

KEN NSIEMPBA
Portfolio

TABLE OF CONTENTS

01.

MY PHILOSOPHY (p.3)

02.

ENKO DESIGN SCHOOL (p.5)

03.

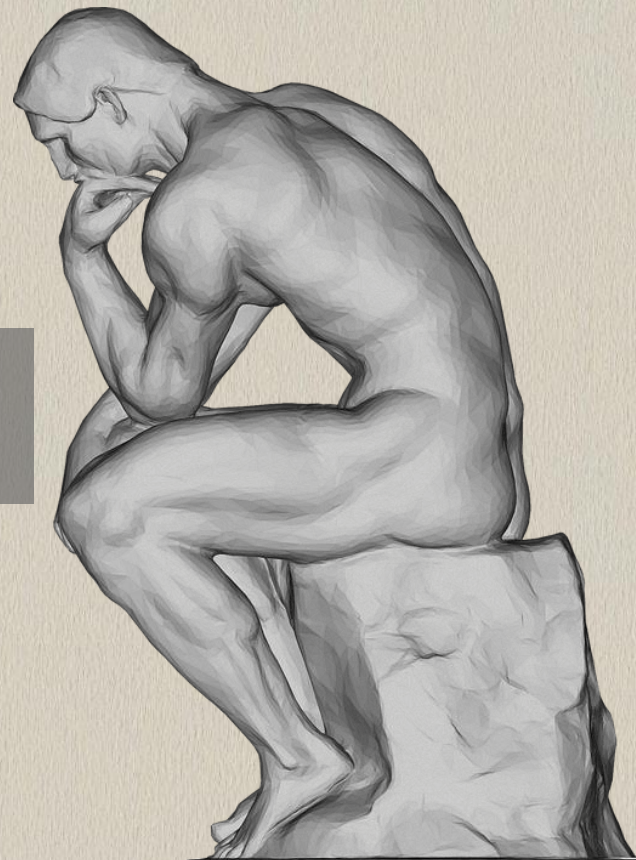
MILEKA (p.10)


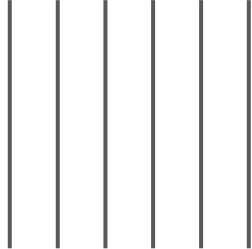
04.

**MY WORKS IN OTHER
FIELDS (p.29)**


01.

MY PHILOSOPHY





I've been thinking about drawing/design in a more theoretical manner recently. According to the site "aec-business.com", algorithmic design is defined as the use of sets of instructions to generate the digital model of a structure.




Similar to how the pencil is the main tool when drawing on paper, algorithms are the main tools when performing algorithmic modeling.

Now what is interesting is that, with the rise of algorithmic modeling, more focus is given to the geometric algorithms/concepts used to generate structures.

