



**HOW TO GET INSPIRED BY NATURE TO
CREATE ARCHITECTURE?**

Biomimetic architecture & biomimicry

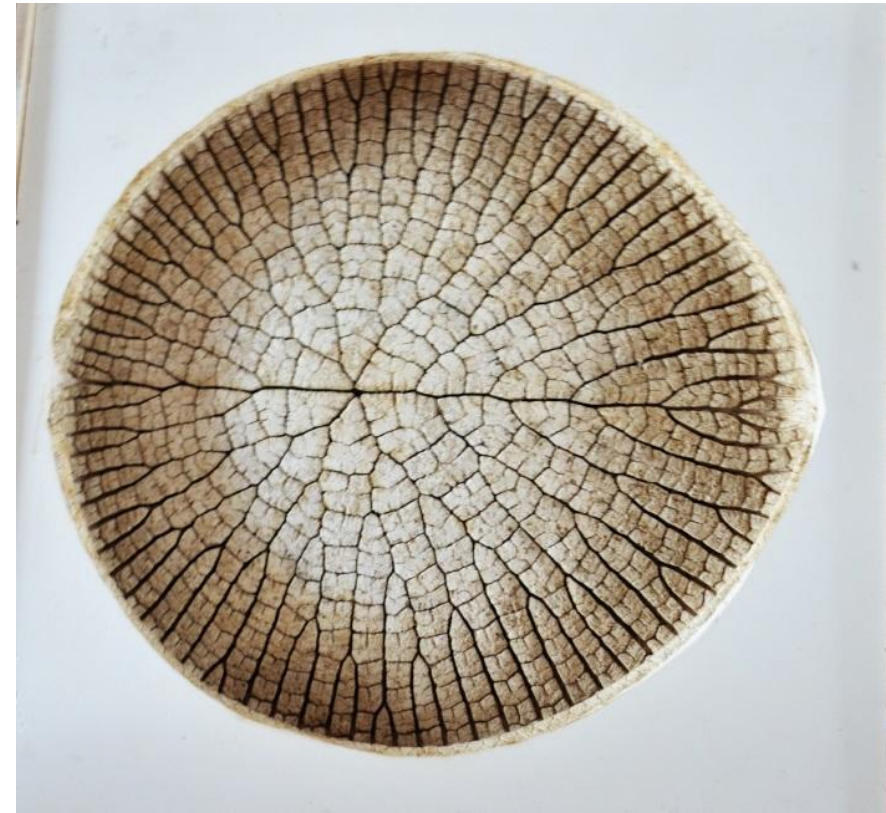
Biomimetic architecture is a contemporary **philosophy of architecture** that **seeks solutions for sustainability** in nature, not by **replicating** the natural **forms**, but by **understanding the rules governing those forms**. It is a **multi-disciplinary approach** to **sustainable design** that **follows** a set of **principles** rather than **stylistic codes**.

It is part of a larger movement known as **biomimicry**, which is the **examination of nature**, its **models**, **systems**, and **processes** for the purpose of **gaining inspiration** in order to **solve man-made problems**.

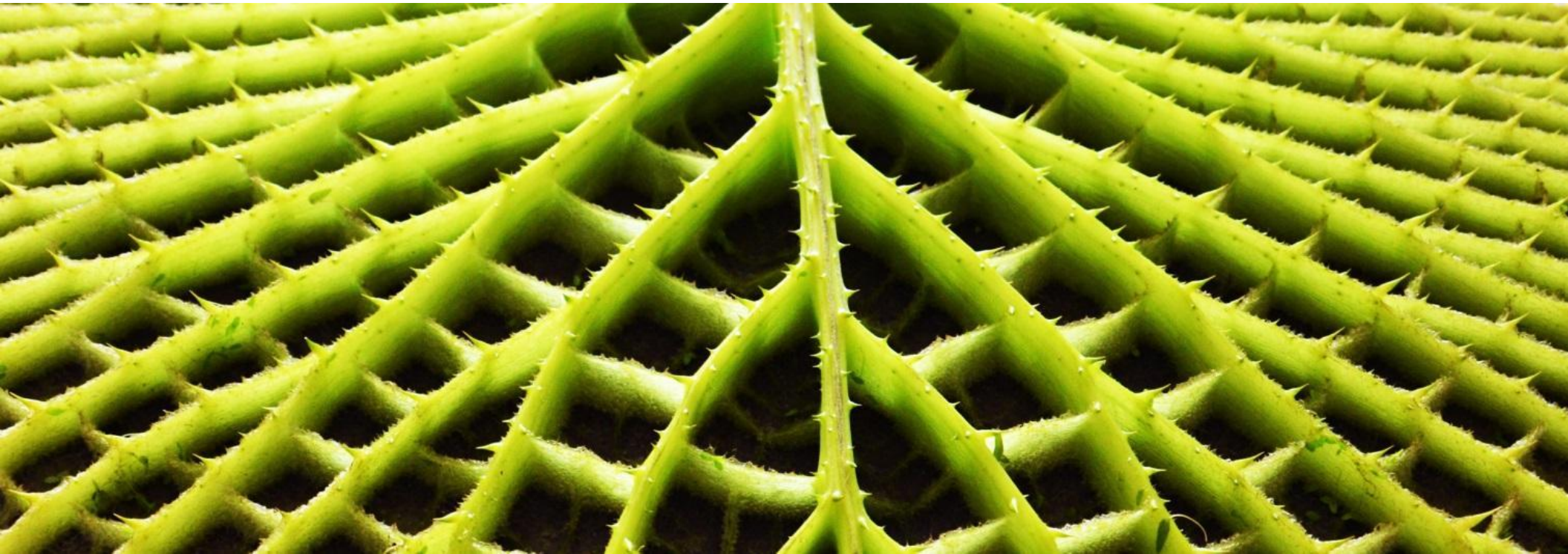
Palazzetto Dello Sport

A giant Amazon Water Lily Leaf Structure

As you can see on the pictures, the **Amazon WaterLily** has developed a **highly interesting and complex structure** to be able to **support the leaf overwater that can grow over 2,5m**. The roof of the **Palazzetto Dello Sport** by **Pier Luigi Nervi** used the example of the **Amazon Waterlily** to achieve a **more efficient structure**.



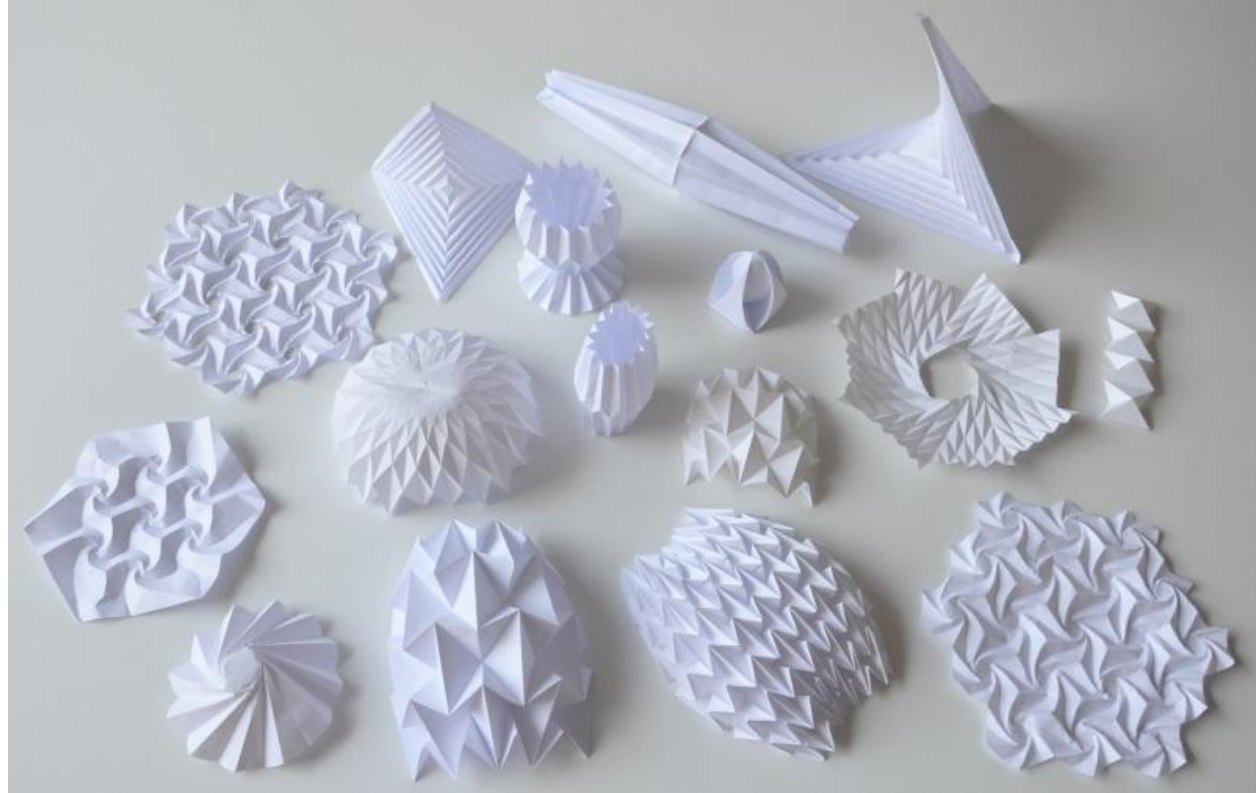
Palazzetto Dello Sport



A giant Amazon Water Lily Leaf Structure

Palazzetto Dello Sport

biological forms of **origami**
as possible sources of
inspiration in **architecture**





TAIPEI 101

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- ❑ Taipei 101 is located in the Xinyi District in **Taiwan's** capital city – **Taipei**
- ❑ It was formerly known as the **Taipei World Financial center** and was ranked as the **tallest building in the world** from **2004 to 2009**.
- ❑ The building was designed by **C.Y. Lee & Partners**
- ❑ The Building was **inspired** by the **indigenous slender bamboo** that the country sees as an **icon of learning and growth**.
- ❑ The building is also considered as **one of the greenest in the world** when it was **awarded** the **Leadership in Energy and Environmental Design (LEED) platinum certification** in July 2011.



TAIPEI 101

Bamboo Plant



Taipei 101



Beijing National Stadium

Beijing National Stadium

- ❑ The Beijing National Stadium or better known as the **Bird's Nest Stadium**
- ❑ was designed by **Swiss architecture** firm **Herzog & de Meuron** for the 2008 Summer **Olympics** and **Paralympics** in Beijing, **China**.
- ❑ As the name implies, the stadium **looks like a giant bird's nest** made out of **110,000 tons of steel**.
- ❑ The infrastructure was also built using **advanced energy-saving** design and **environment friendly** features such as **natural ventilation & lighting**, a **recycling system for rainwater**, use of **renewable geothermal energy sources** and utilization of **photovoltaic power technologies**

