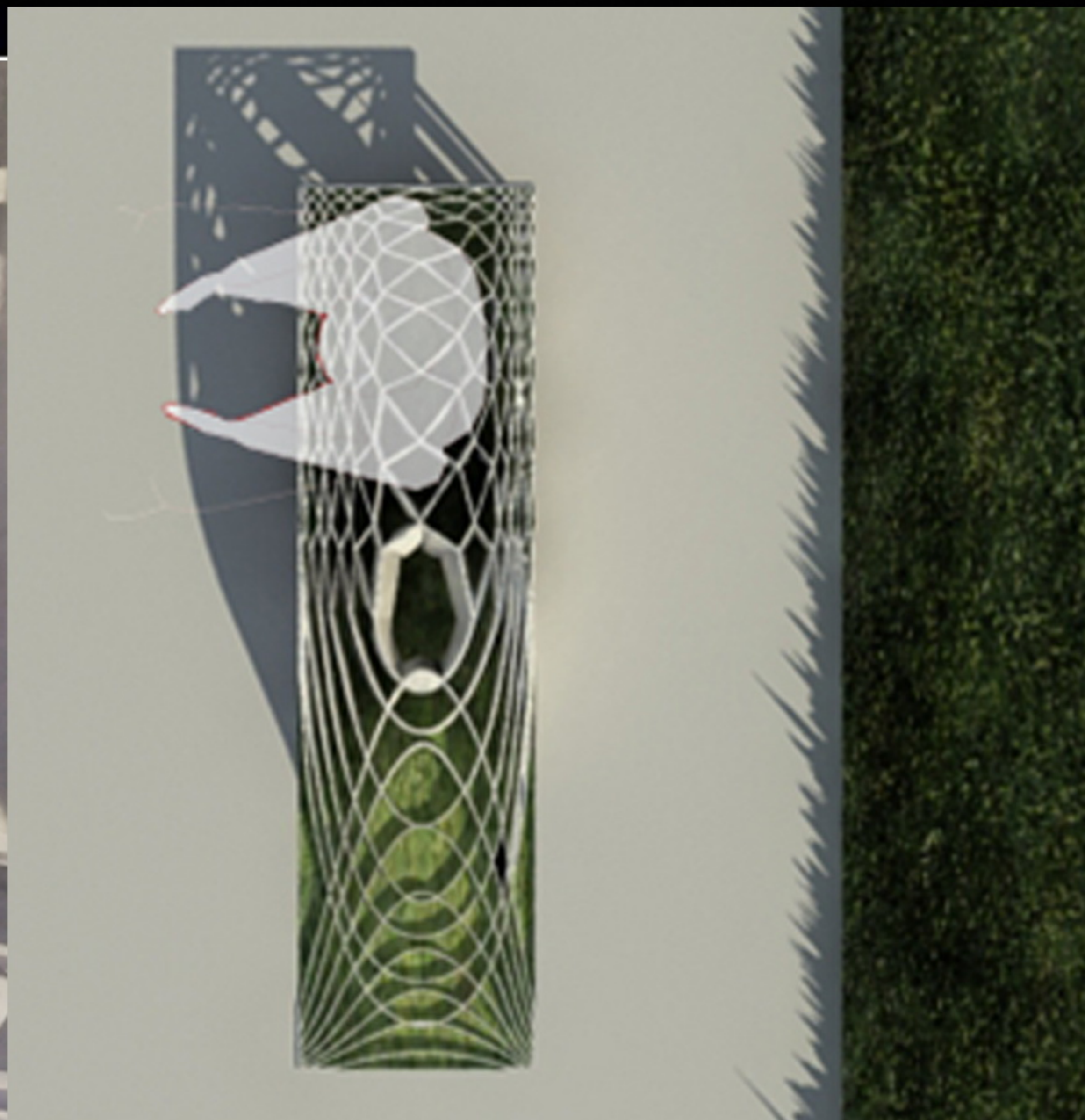
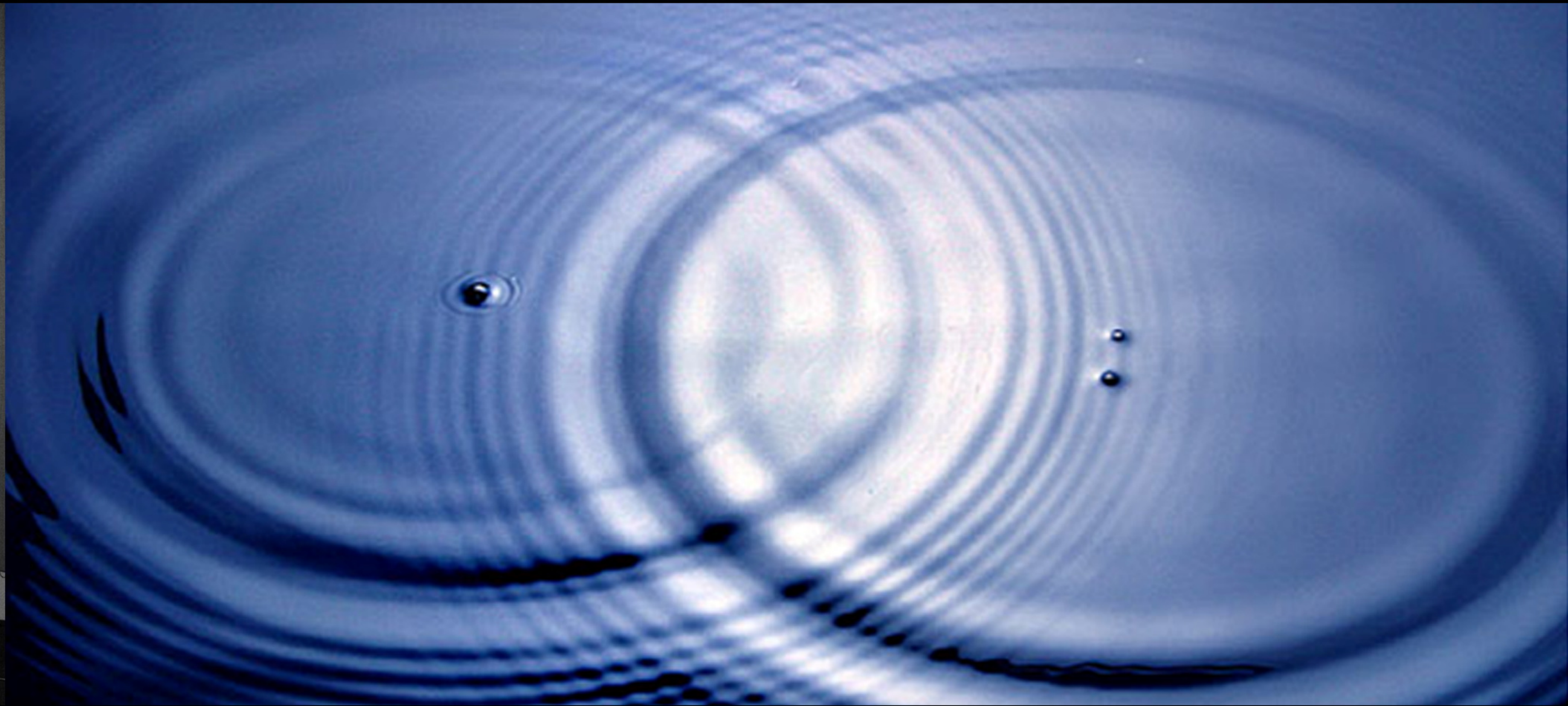




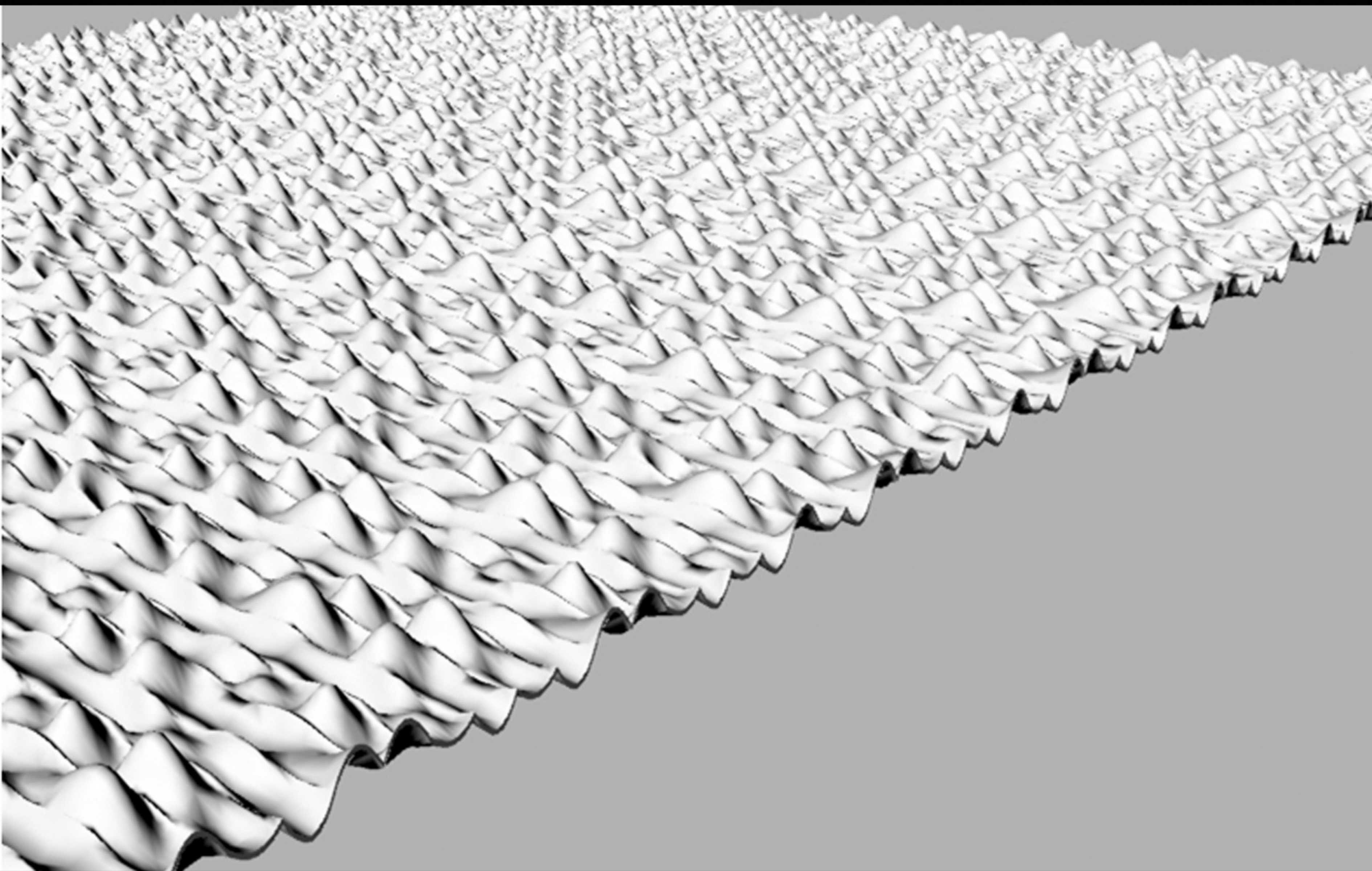