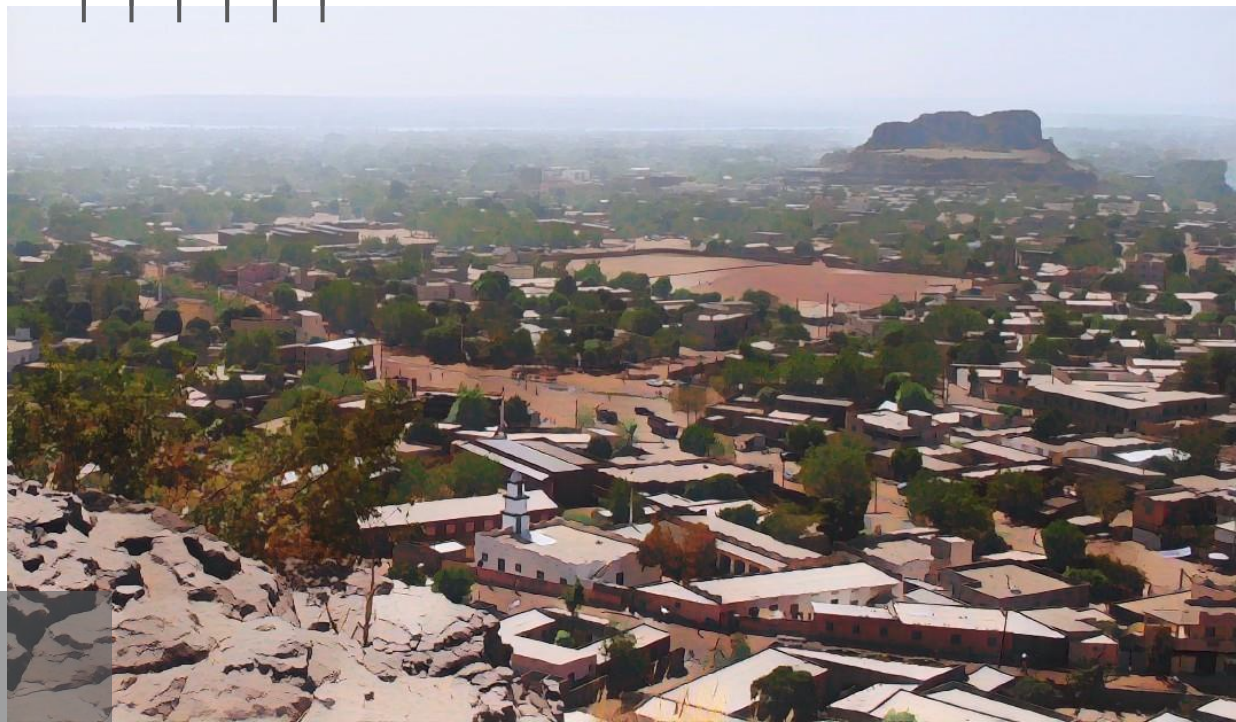
Examples of geometric algorithms include fractals, implicit modeling and triangulation. I find that algorithmic tools can be both a medium and an end:

- On one side, the designer has to find the right geometric algorithm to mimic the structure that he/she has envisioned.
- On the other side, geometric algorithms are the source of inspiration for new structures.

My goal is to find the geometrical algorithms that best describe the designs and local artifacts of certain ethnic groups and to use those algorithms to render parameterized structures.



02.



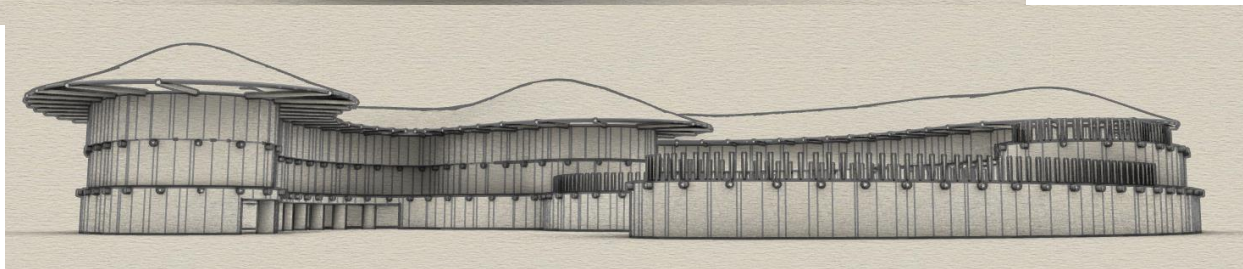
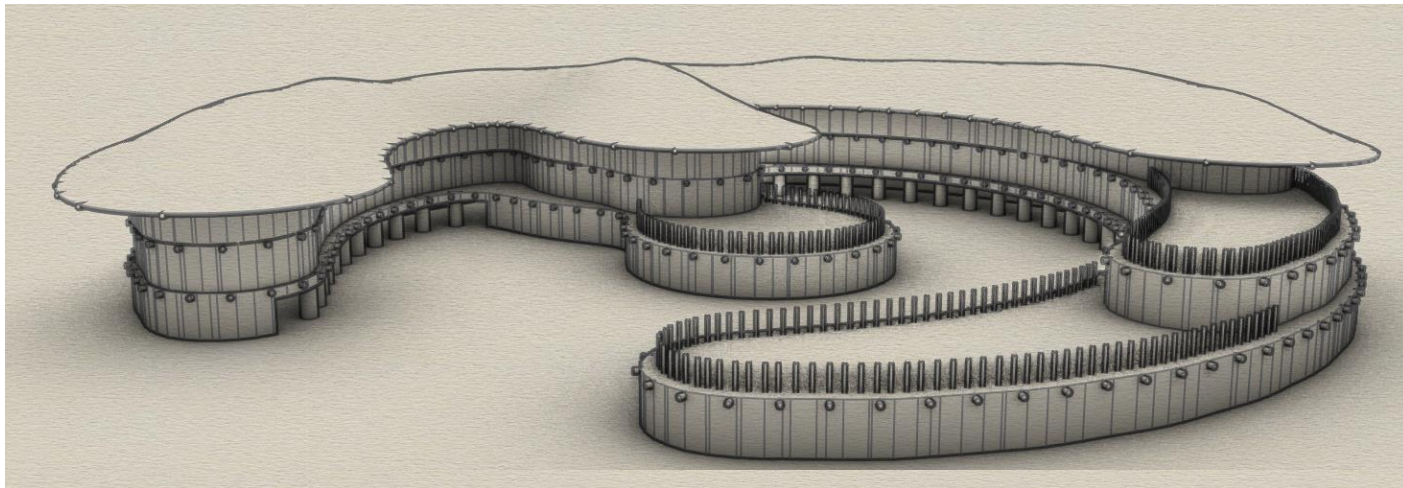
ENKO SCHOOL DESIGN