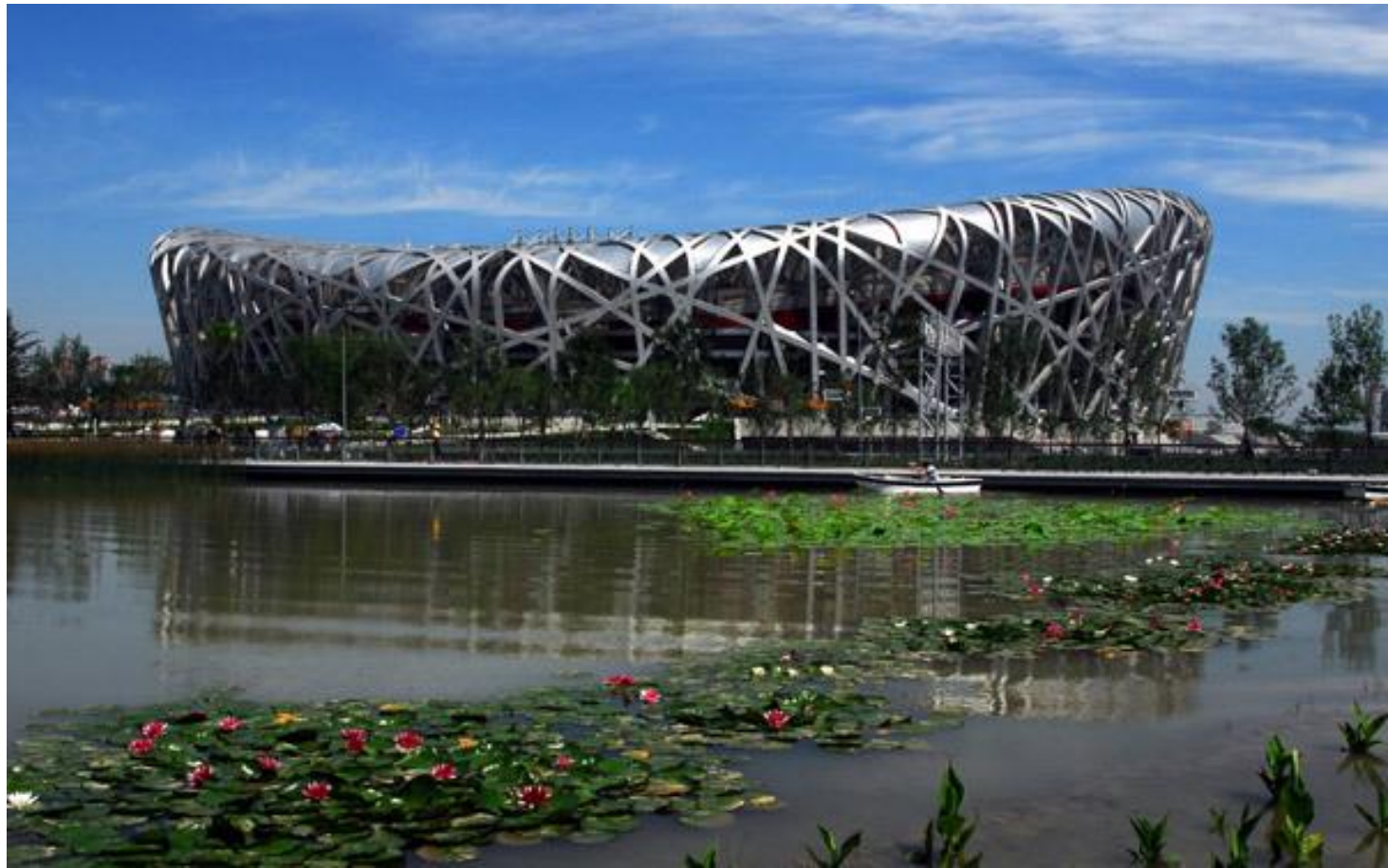


Beijing National Stadium



Bird's Nest

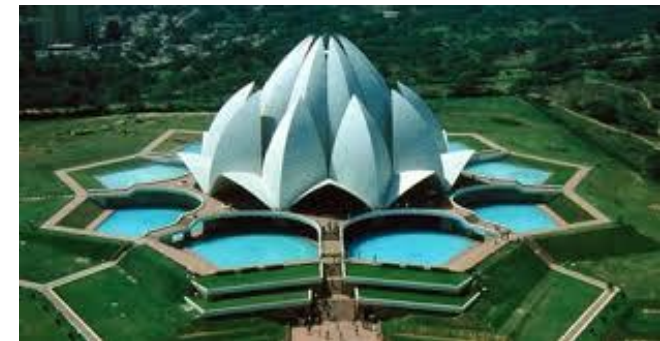
Beijing National Stadium



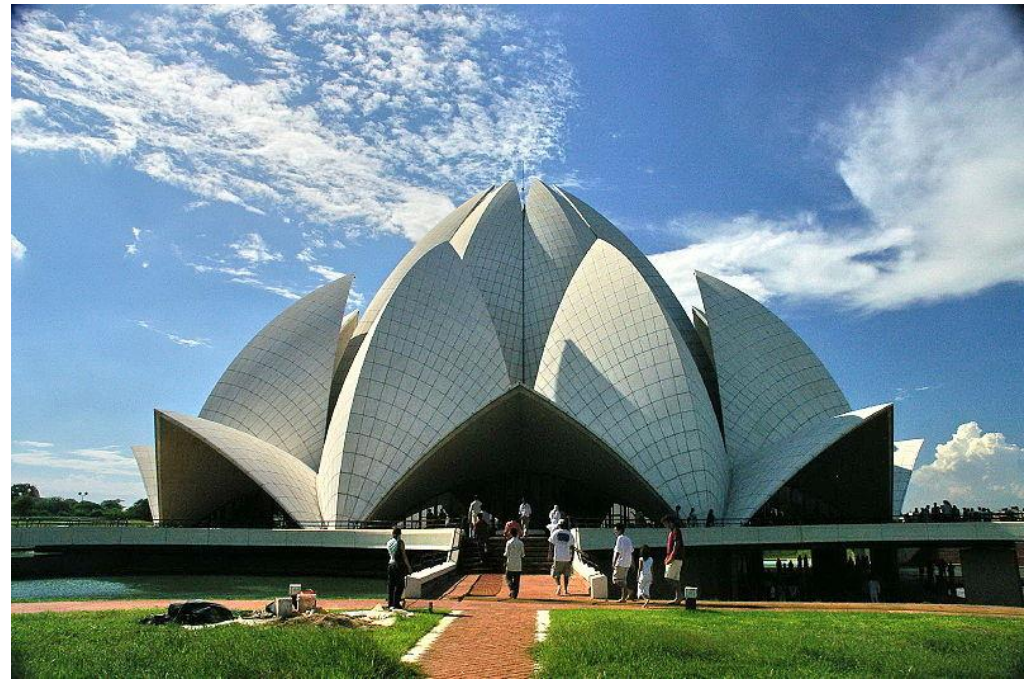
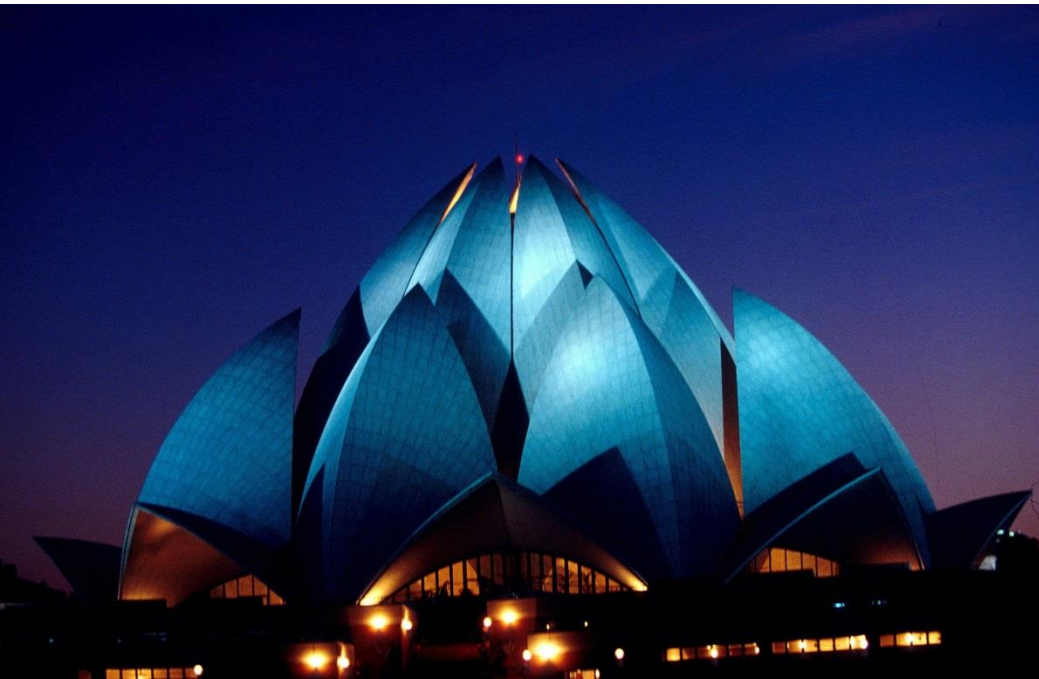
LOTUS TEMPLE

LOTUS TEMPLE

- ❑ The Lotus temple in **New Delhi, India**
- ❑ It was designed by **Iranian architect Fariborz Sahba**
- ❑ He took the **lotus flower** as his **inspiration** for the project
- ❑ The temple is the site of worship for **followers** of the **Bahá'í Faith**
- ❑ The temple's design is **composed** of **27 free-standing marble clad petals** that are group in **clusters of three** in order to **form nine sides** (a stipulation of the religion).
- ❑ The building **has nine entrances** that all lead to a central hall capable of accommodating 2,500 people.



LOTUS TEMPLE



LOTUS TEMPLE

Lotus Flower



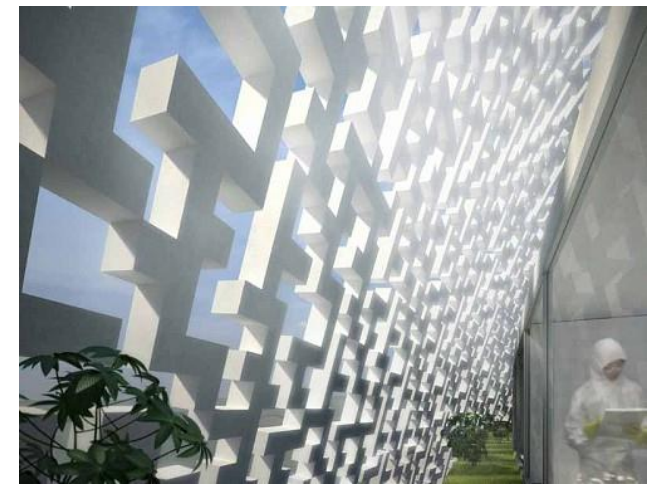
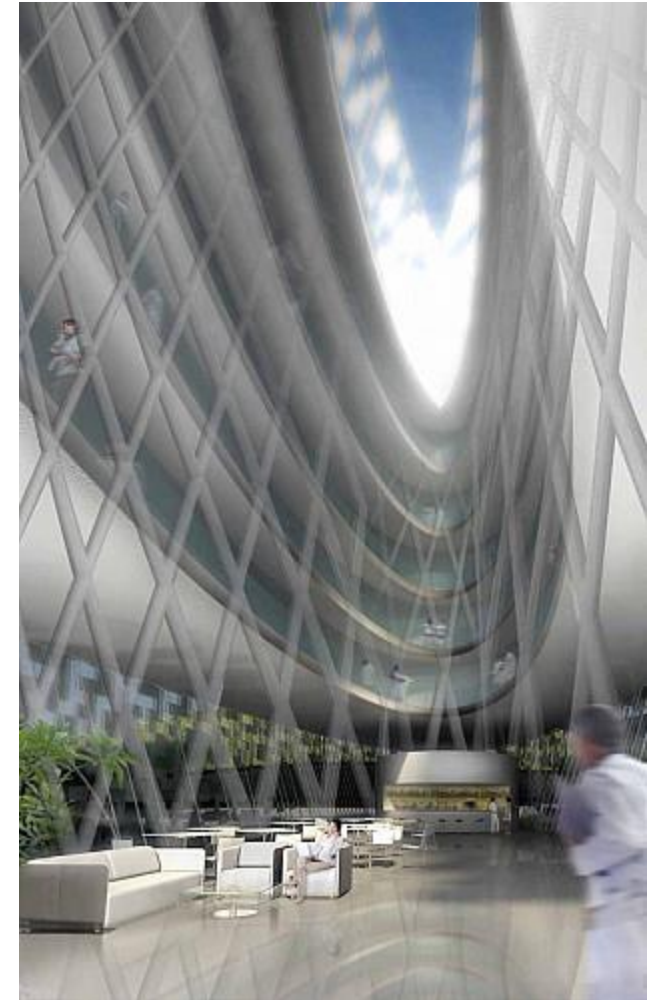
Lotus Temple



CENTER FOR DISEASE CONTROL COMPLEX

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- ❑ **Taiwan's** new Center for Disease Control BioLab
- ❑ This design by **Manfredi and Luca Nicoletti**
- ❑ It is inspired by the **shell of a nautilus** and features **interlacing geometric incisions in its outer skin**
- ❑ The pattern in its outer skin reproduces the **four conventional symbols attributed to the DNA sequence of the bacteria** that is to be studied in the building
- ❑ The result of this design is **a seemingly homogenous surface** that is **engraved** with by **symbols not known to common people**



Center for Disease Control Complex



Nautilus Shell

Center for Disease Control Complex



CHICAGO SPIRE

- ❑ The Chicago Spire is a skyscraper in **Chicago, Illinois**
- ❑ It was inspired by a **seashell**
- ❑ Designed by Spanish architect **Santiago Calatrava**



REDWOODS TREEHOUSE

REDWOODS TREEHOUSE

- ❑ The Redwoods Treehouse is a **pod-shaped structure** that sits **10 meters high in a redwood tree**.
- ❑ It is **inspired** from insect **cocoons**, can accommodate up to **30 guests** and serve as a **restaurant** in which special occasions can be held.



REDWOODS TREEHOUSE

Cocoon



Redwoods Treehouse



MMAA BUILDING

Office of the Minister of Municipal Affairs and Agriculture

- ❑ It is designed by **Go Group** from Bangkok.
- ❑ It is in **Doha, Qatar**
- ❑ It is inspired by a plant commonly found in the desert – the **cactus**
- ❑ with **energy efficient features** such as **sunshade panels** that **open and close depending on the sun's intensity**. There is also a **botanic dome** at the base of the building that houses a **botanic garden**.



BEIJING WATER CUBE

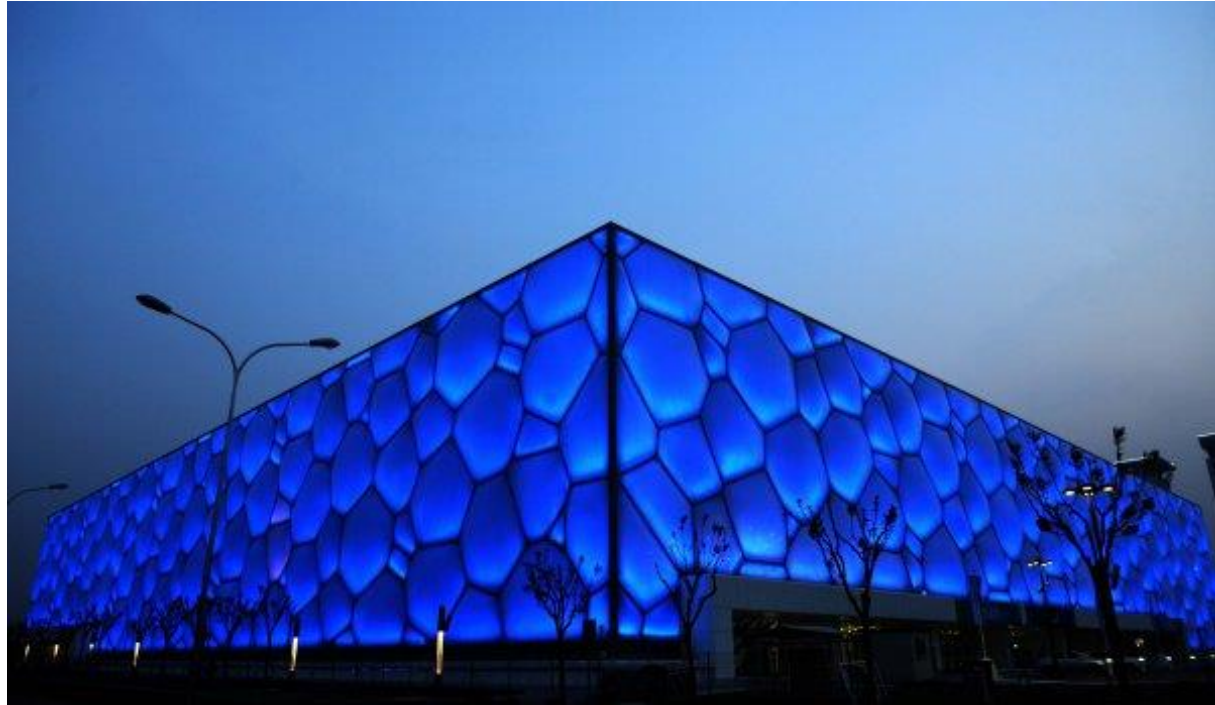
BEIJING WATER CUBE

- ❑ **The Beijing National Aquatics Center** otherwise known as the **Water Cube** is another infrastructure commissioned by the Chinese Government for the 2008 Summer Olympics in **Beijing, China**.
- ❑ The infrastructure is also a **green building** with its **ETFE** cladding that allows **more light and heat penetration** which in turn **reduces energy costs**.