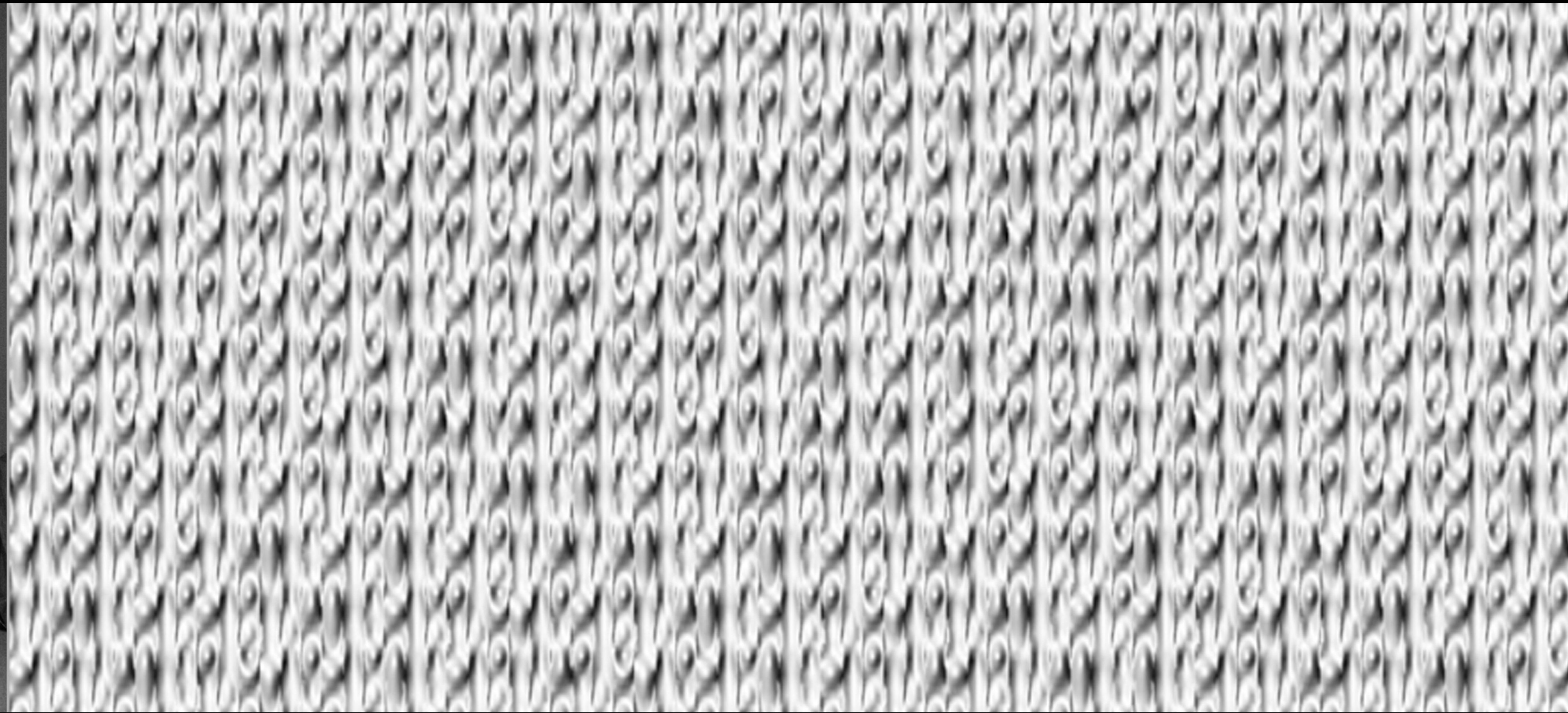




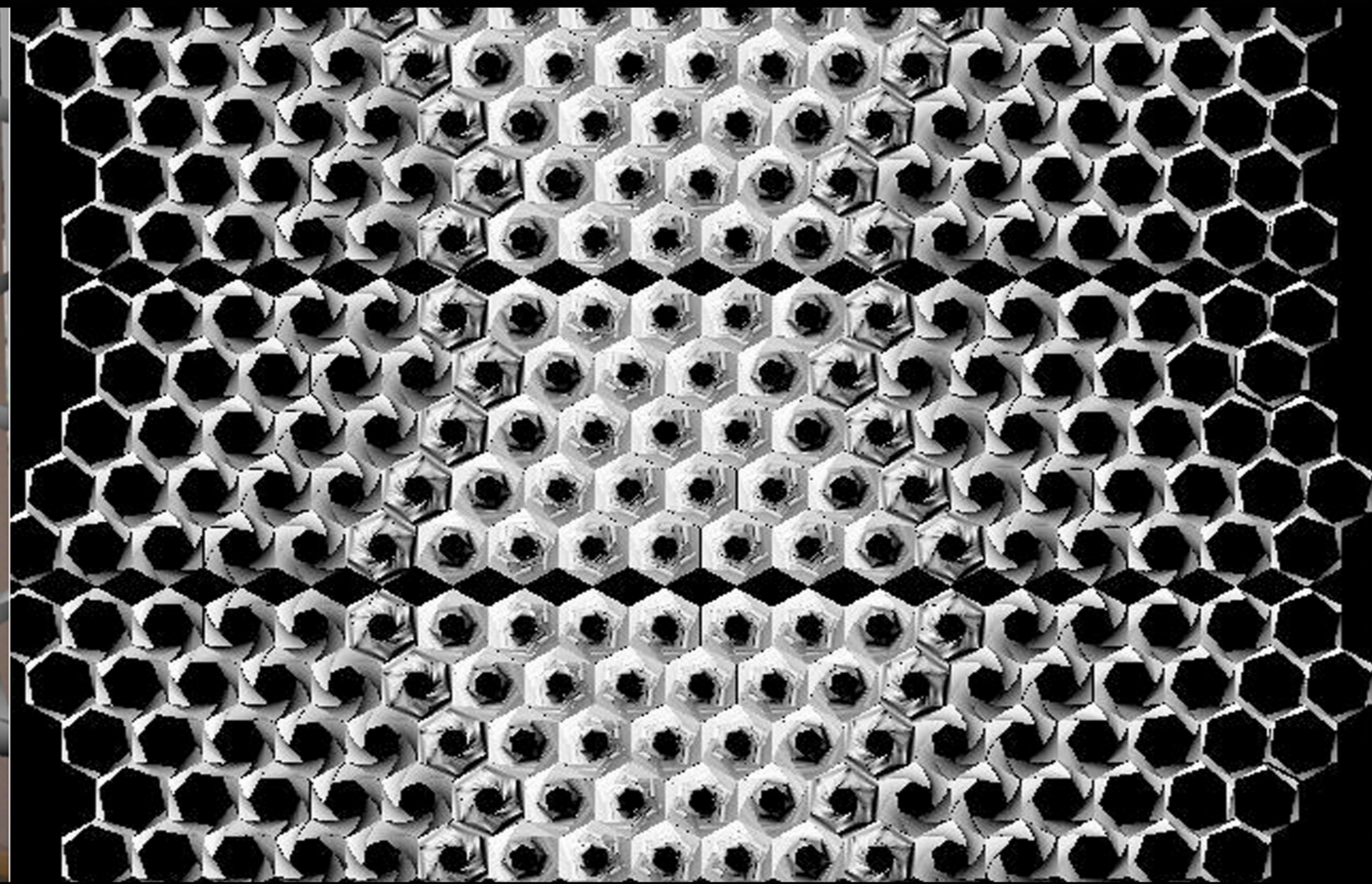
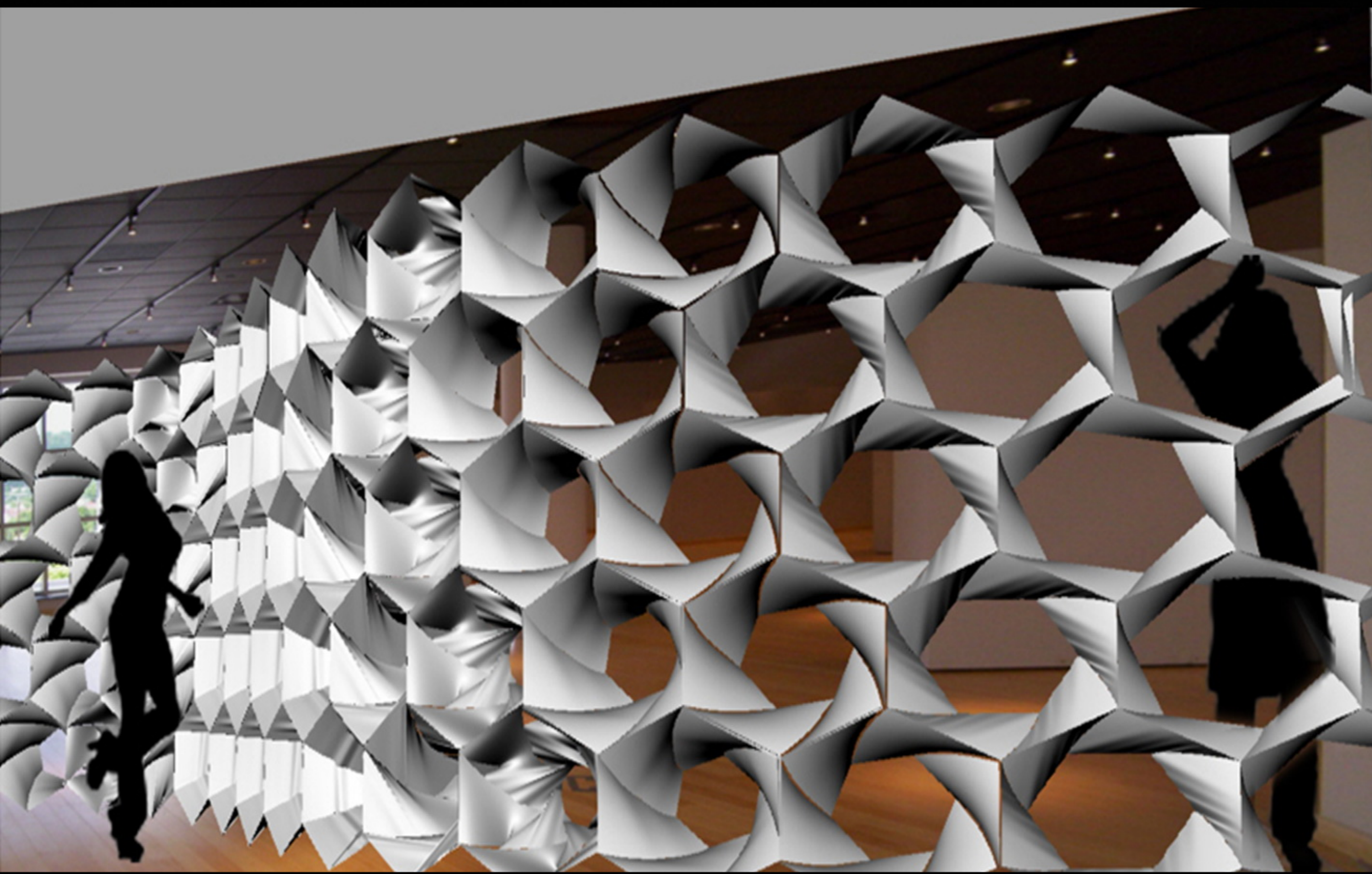