In the case of the design competition by Archstorming, we had to suggest a design for a new Enko (primary and secondary) school that will be built in Bamako, Mali.

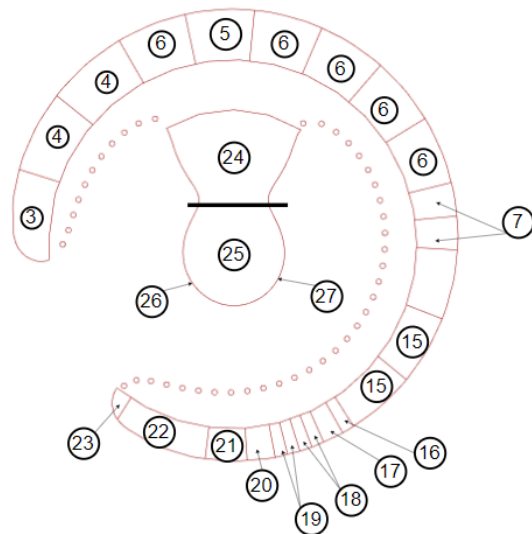
The organizers were seeking for an innovative project that could become Enko's distinctive image. An architectural concept that could be used not only in this project, but also in their future developments across Africa.



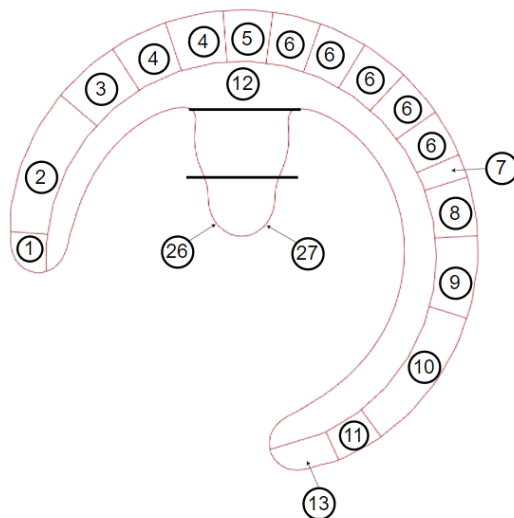
ENKO SCHOOL DESIGN



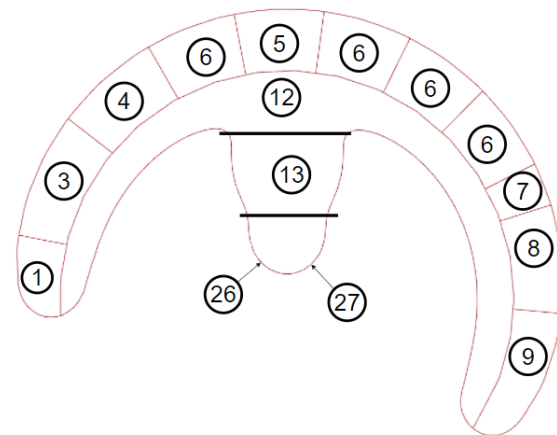
1st Floor



2nd Floor



3rd Floor



- | | | | | | |
|------------------------|------------------------|---------------------|---------------------------|----------------------------|----------------------|
| ① Study room 1 | ⑥ Secondary class | ⑪ Study room 2 | ⑬ Finance Office | ⑮ Reception | ⑲ Bathrooms Children |
| ② Multimedia Library 1 | ⑦ Group Workshop | ⑫ Hallways | ⑭ Infirmary | ⑯ Admin Office | ⑳ Bathrooms Adults |
| ③ Nursery | ⑧ Art Room | ⑬ ICT Room | ⑰ Coordinator | ⑳ Security guard vestibule | |