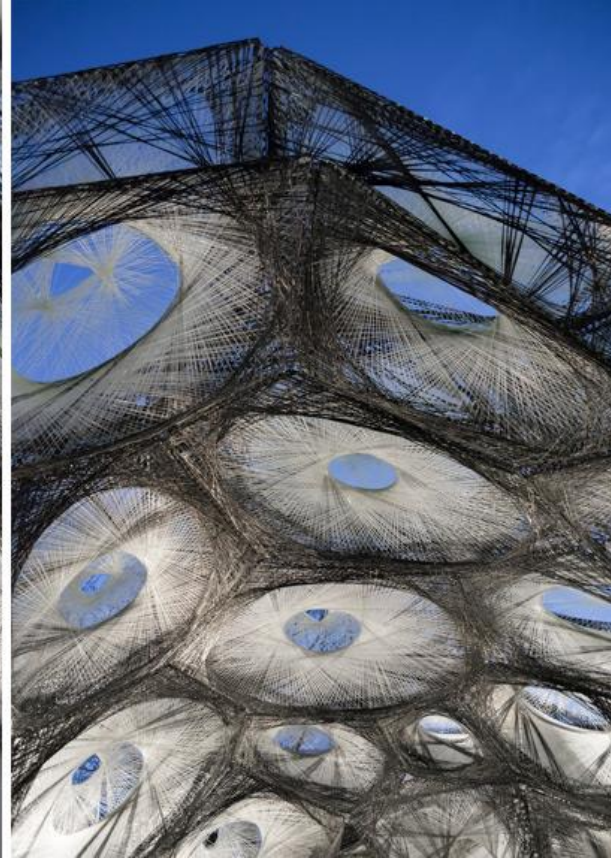
BEIJING WATER CUBE

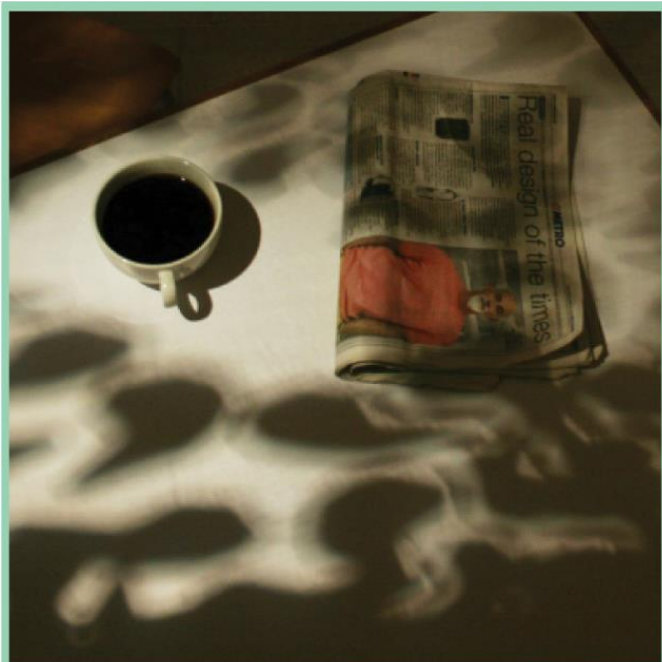
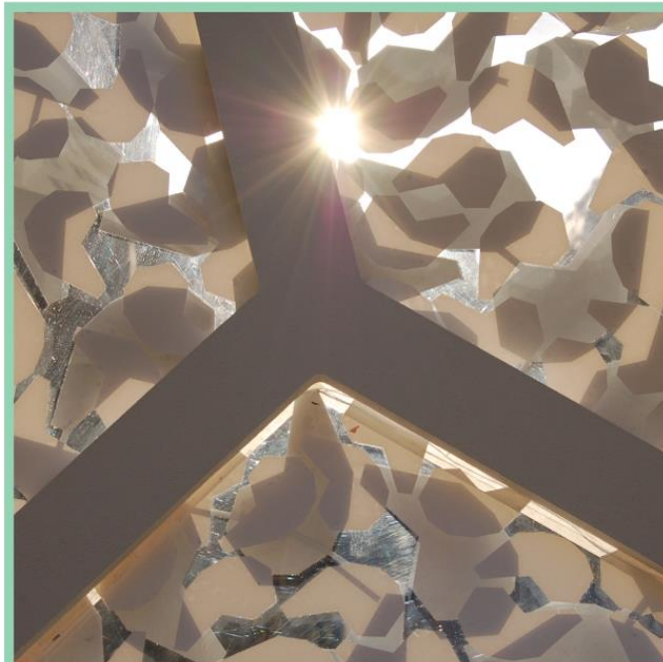
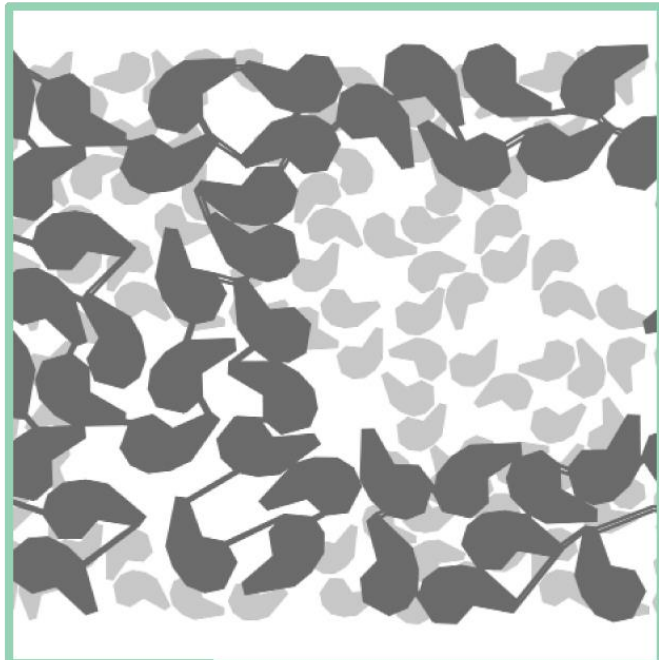
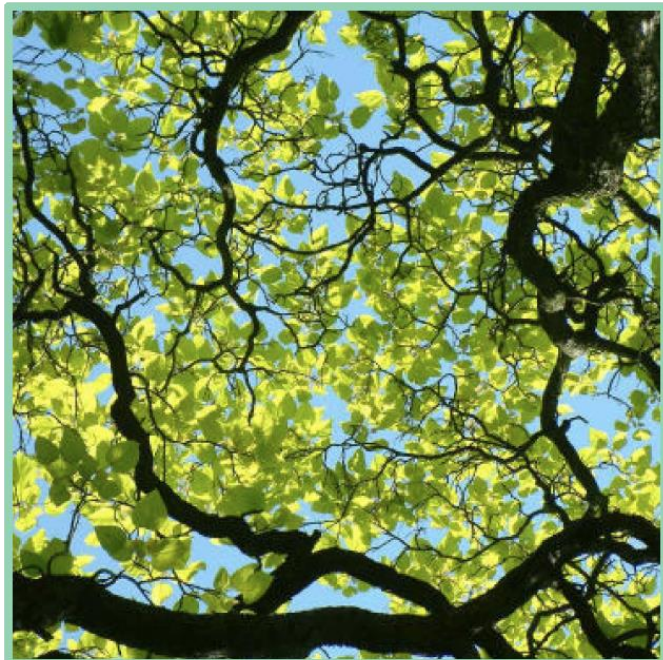
Bubbles

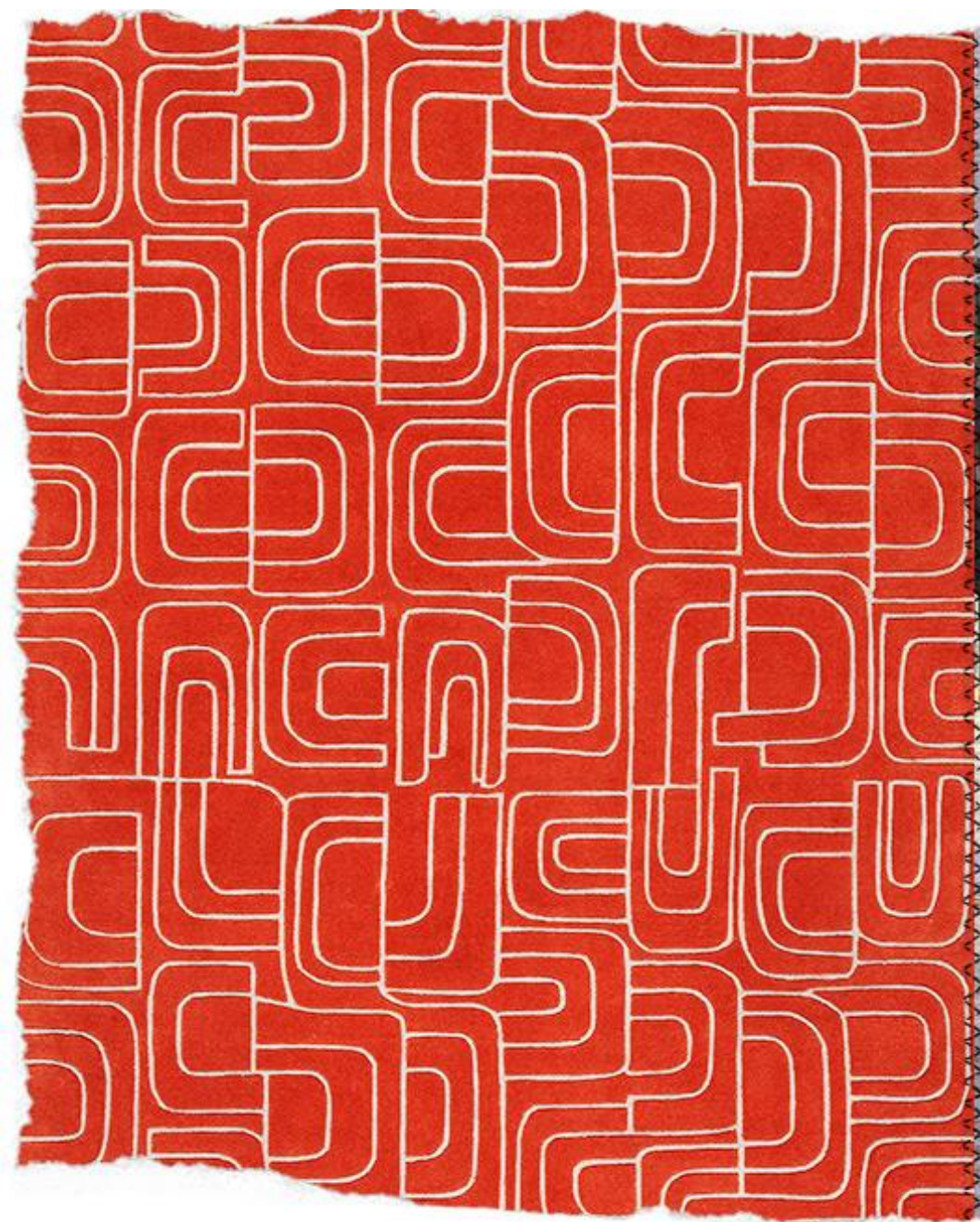


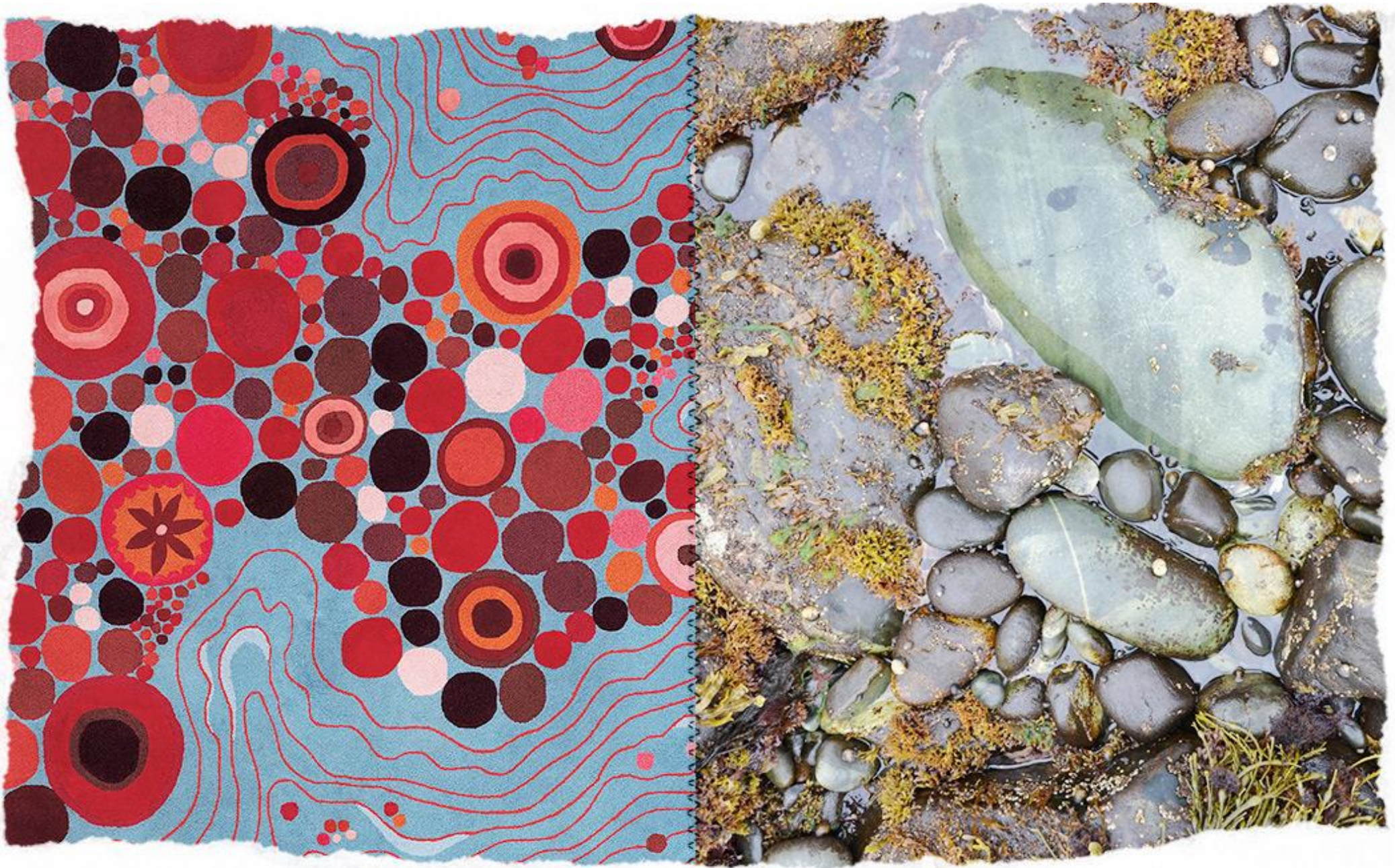
BEIJING WATER CUBE















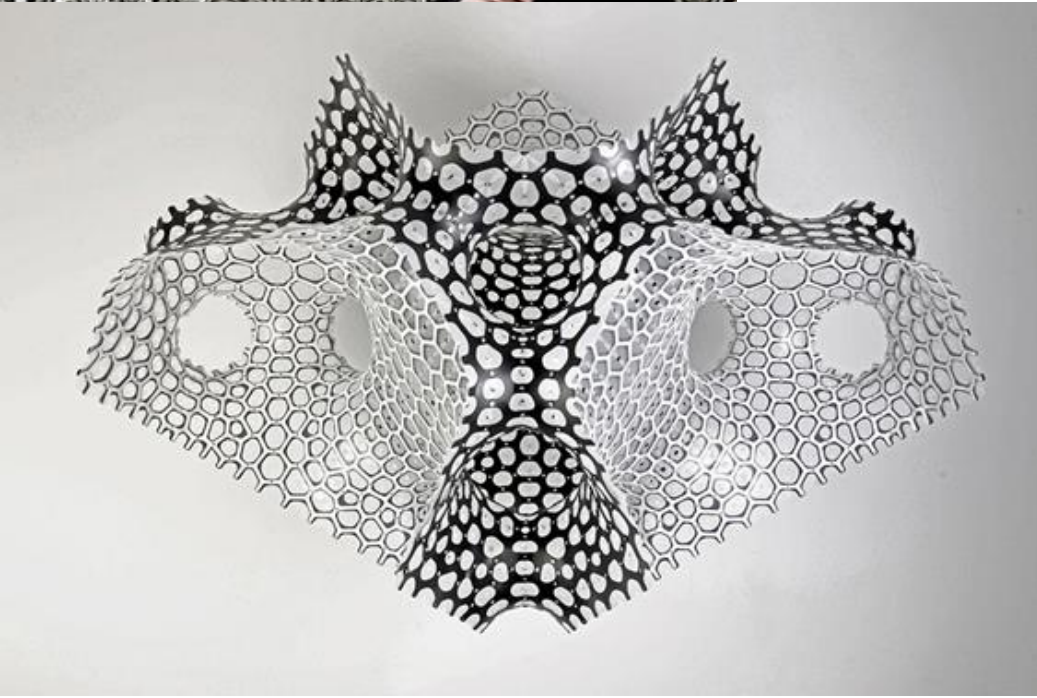


Vlad Tenu's Sculptures

Vlad Tenu's Sculptures

- ❑ Inspired By Patterns In Nature
- ❑ Vlad Tenu is an **architect and designer** based in **London** whose work is **inspired** by **complex** (yet minimal) **naturally occurring patterns** and spontaneous creation.
- ❑ Resembling **soap bubbles**, **honeycombs**, **seed pods**, and other **innumerable repeating** and **interconnecting** shapes found in nature, the additive qualities of the work makes their shape **completely adaptable**, a final form which is **limitless**.