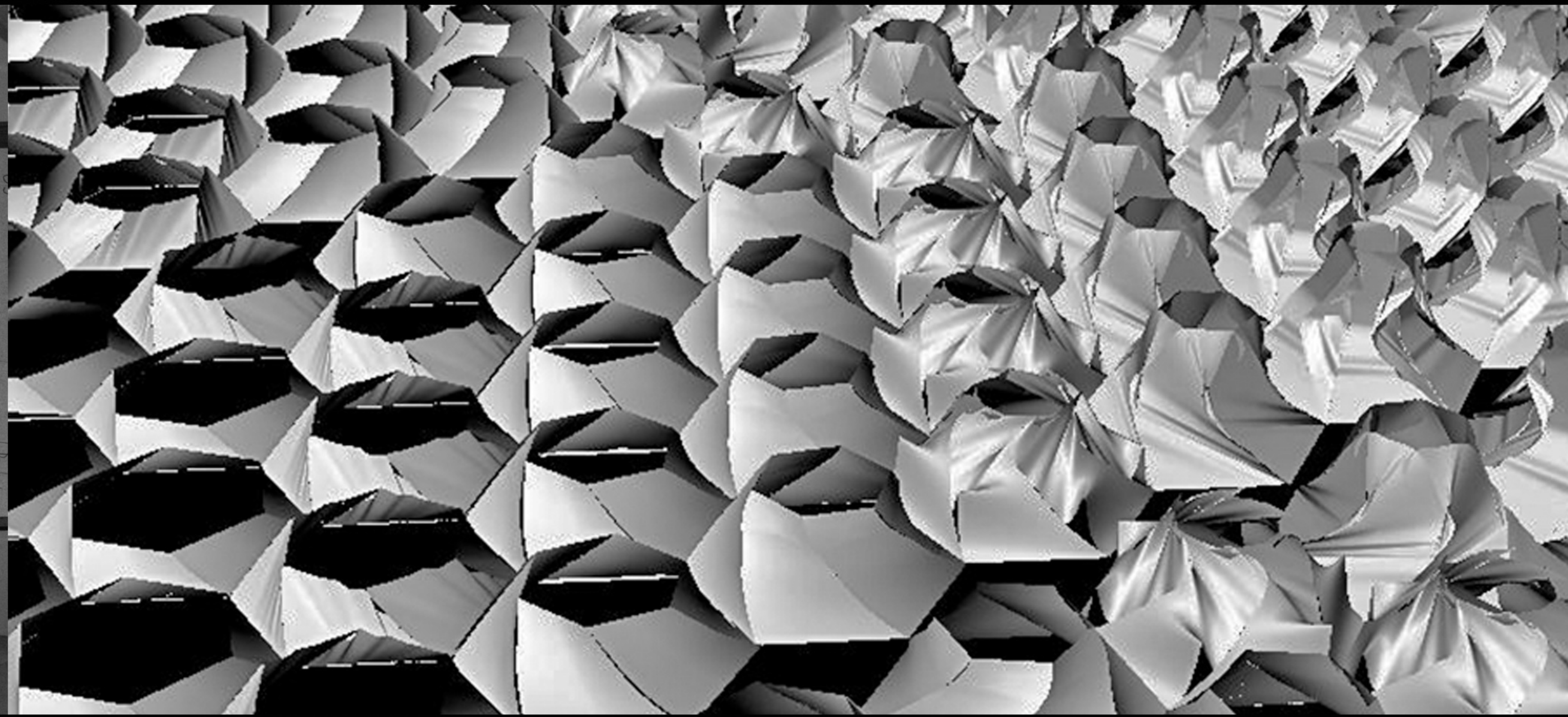
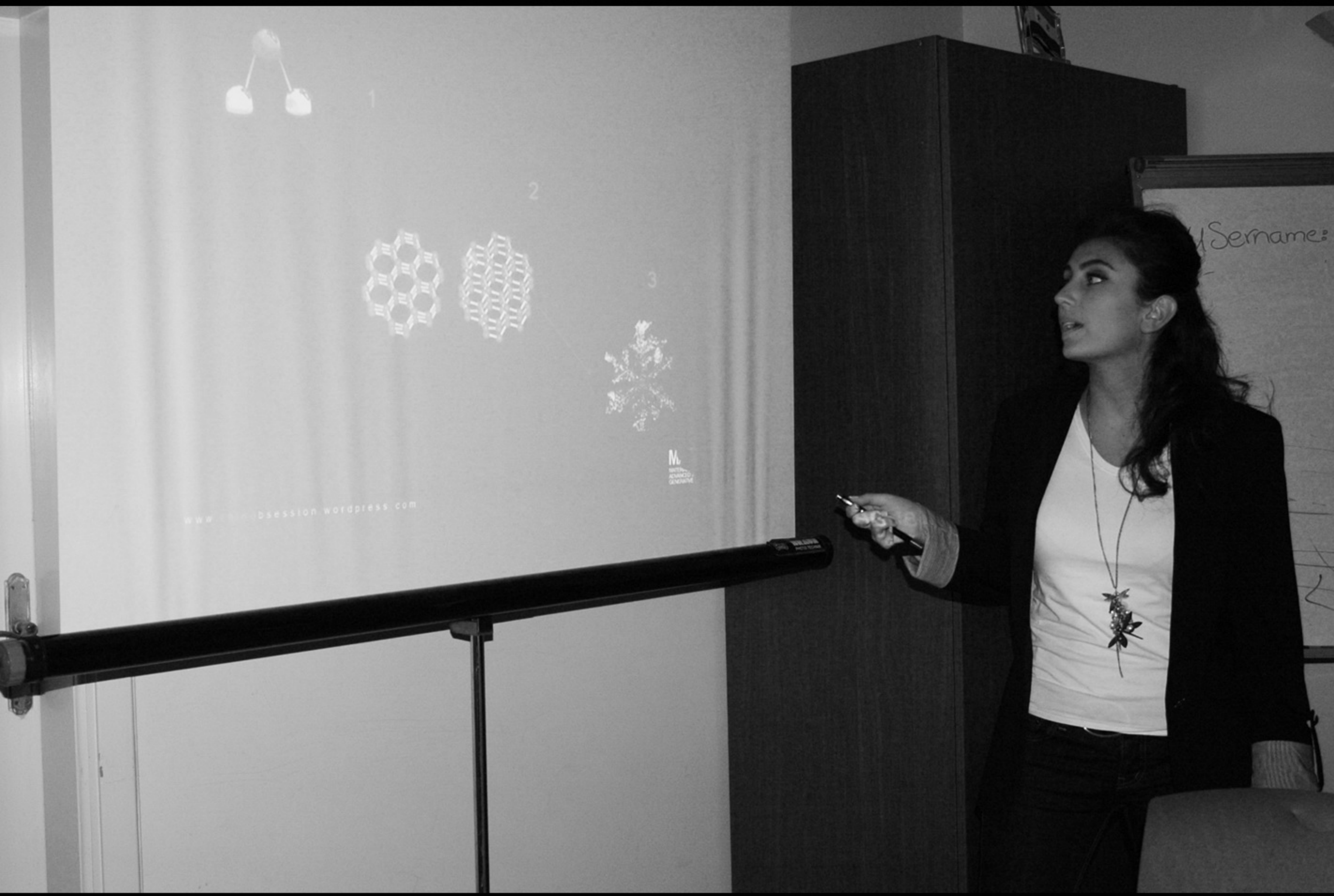




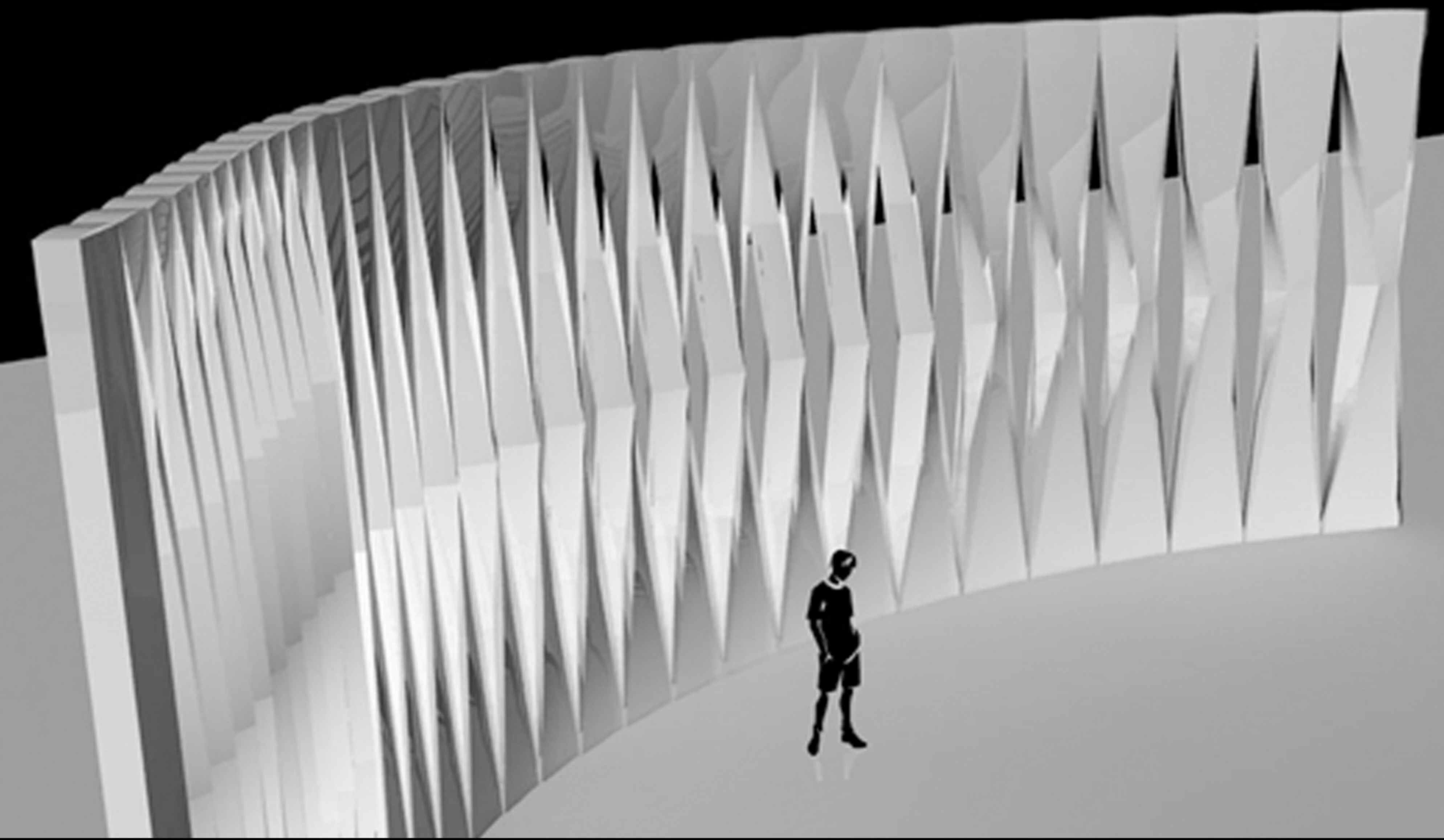