| ④ Primary class | ⑨ Science Lab | ⑭ Science Prep Room | ⑱ Deputy principal office | ㉑ Multisport pitch | |
| ⑤ Stairs | ⑩ Multimedia Library 2 | ⑮ Staff Room | ㉒ Director office | ㉓ School canteen | |

ENKO SCHOOL DESIGN

The geometric concepts that I've used were
1) implicit modeling (a.k.a. metaballs) for the shape of the floor plans and
2) the medial axis principle to control the topographic relief of the roof.

Additional design choices were made, but they didn't require more of my computational geometry knowledge. The walls texture as well as the ornaments on the upper part of the walls, were all inspired by the traditional Malian/Sahelian architecture, more specifically from the Great Mosque of Djenné (right).

The school appearance is something that the children will remember forever, I found that it was crucial to use it to reinforce a sense of pride in their history.



03.



MILEKA



MILEKA

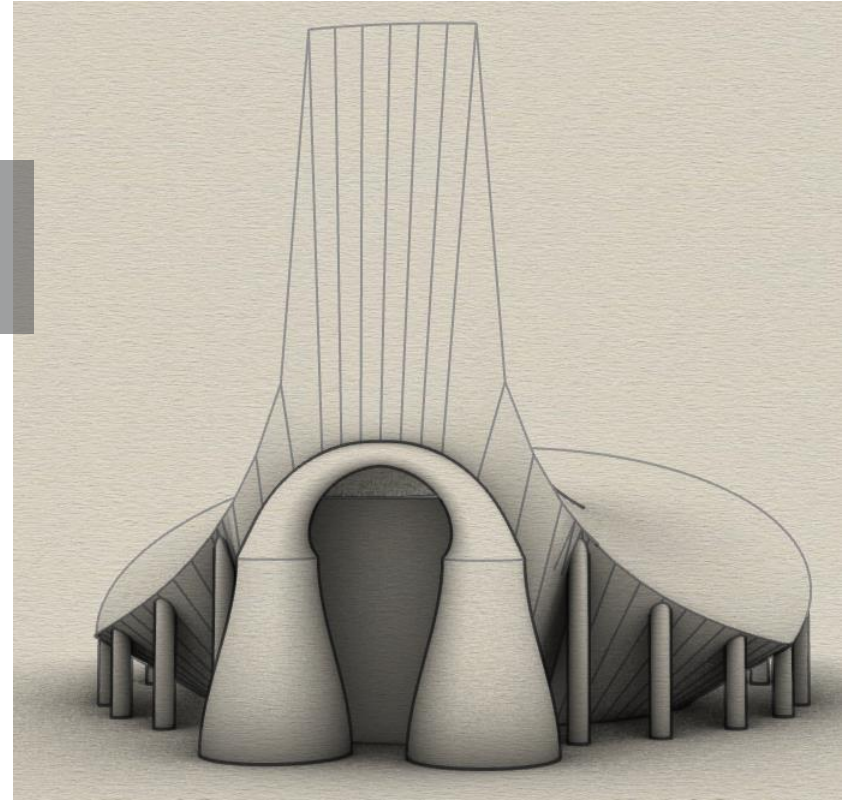
The western part of Cameroon is heavily mountainous and filled with valleys. The area is partially inhabited by Bamileke people.