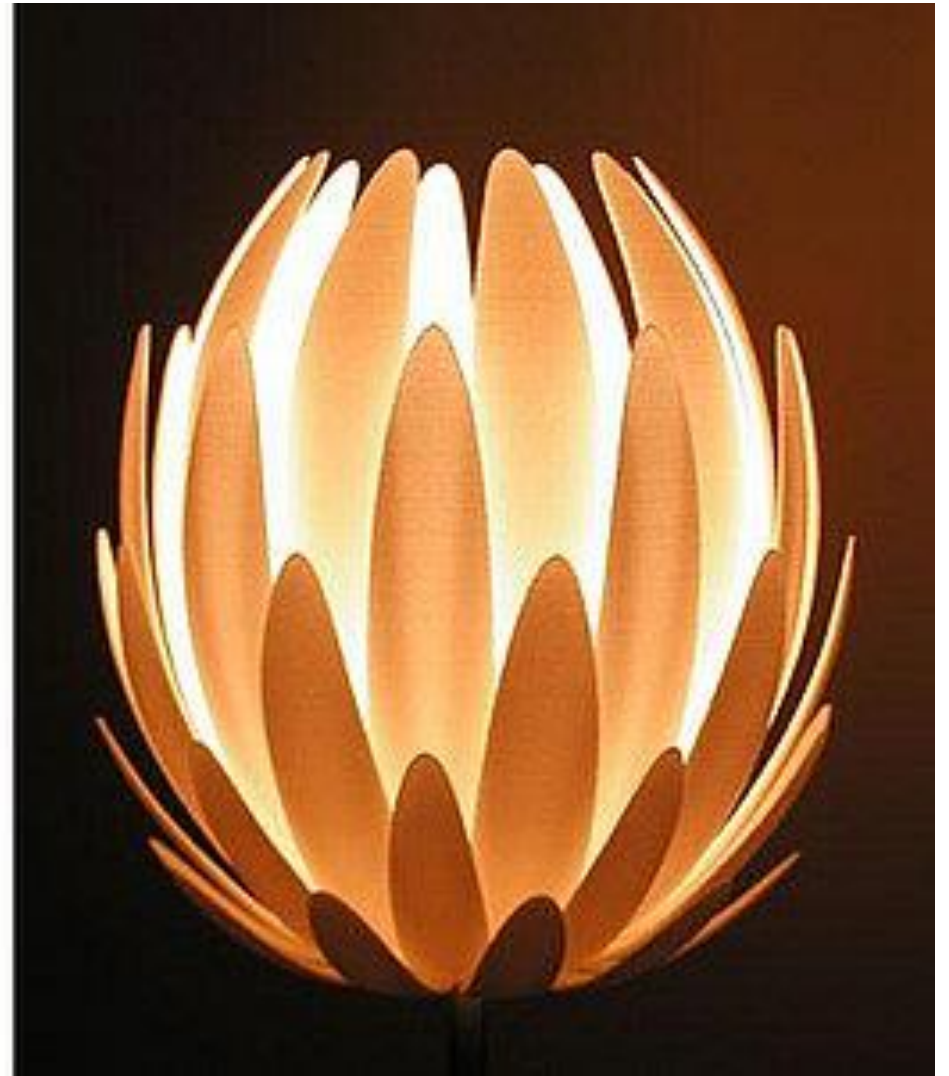
Furniture

Full range of colours for Vegetal, November 2008.



Vegetal chair, Bouroullec brothers

Furniture

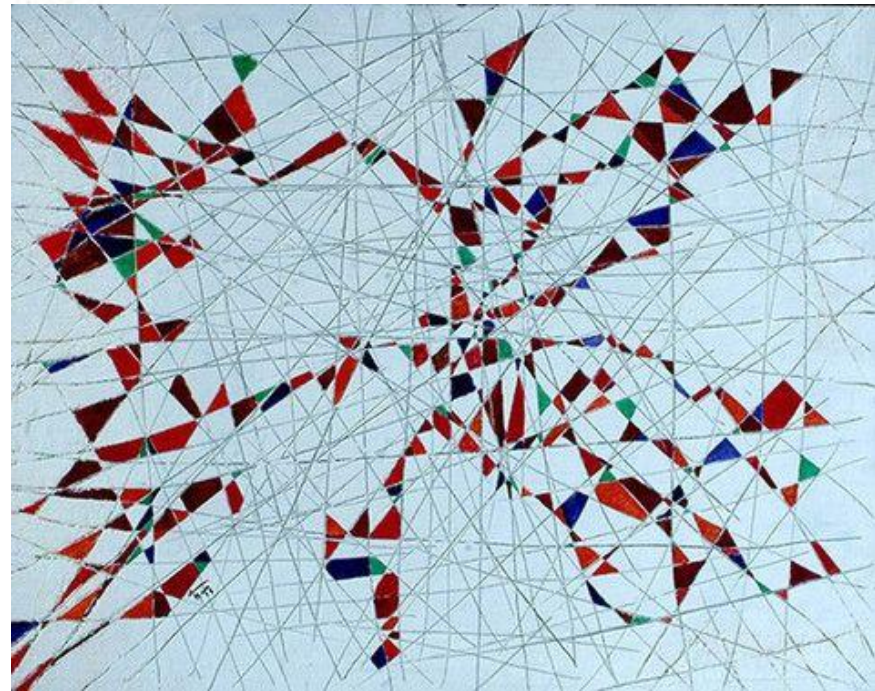
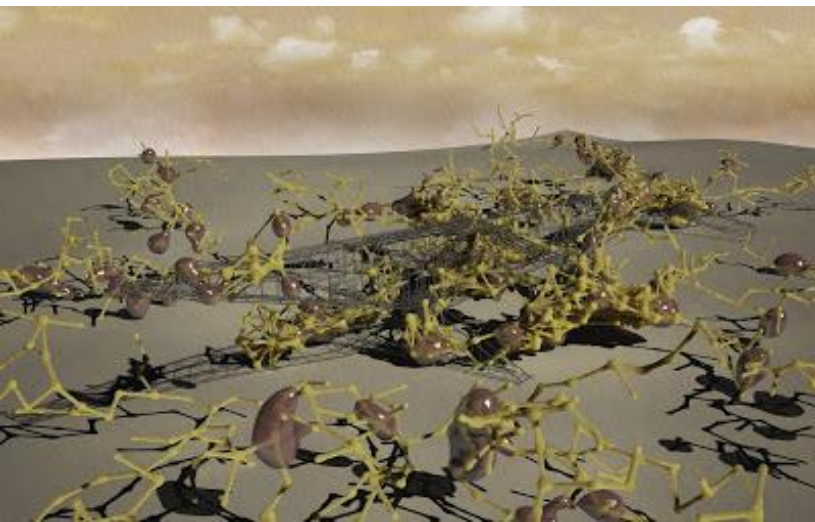


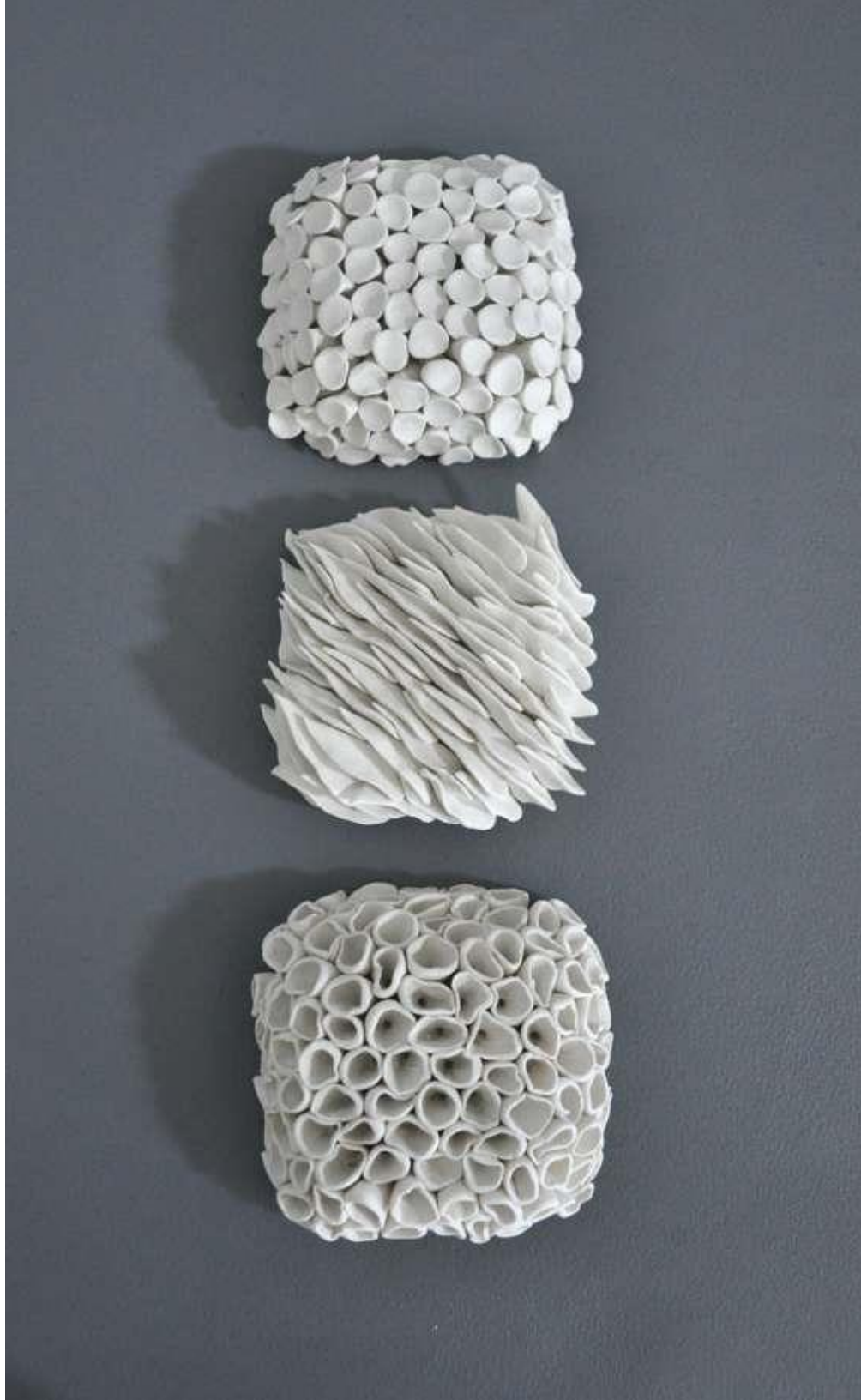
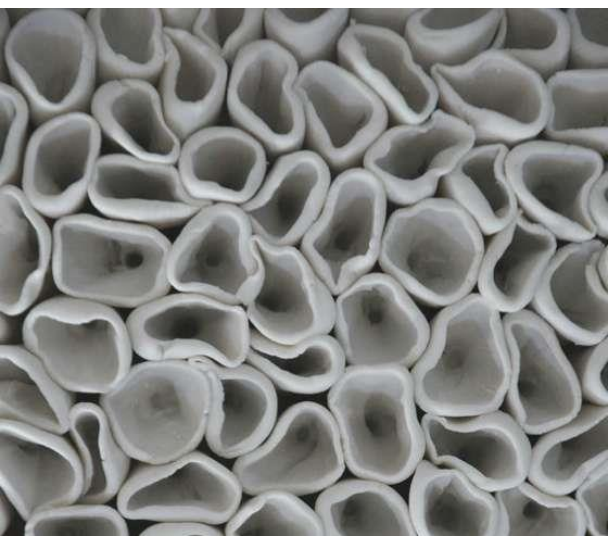
Lily lamp, Janne Kyttanen

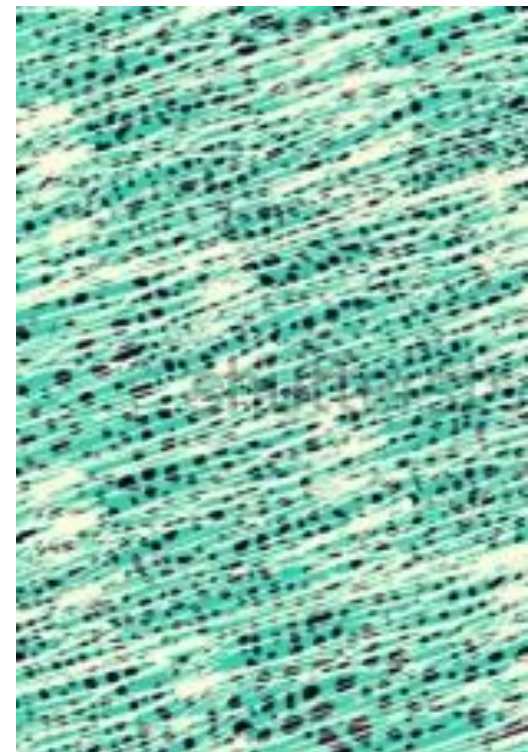
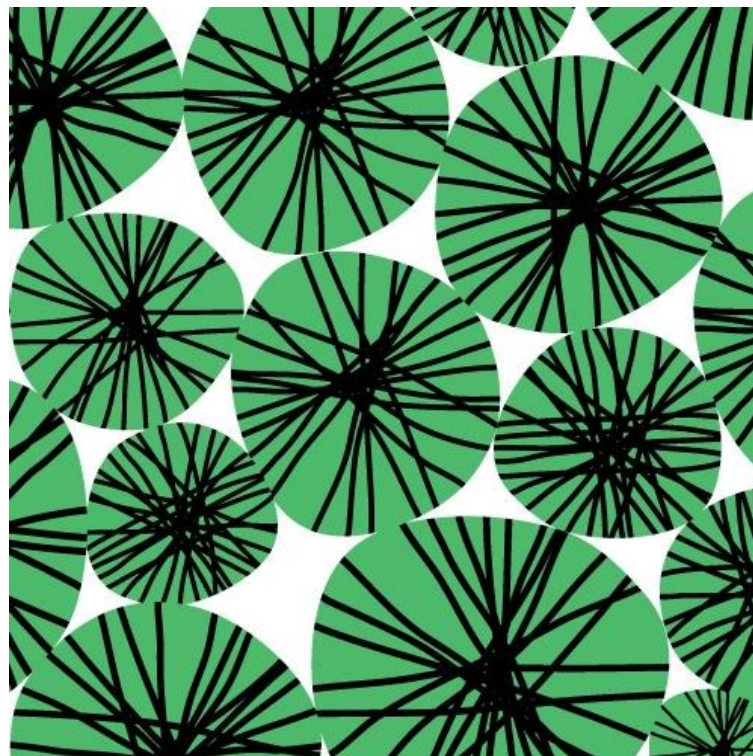
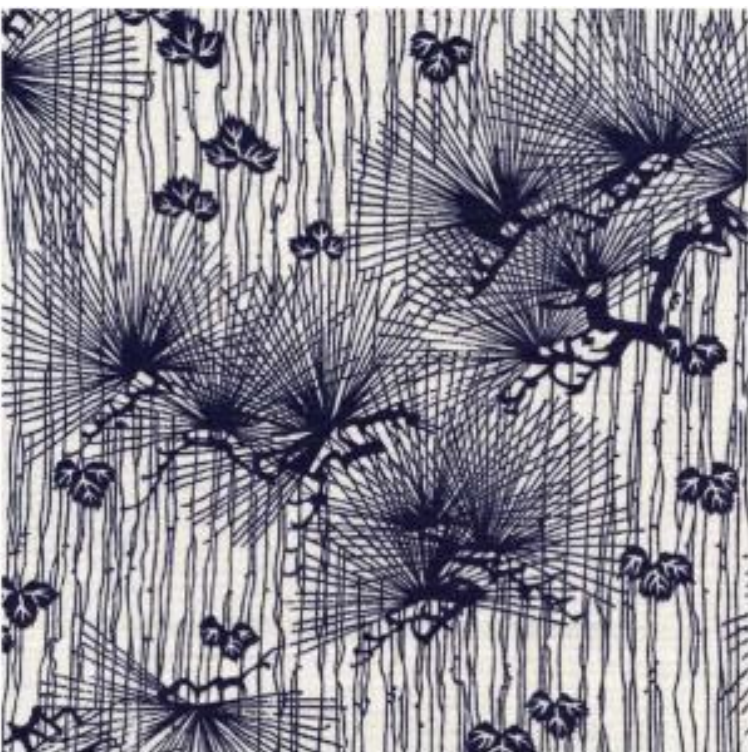
Furniture