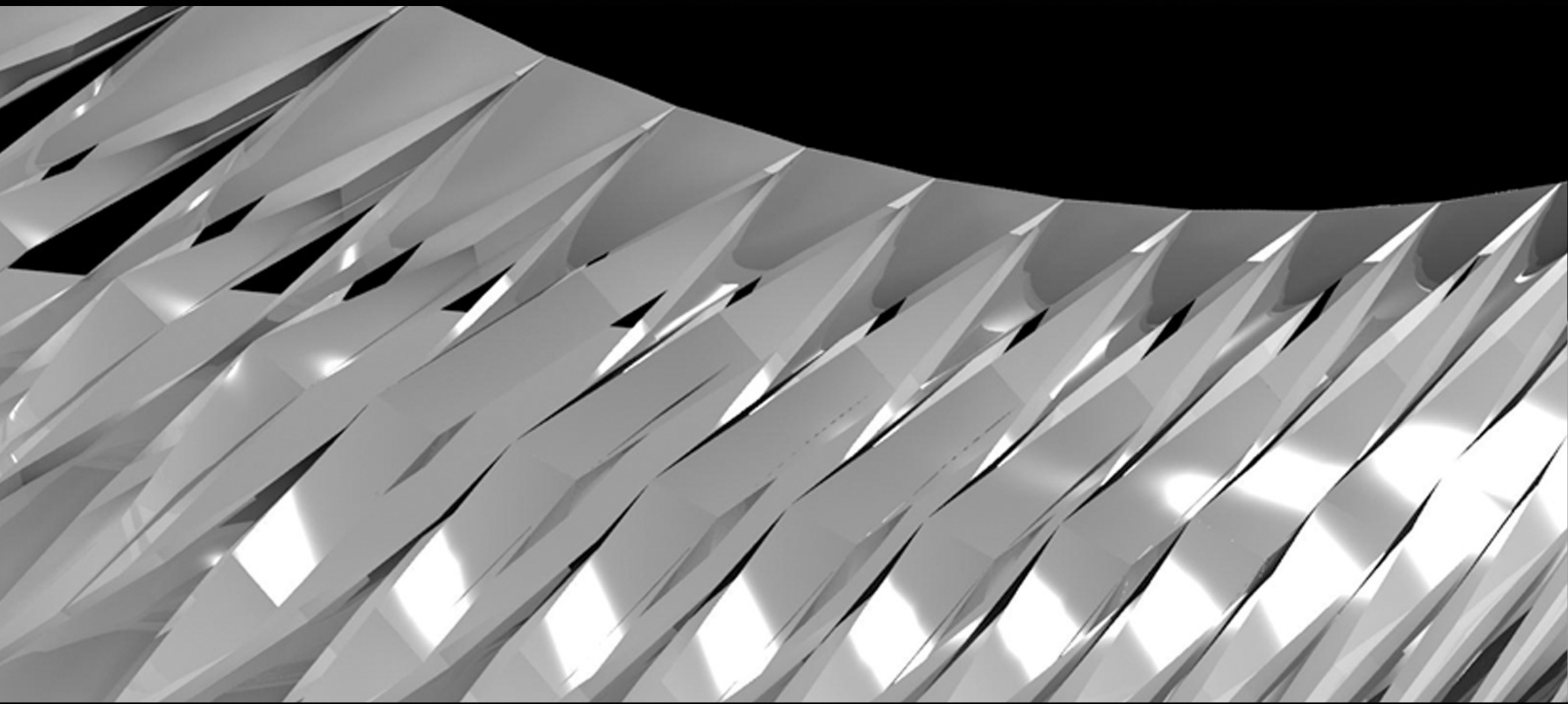
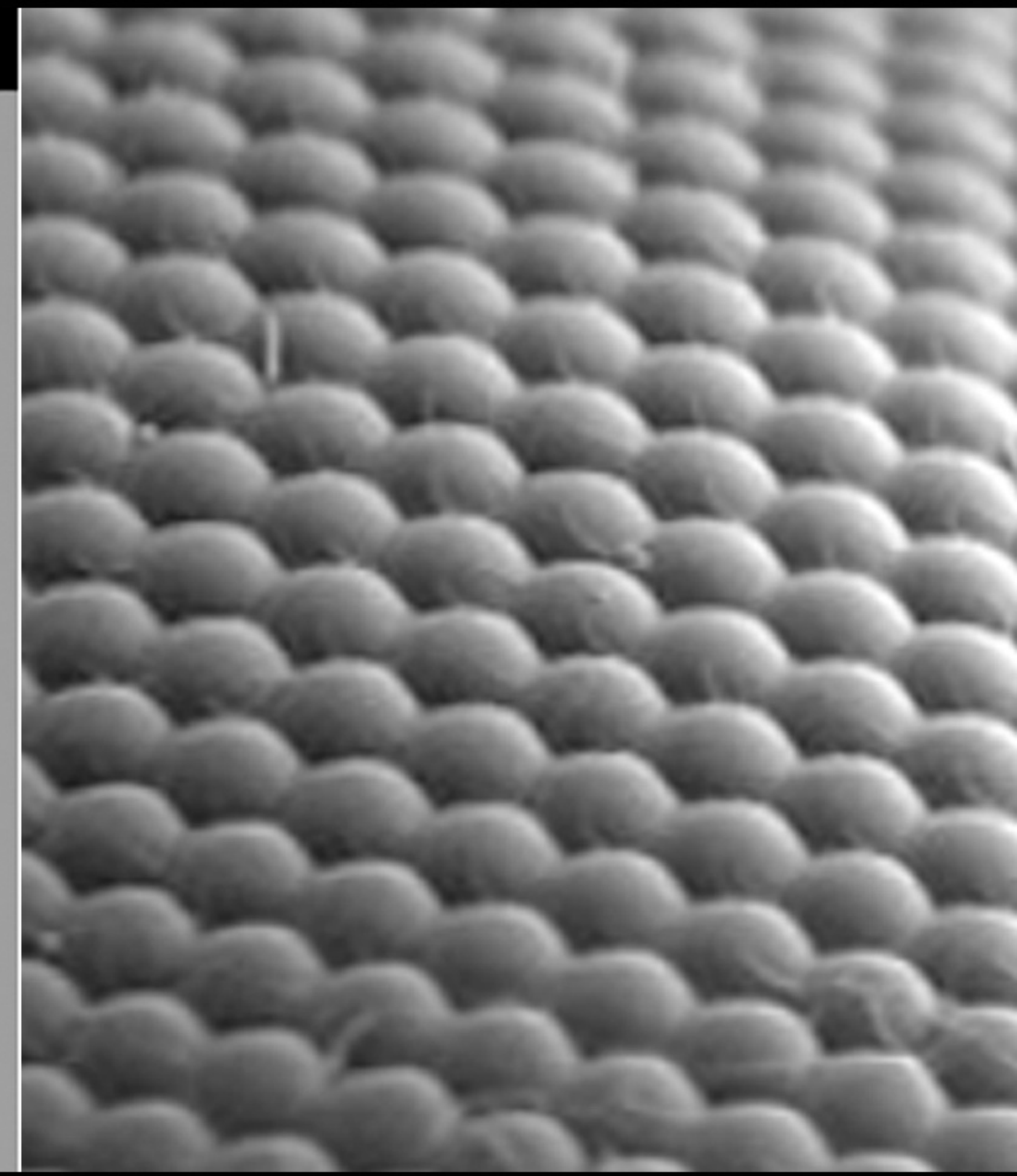
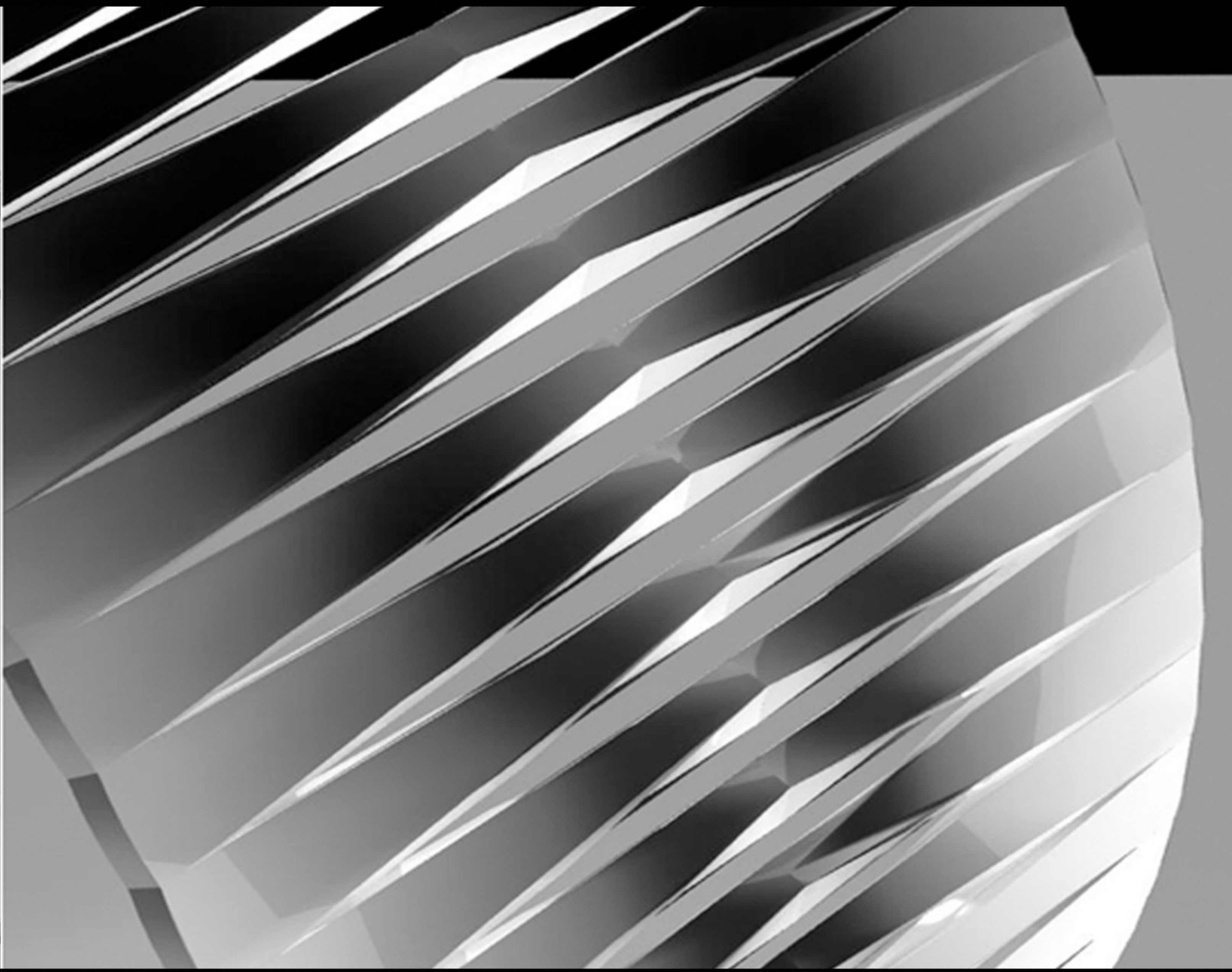