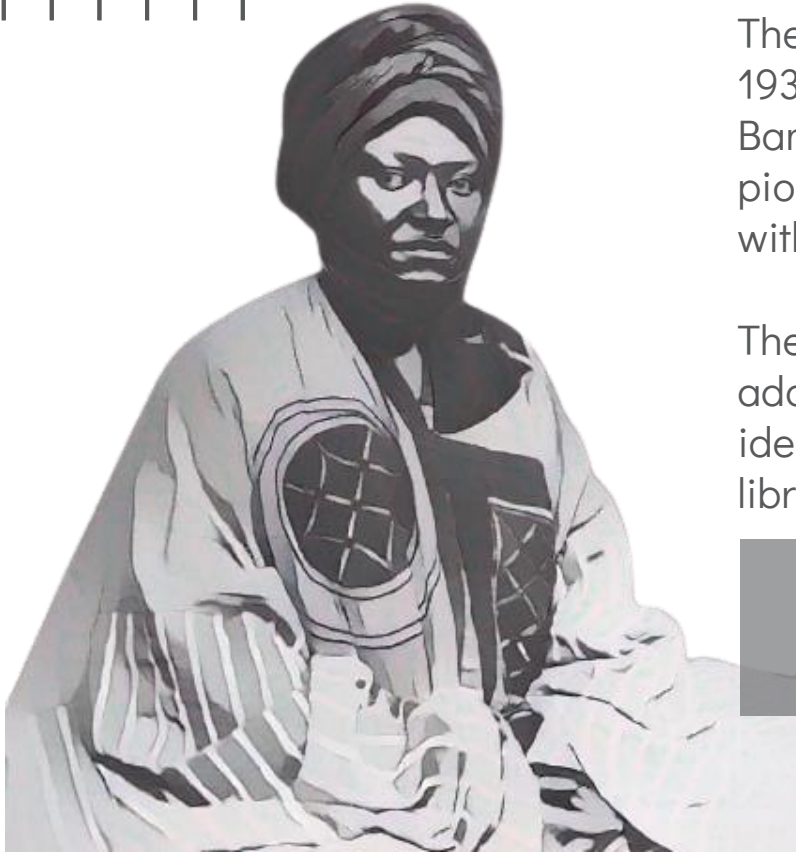
This project was not mandated in any way. It was more of a personal project that I found would be interesting. In 2018, I had the privilege to tour that region and its multiple chiefdoms. Here, I have designed futuristic buildings that inspire themselves from elements of the Bamileke tradition as part of a space that I've called Mileka.



NJOYA'S LIBRARY

“When an old man dies, a library burns to the ground” – African proverb





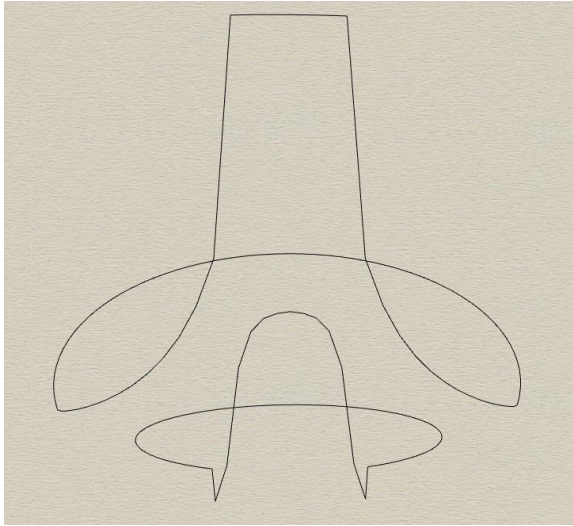
The building was named after sultan Njoya (1860-1933). Sultan Ibrahim Njoya was the chief of the Bamum village. He converted to Islam and was a pioneer in education. He is the one who came up with Bamum script.