Nest chair



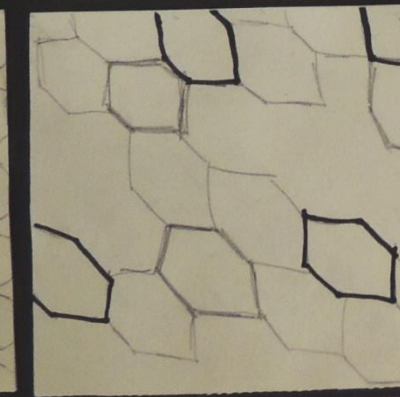
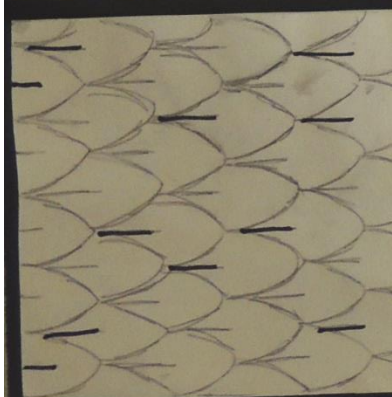
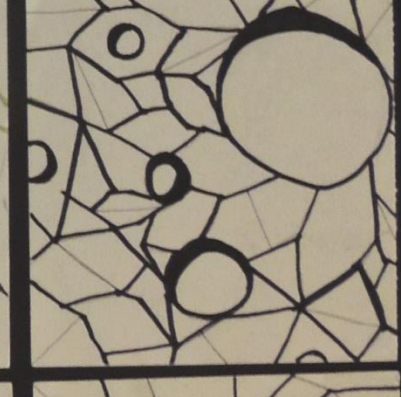
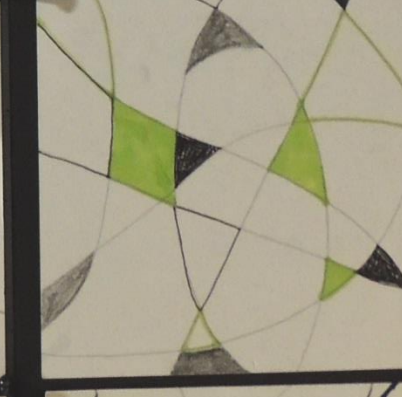
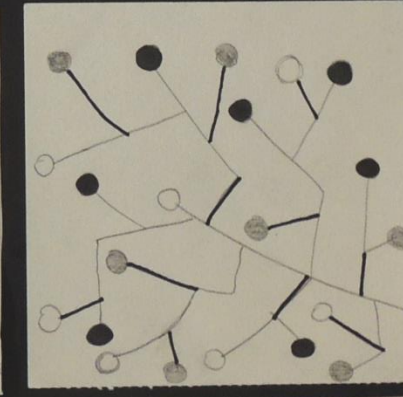
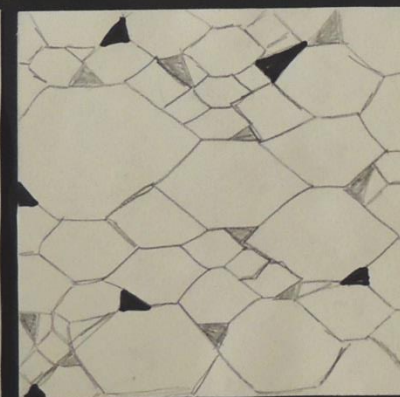
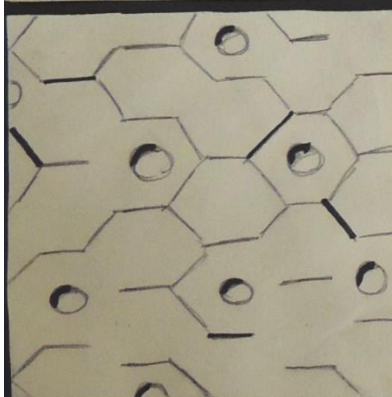
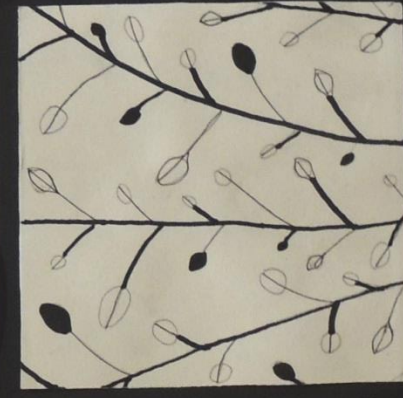
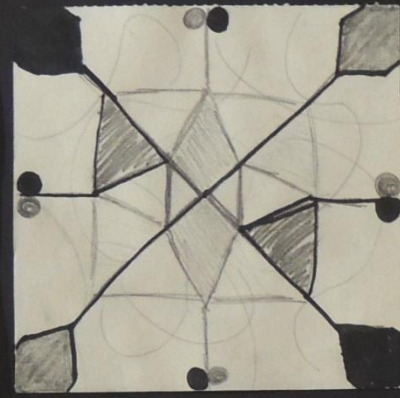
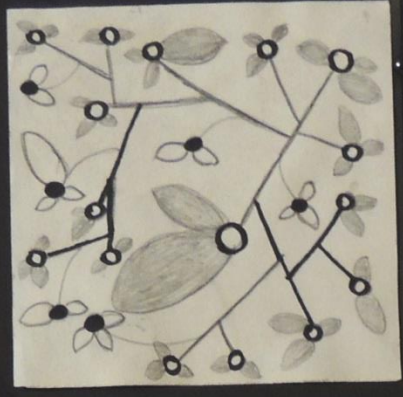
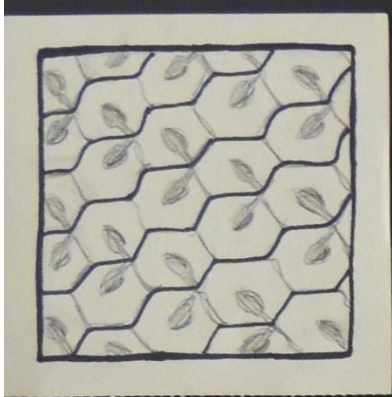


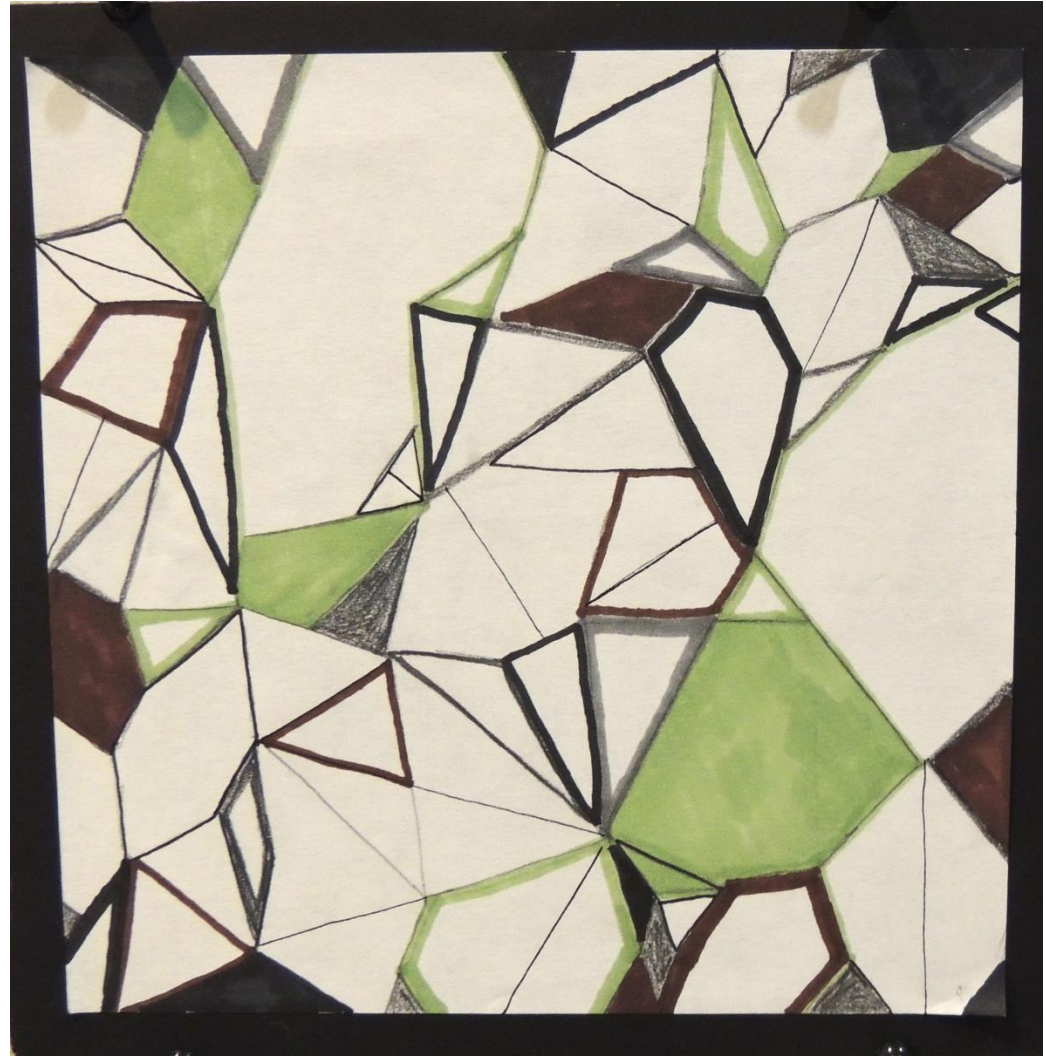


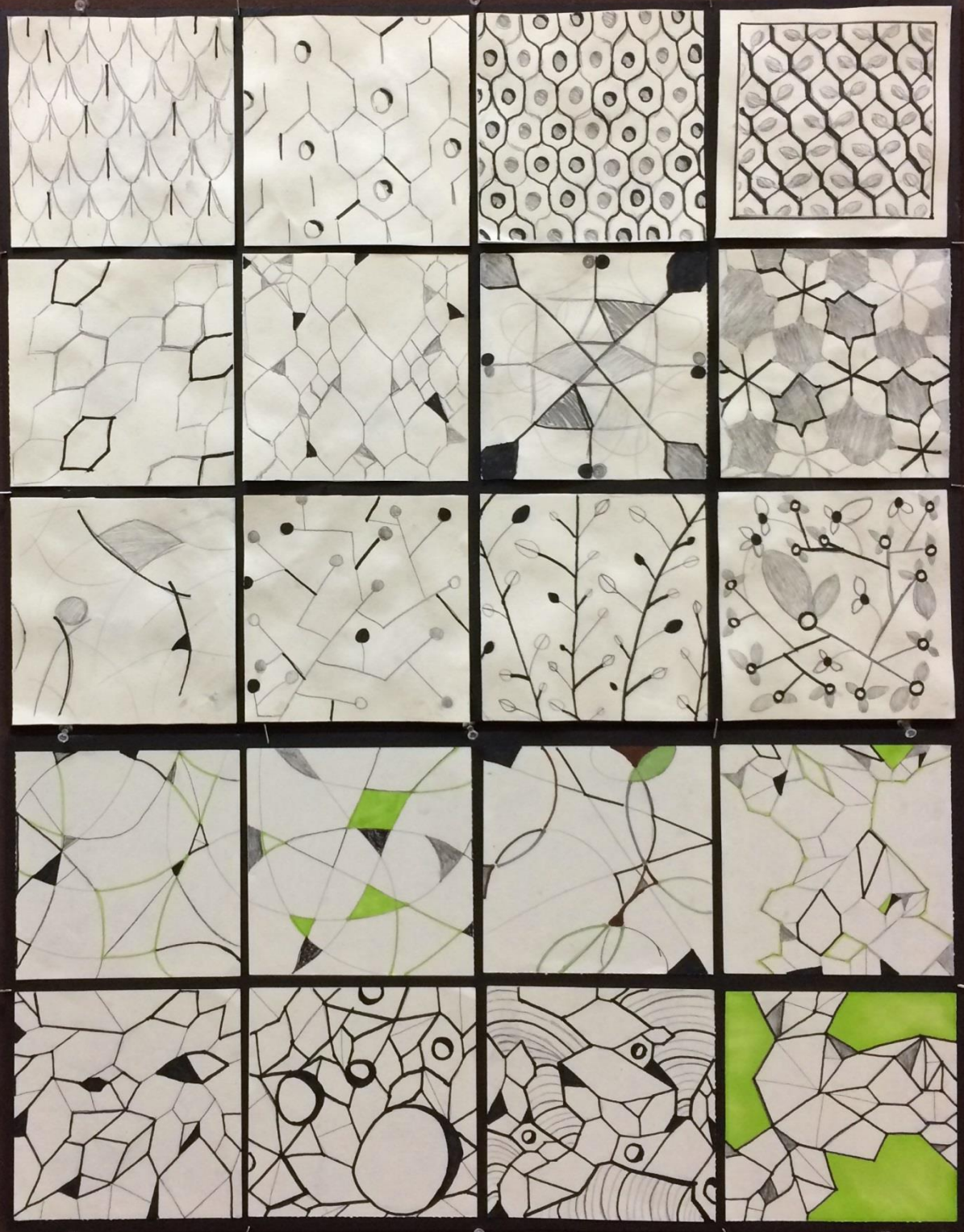


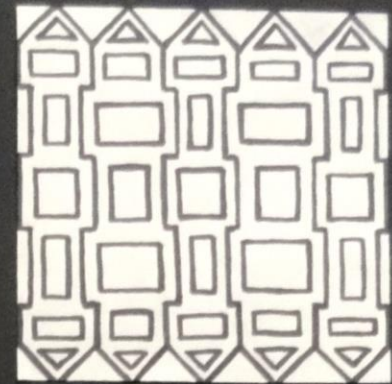
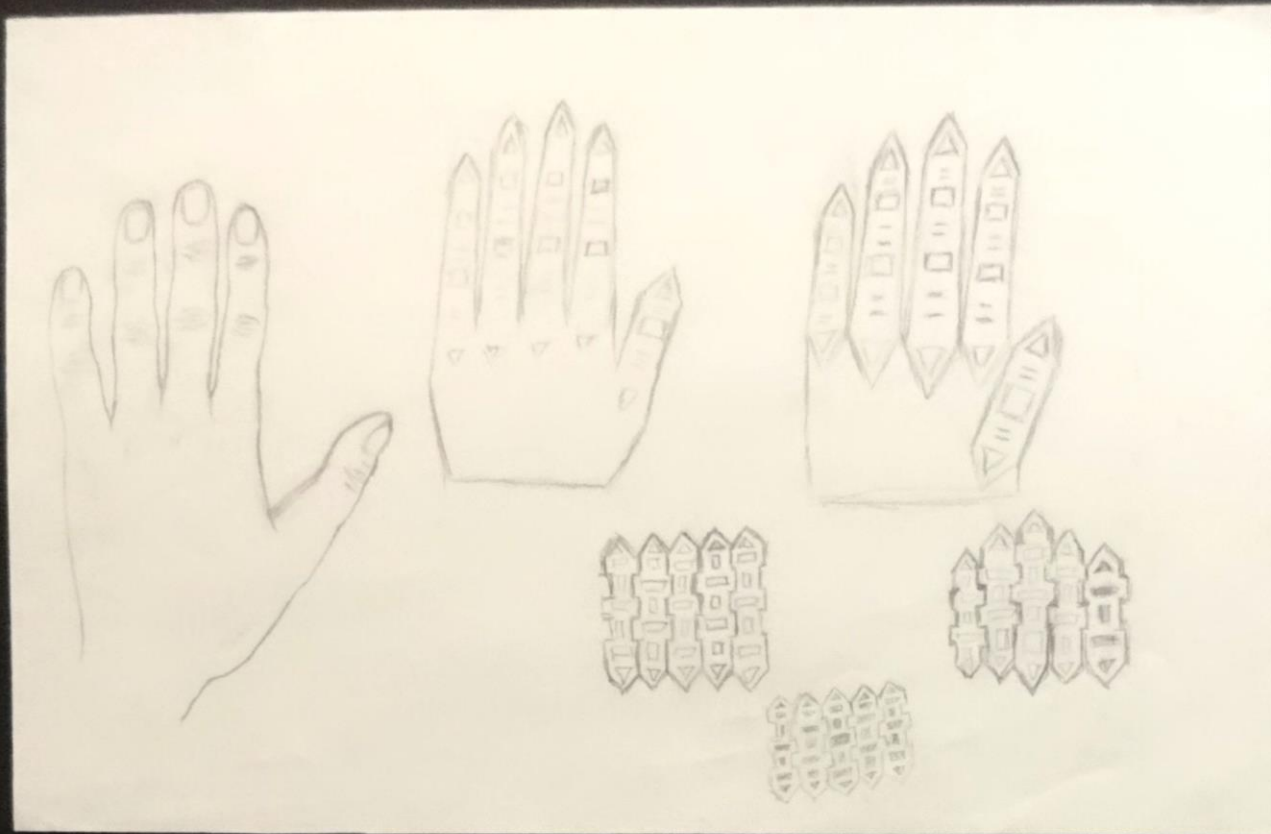
Madison Rosebrook