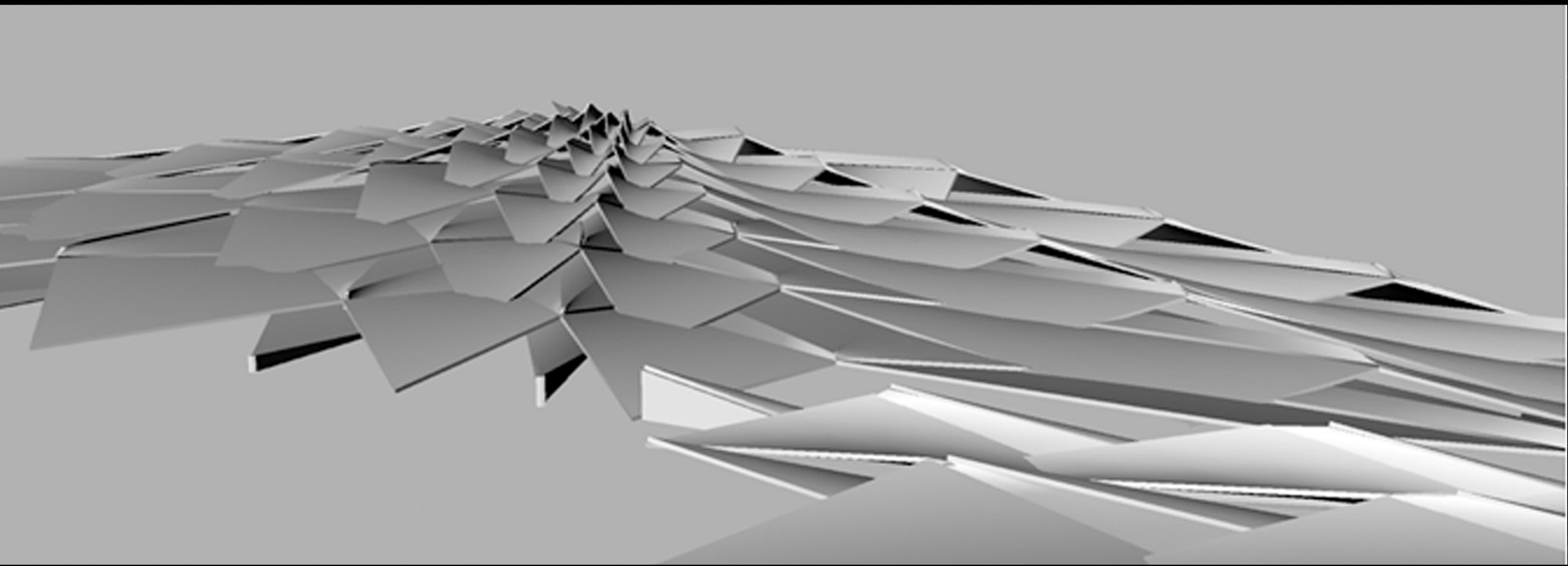
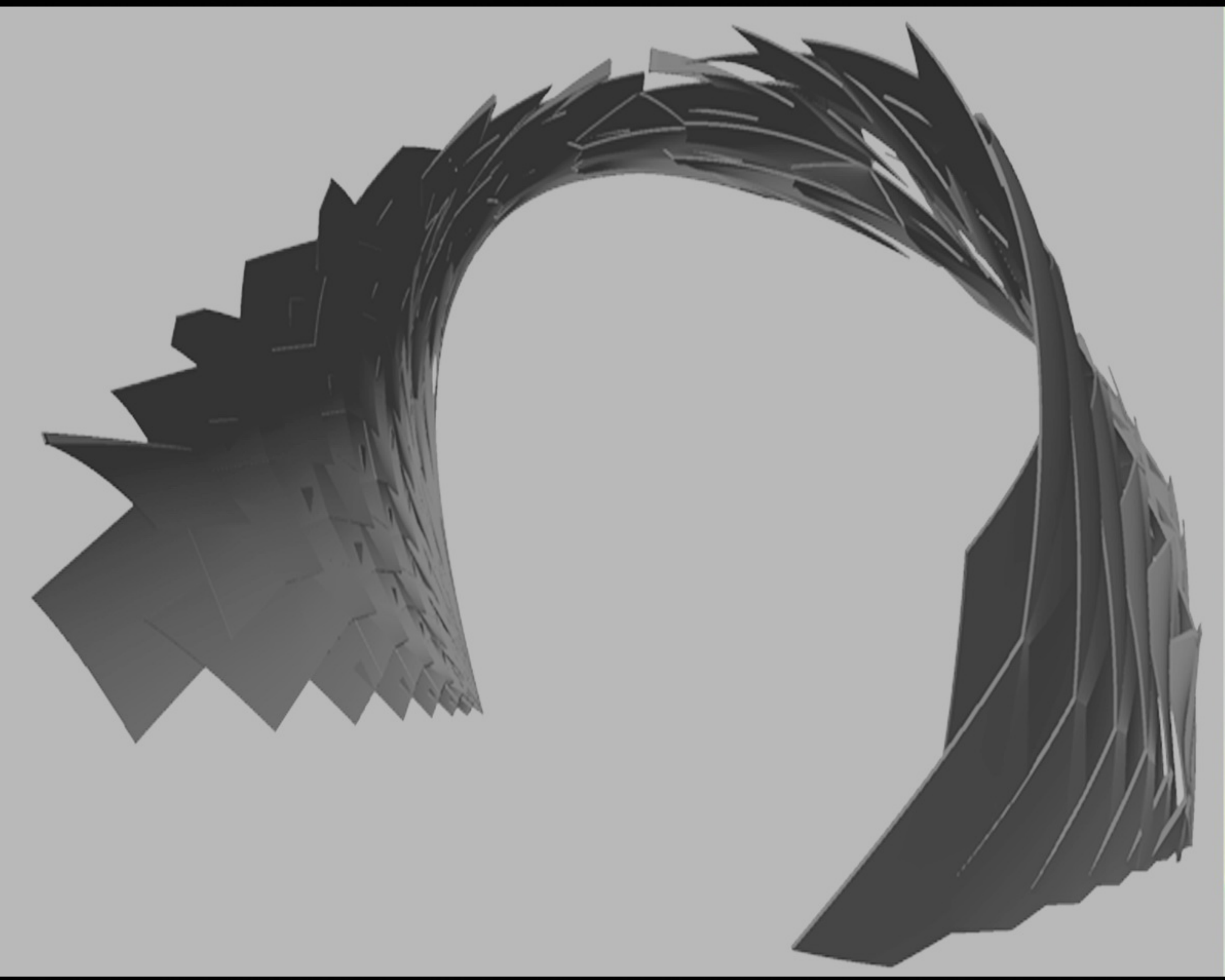