The script consisted of an alphabet that was adapted to the local language and has reinforced the identity of Bamum people. It is for that reason that the library is named after him.

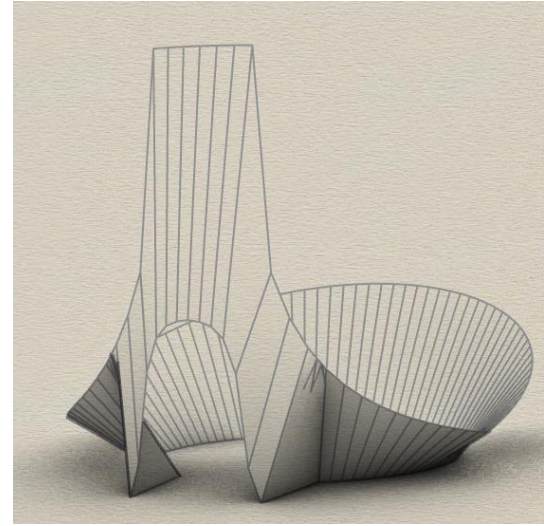
IBRAHIM NJOYA

DESIGN OF LIBRARY

To create the main profile, I've created two circles; a top one and a bottom one. I modified the circles using additional functions so that they would have a certain shape.



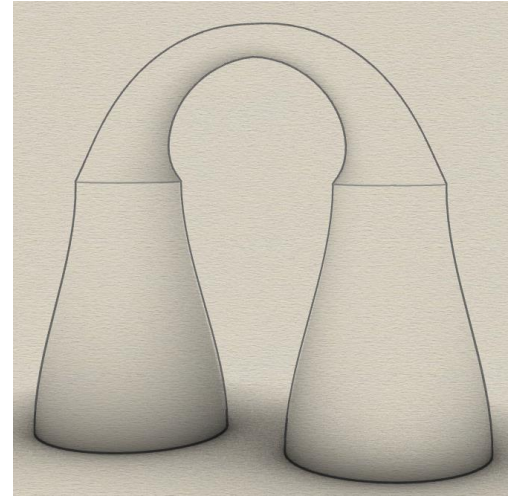
The two resulting curves (left) were lofted and this allowed me to obtain the curve you see on the loft you see on the right.



DESIGN OF LIBRARY



The double bell at the entrance is a typical Bamileke element. Those bells were rung with a wood stick to announce the start of the communication with the ancestral world.

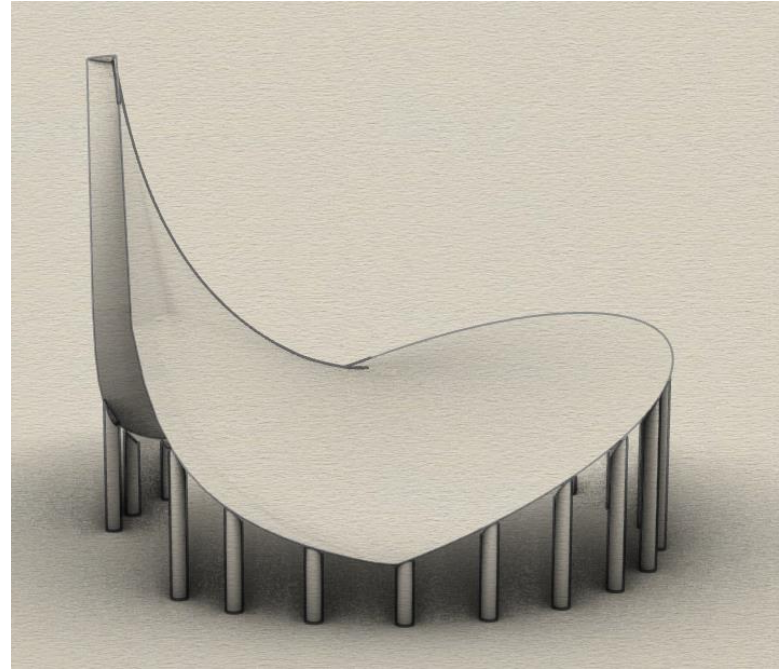


The same way the books and archives of the library are a way of putting us in contact with the ancestral thoughts.