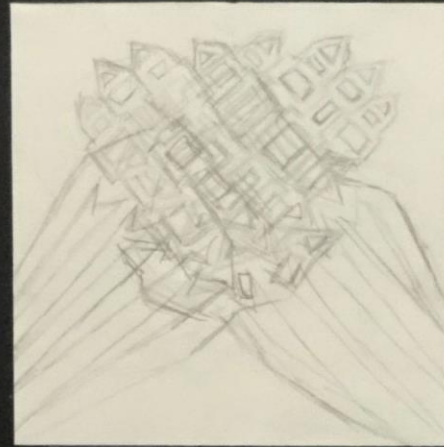
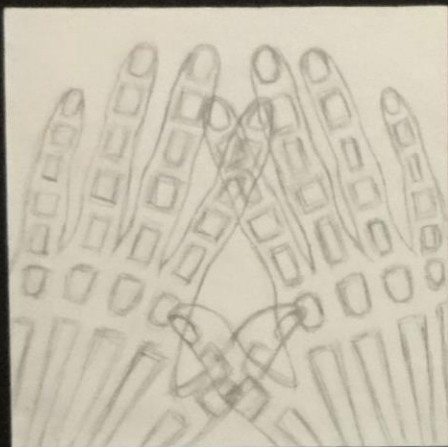


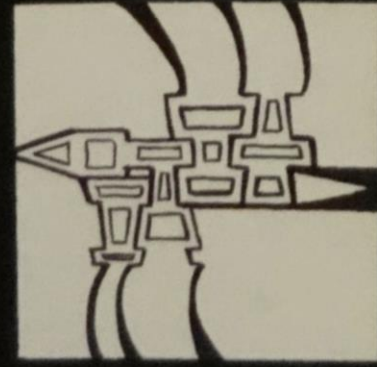
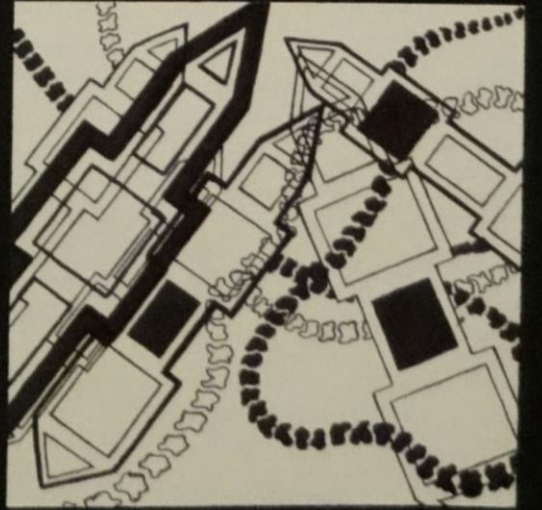
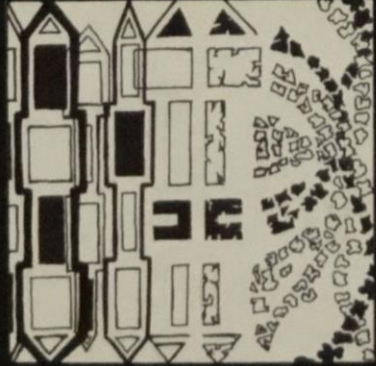
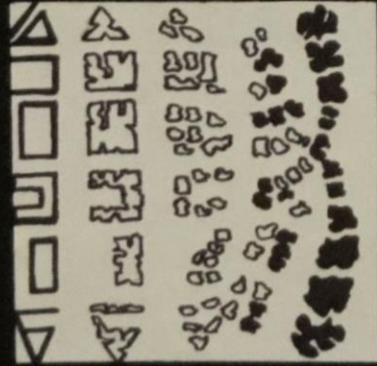
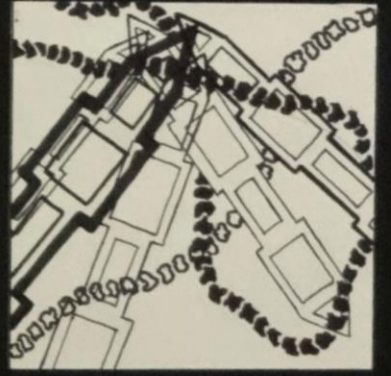
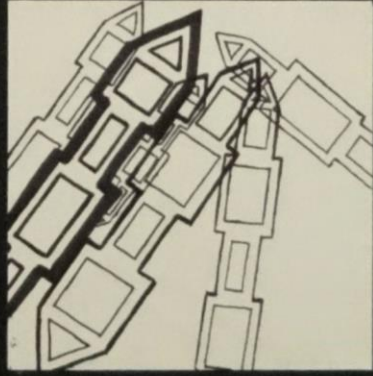
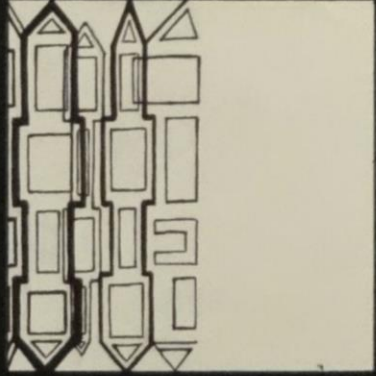
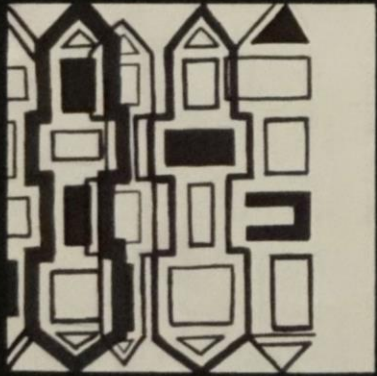


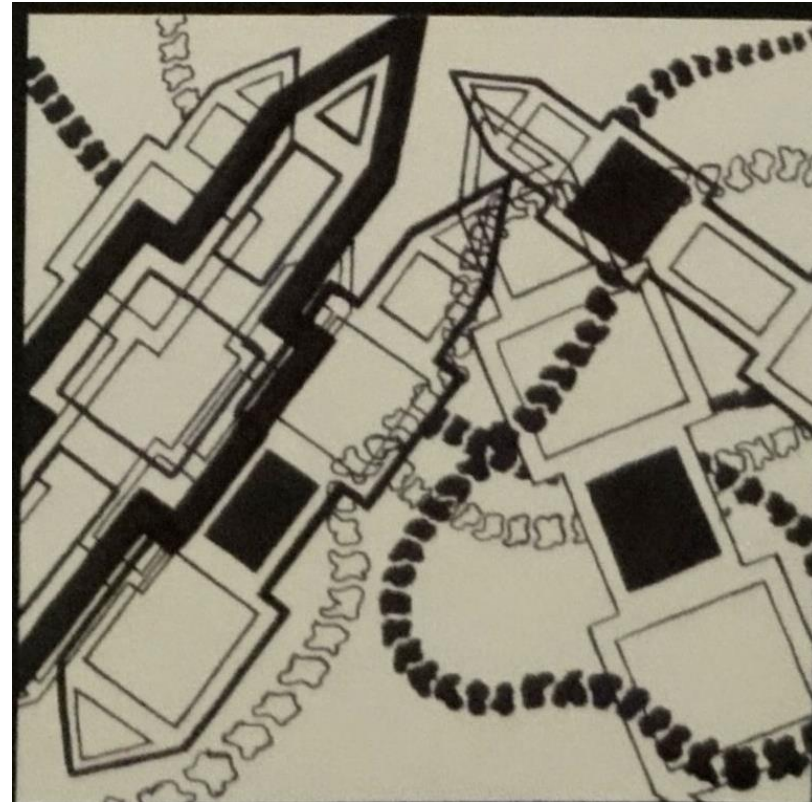
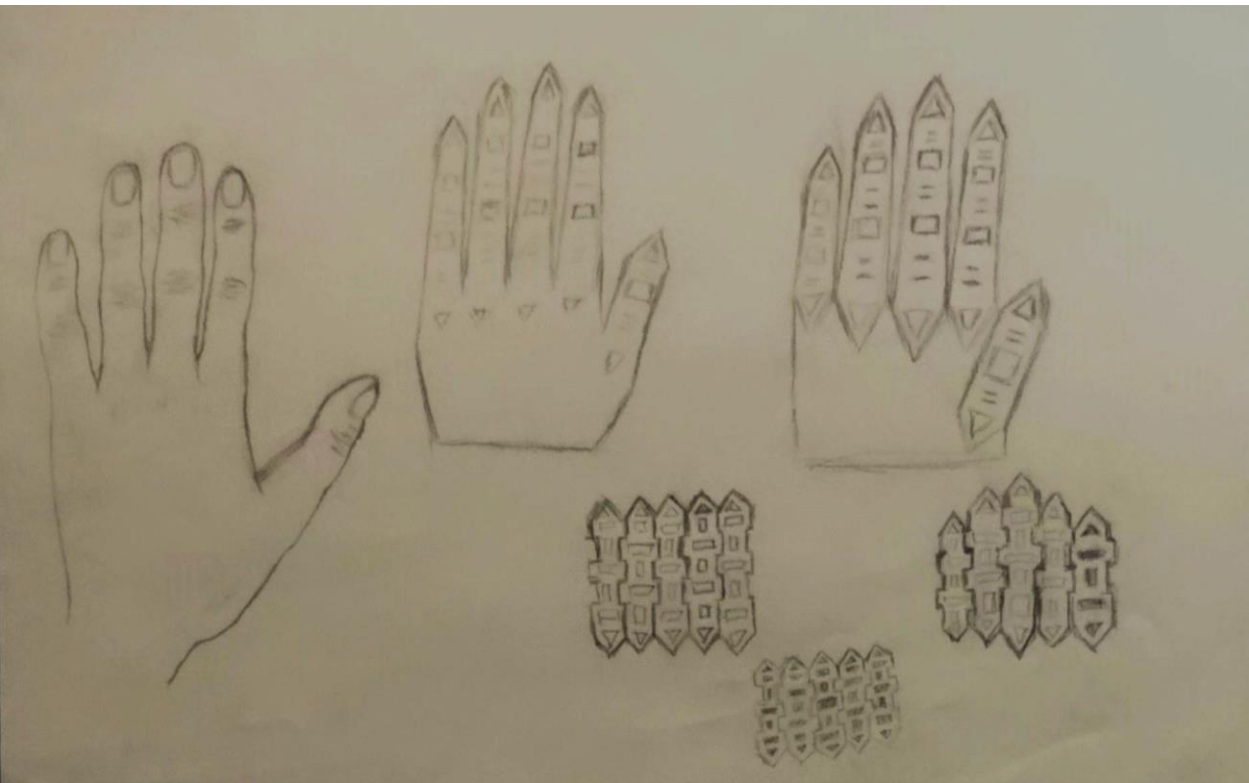


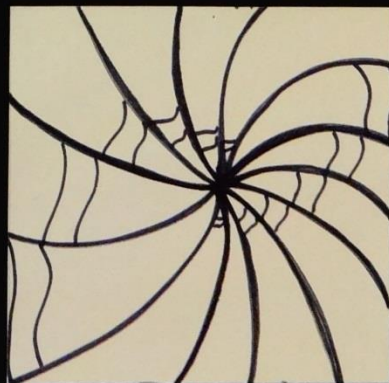
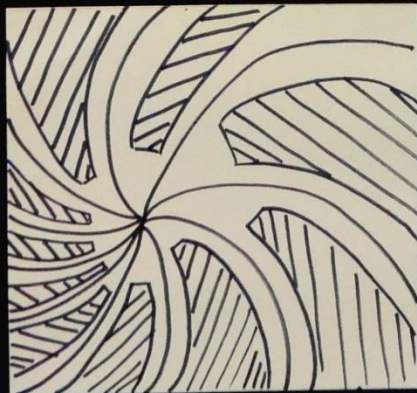
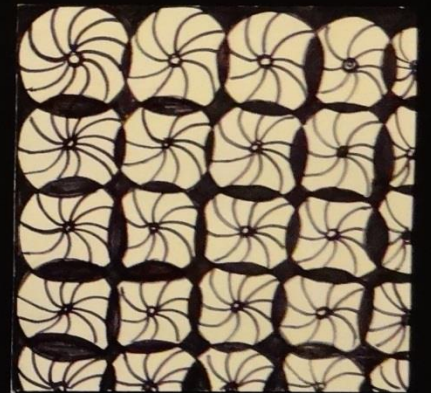
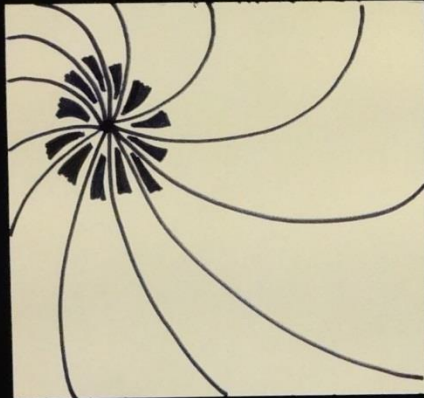
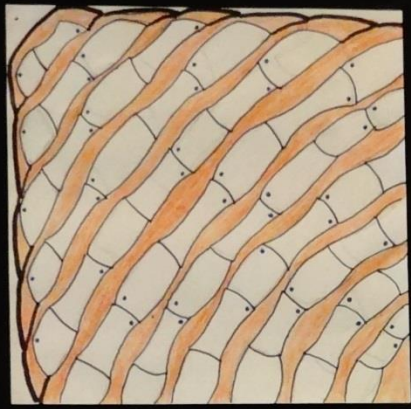