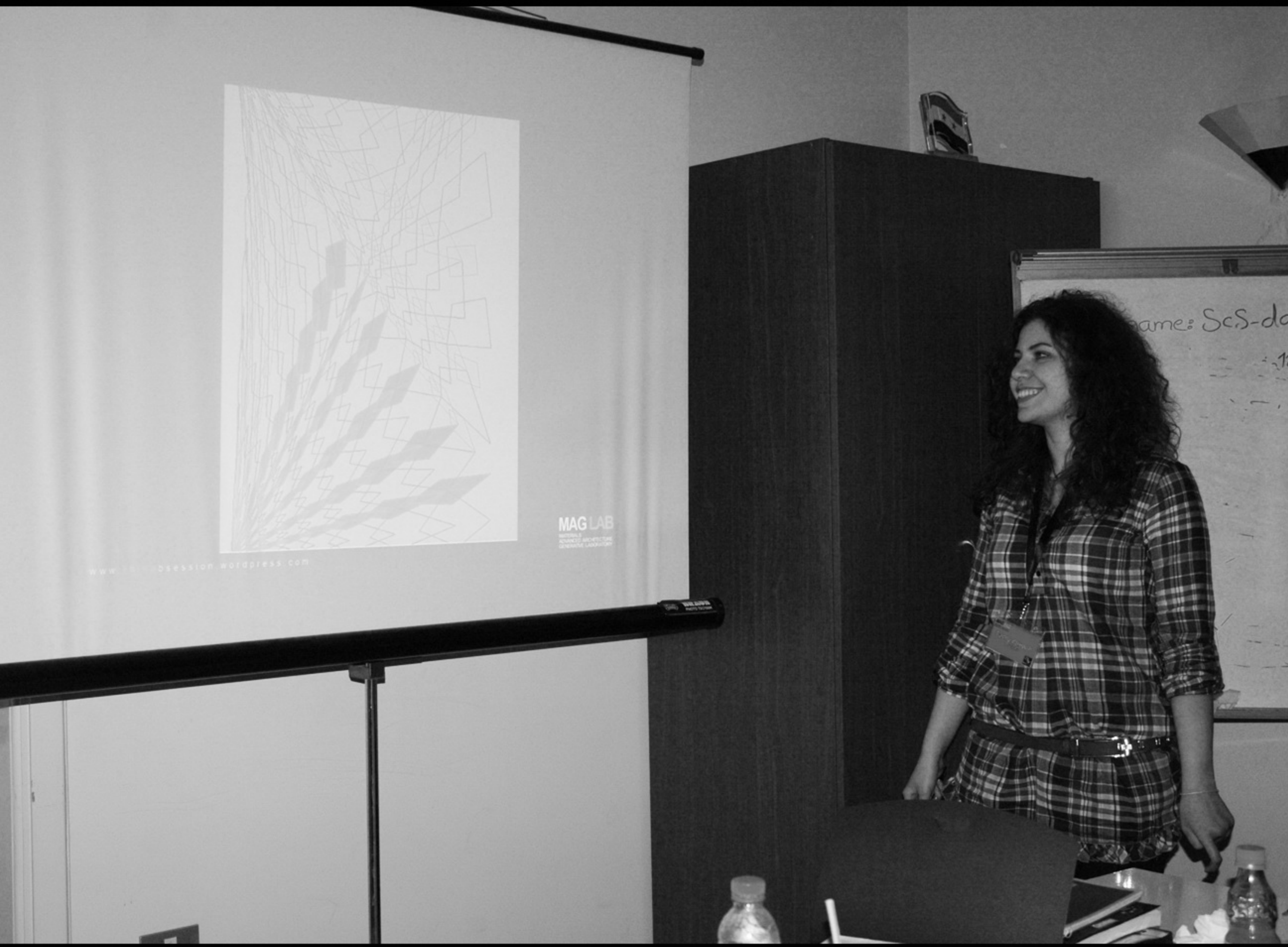














# Acknowledgement

We would like to acknowledge the following people:

## The participants

For their amazing dedication and the great efforts showed throughout five intensive days of the Rhino Workshop.

The jury members  
Dr.Prof Yasser Al Ayobi  
Arch Sawsan Mansour





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