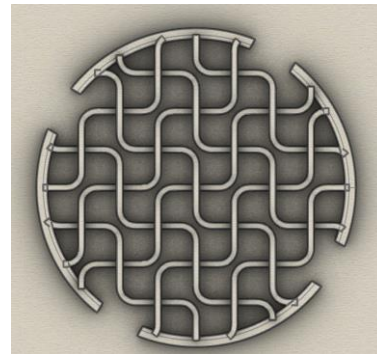
DESIGN OF LIBRARY

The pillars are typical elements of many architectures. Bamileke buildings use them as supports all around the building.

To do the roof, the top curve was split into four curves and the Gordon surface principle was applied to get an adequate surface.

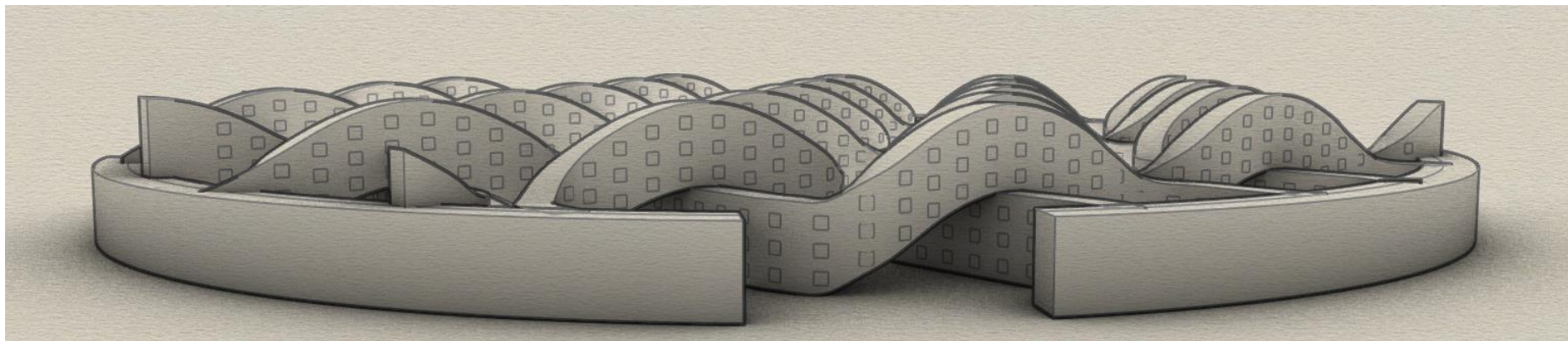


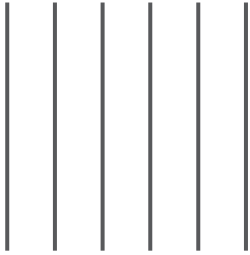
“Home is where our
story begins...”



17


OUANDIE'S HOUSING COMPLEX





The complex is named after Ernest Ouandié (1924-1971), a former UPC member (union of the peoples of Cameroon). He is known to have fought alongside others like Ruben Um Nyobe, Felix-Roland Moumié and others for a true Cameroonian independence.

He was captured by the police forces and publicly executed after having hidden for a long time.

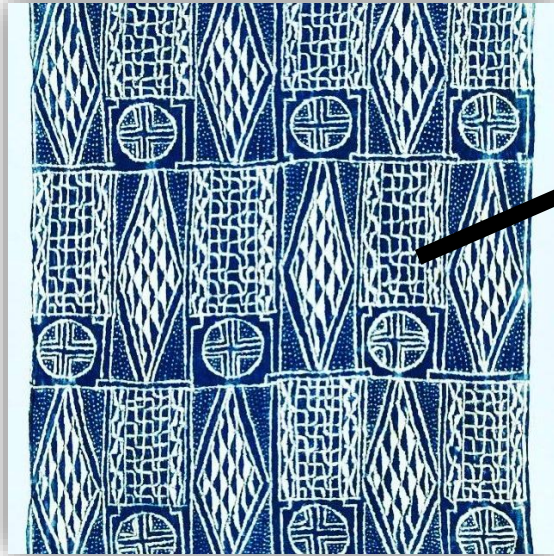


The name Ouandié translates to « who is in the house? » which is why the housing complex was named after him.