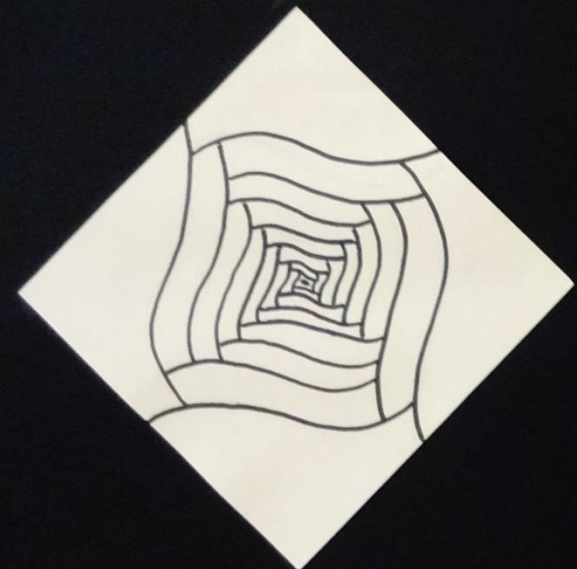
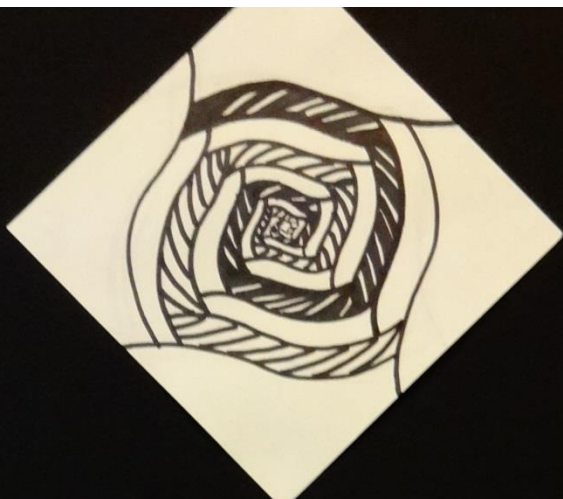
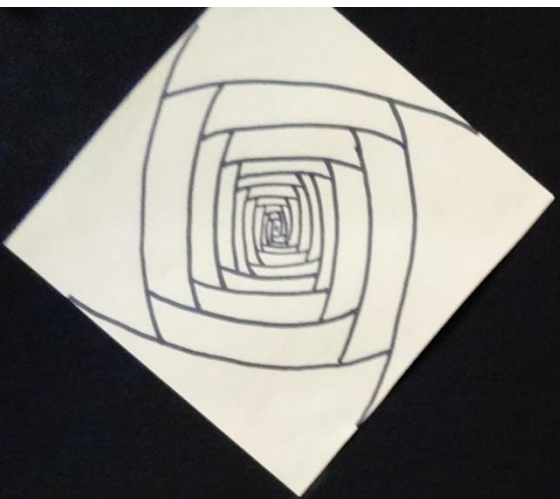
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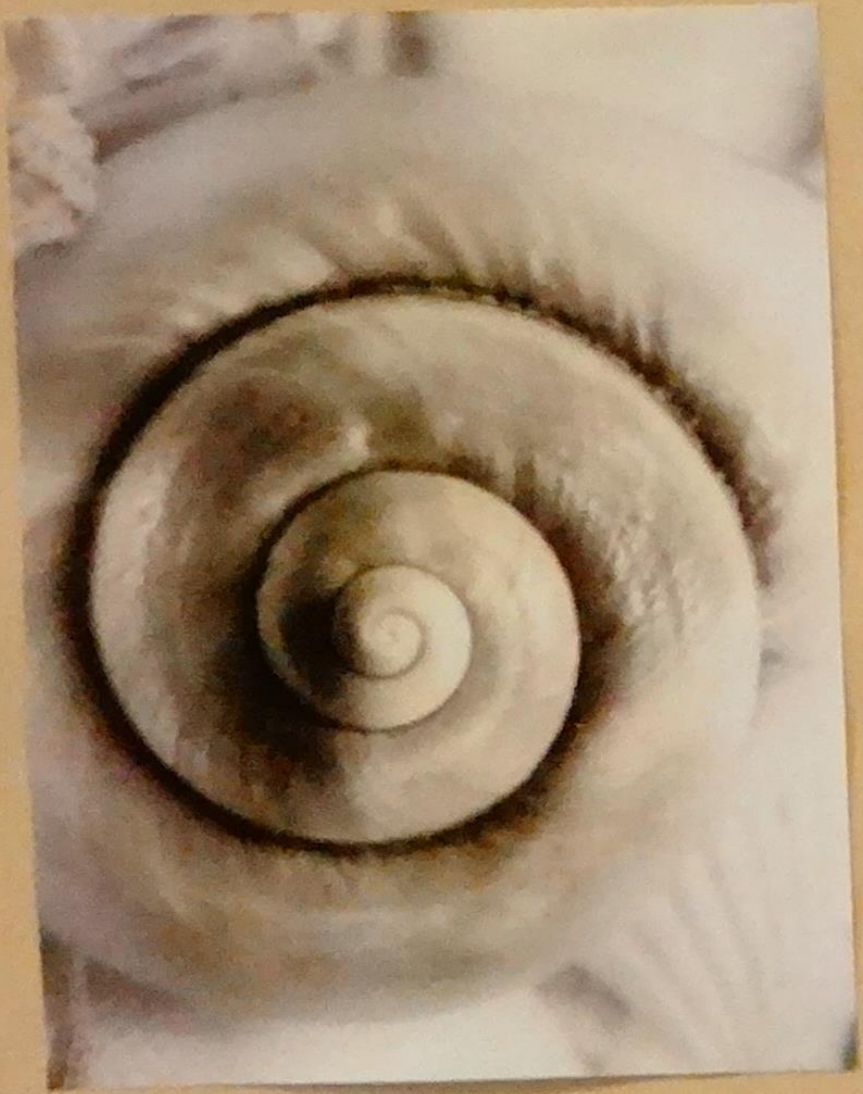






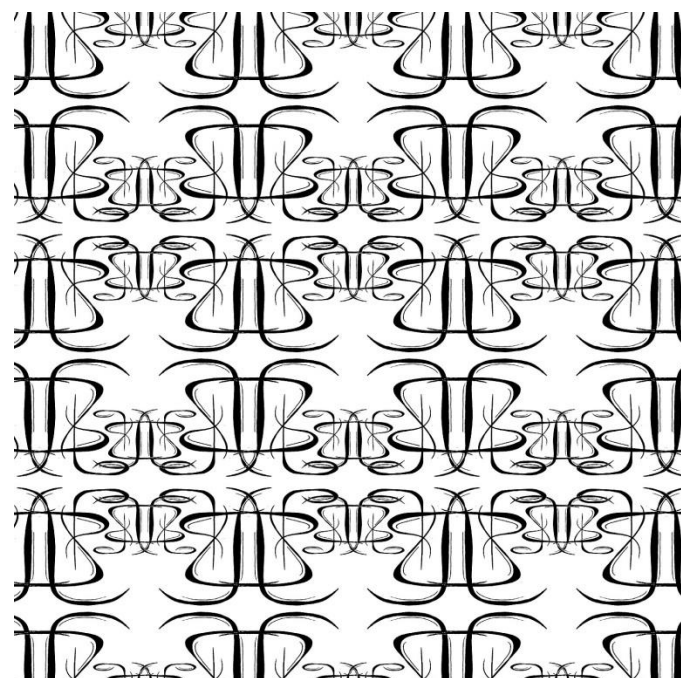
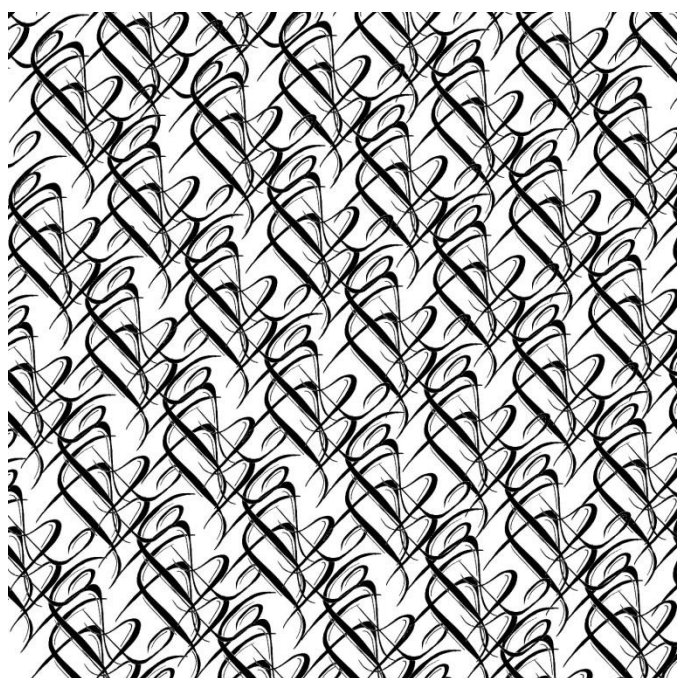
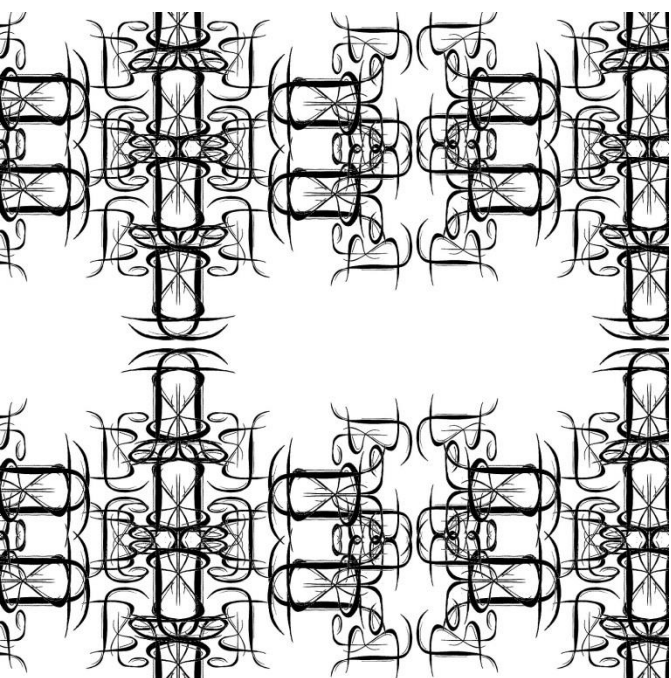
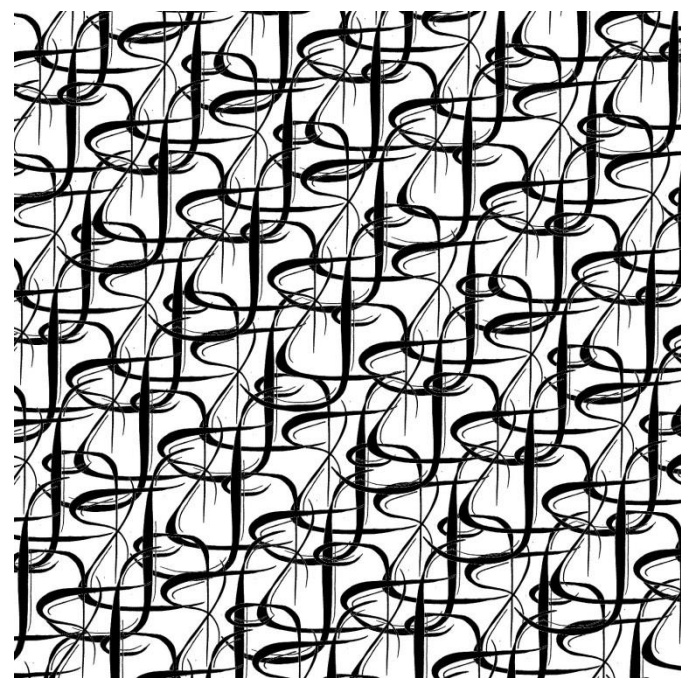
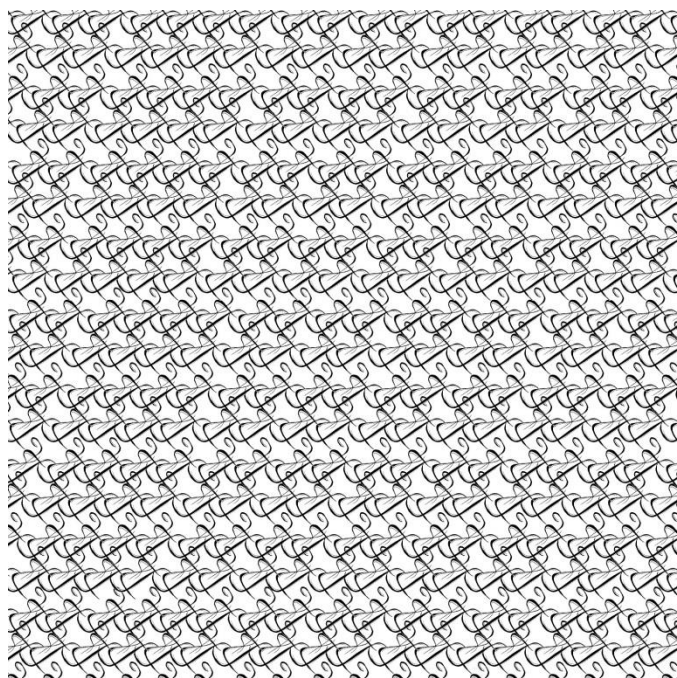
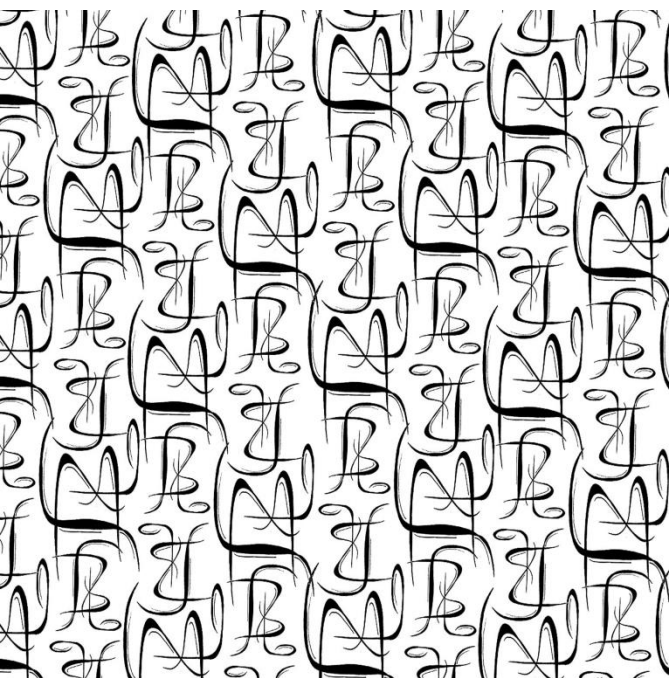


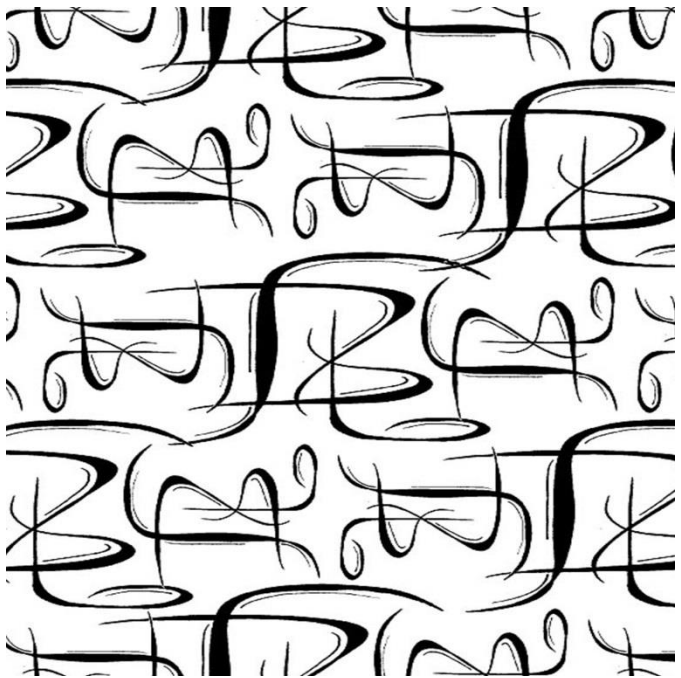
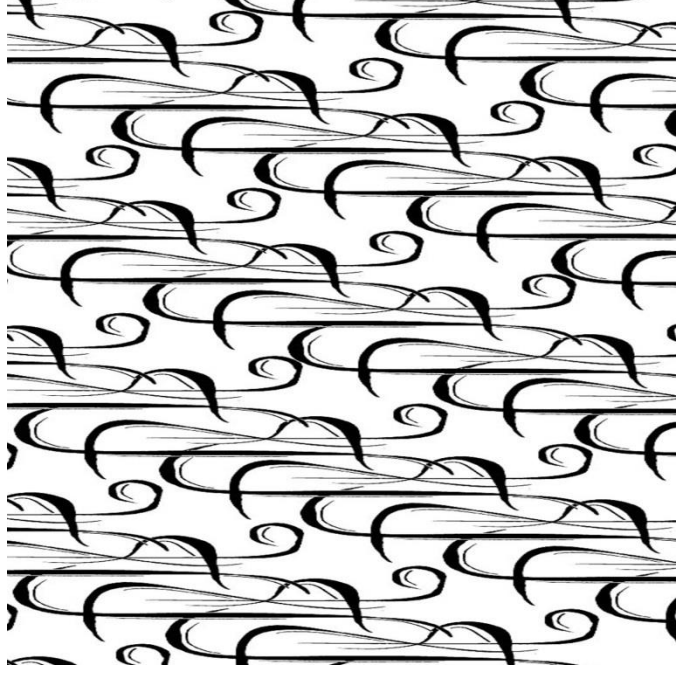
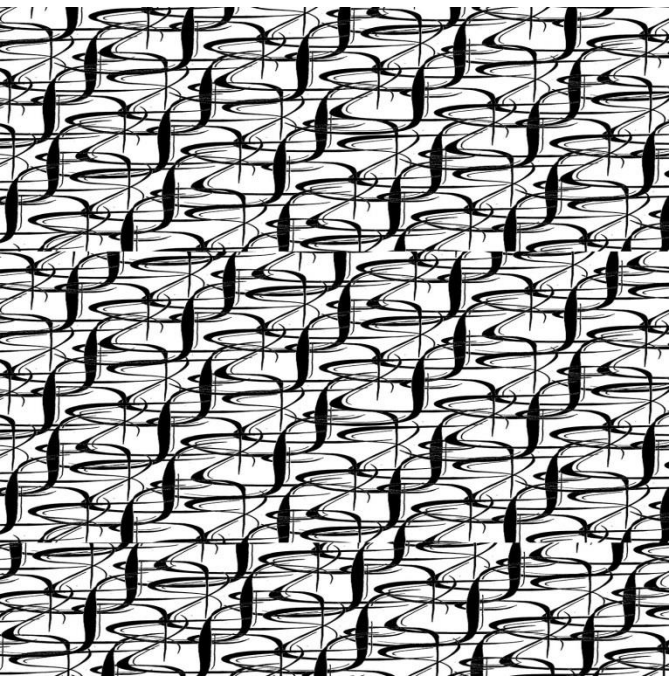
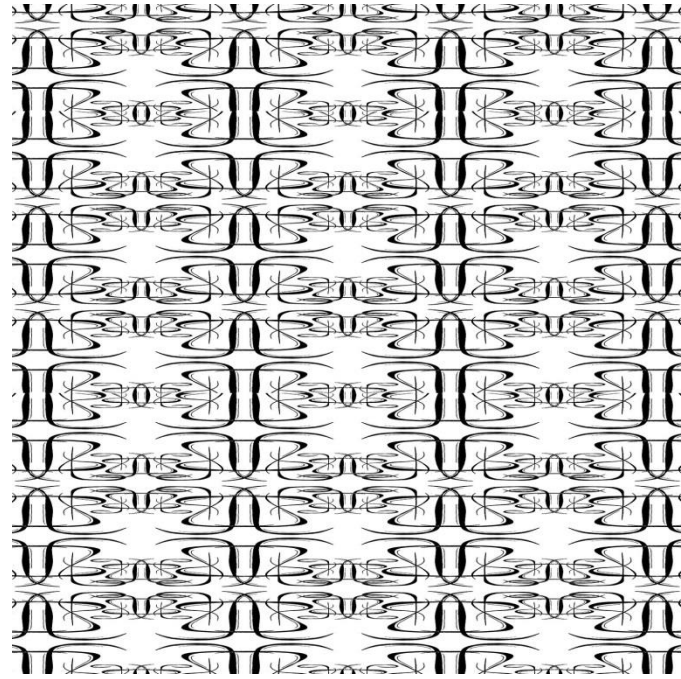
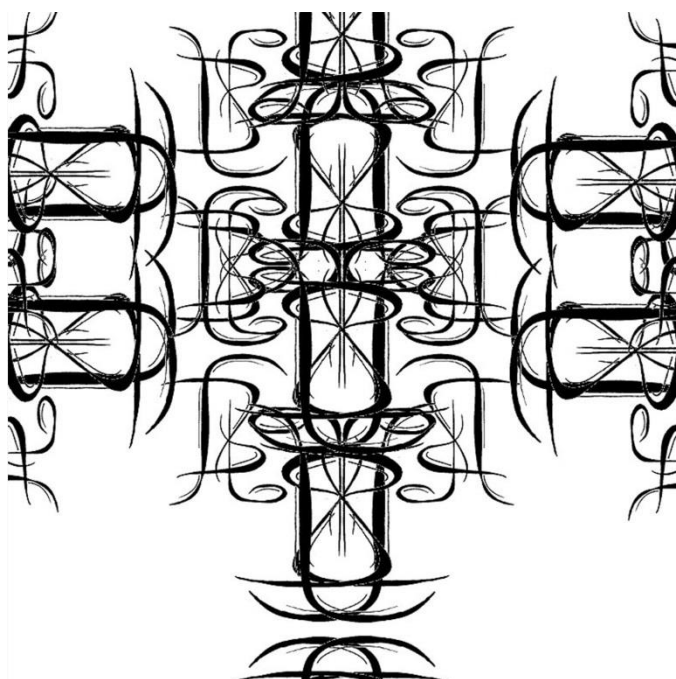
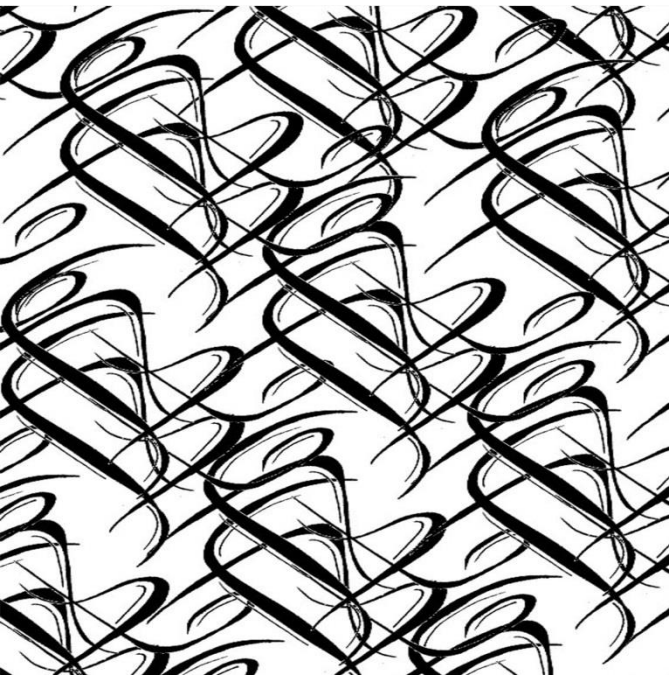


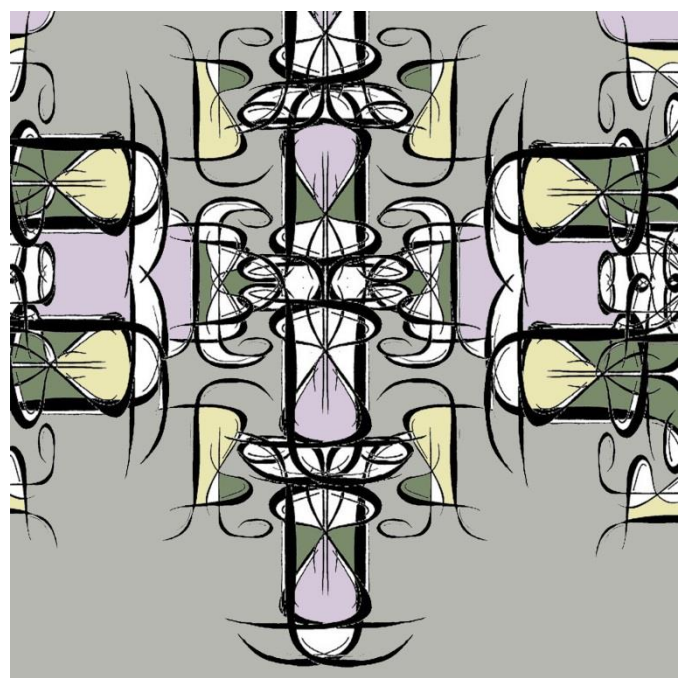
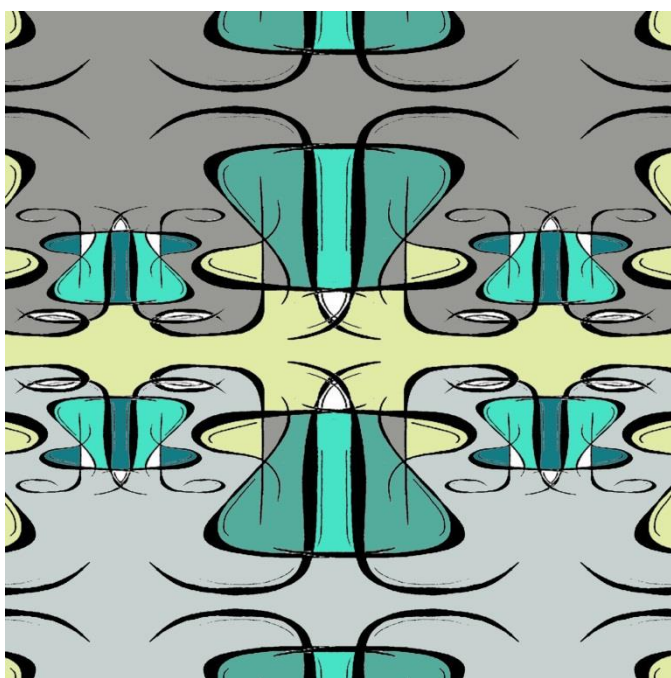
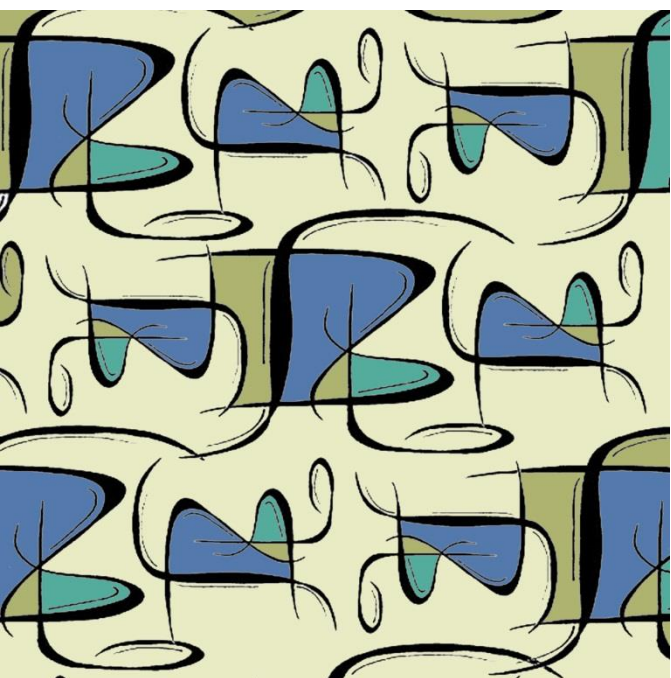
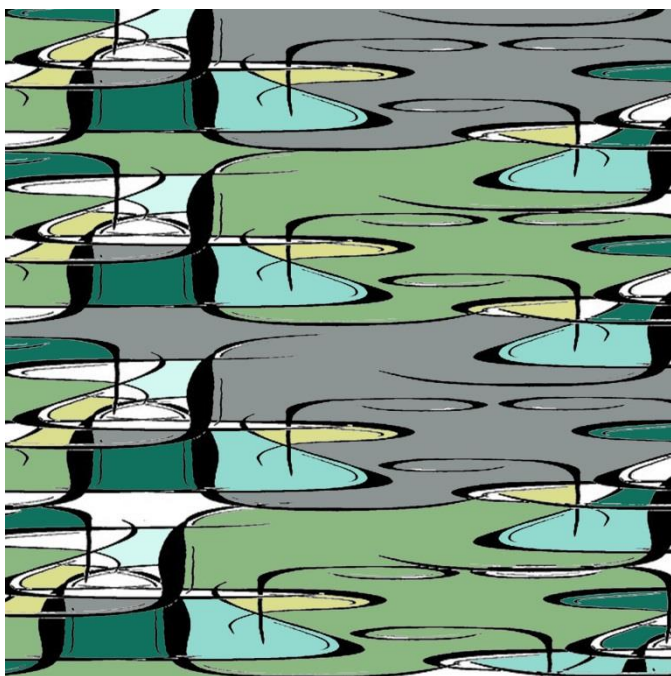
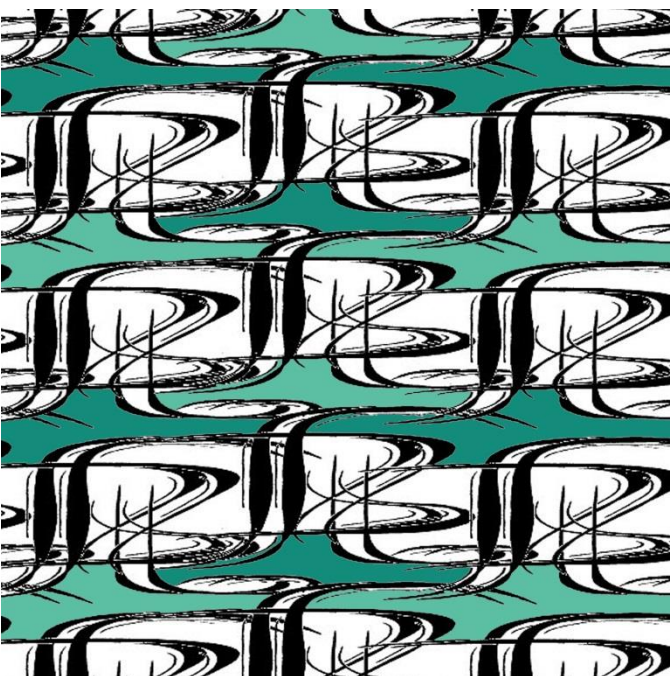




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References

www.ucreative.com/inspiration/you-be-inspired-10-nature-inspired-architectural-designs/

www.bobvila.com/slideshow/12-unconventional-homes-inspired-by-nature-44310/wave-house#.VfXGkRHBzGc

www.archdaily.com/770516/icd-itke-research-pavilion-2014-15-icd-itke-university-of-stuttgart

pangaea-project.org/2013/08/11/how-to-get-inspired-by-nature-to-create-architecture/

beautifuldecay.com/2013/10/02/vlad-tenus-sculptures-inspired-by-patterns-in-nature/

www.haute-innovation.com/en/magazine/innovative-production/buildbot-inspired-by-nature-3d-printed-architecture.html

lynnvds.wordpress.com/2010/11/20/summary-nature-inspired-design/