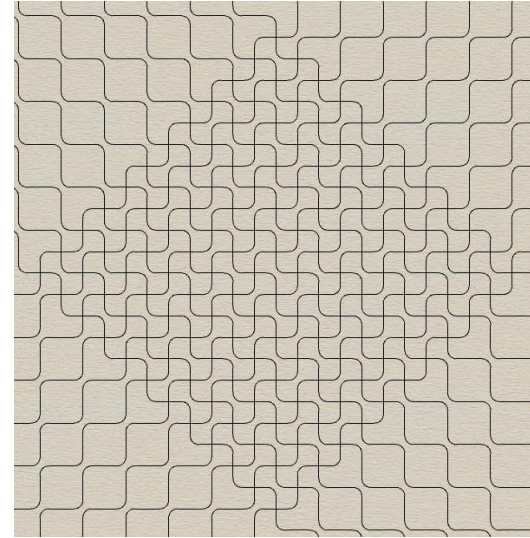


ERNEST OUANDIÉ

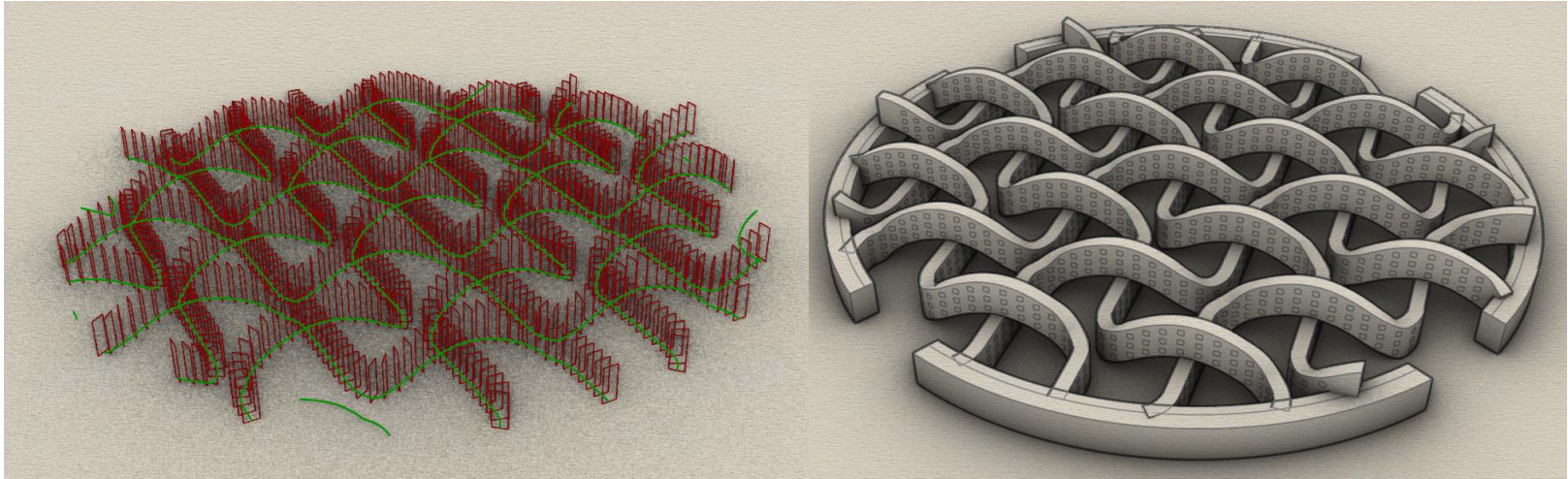
DESIGN OF COMPLEX



The housing patterns are inspired by the patterns found on the “Ndop”, a traditional cloth.



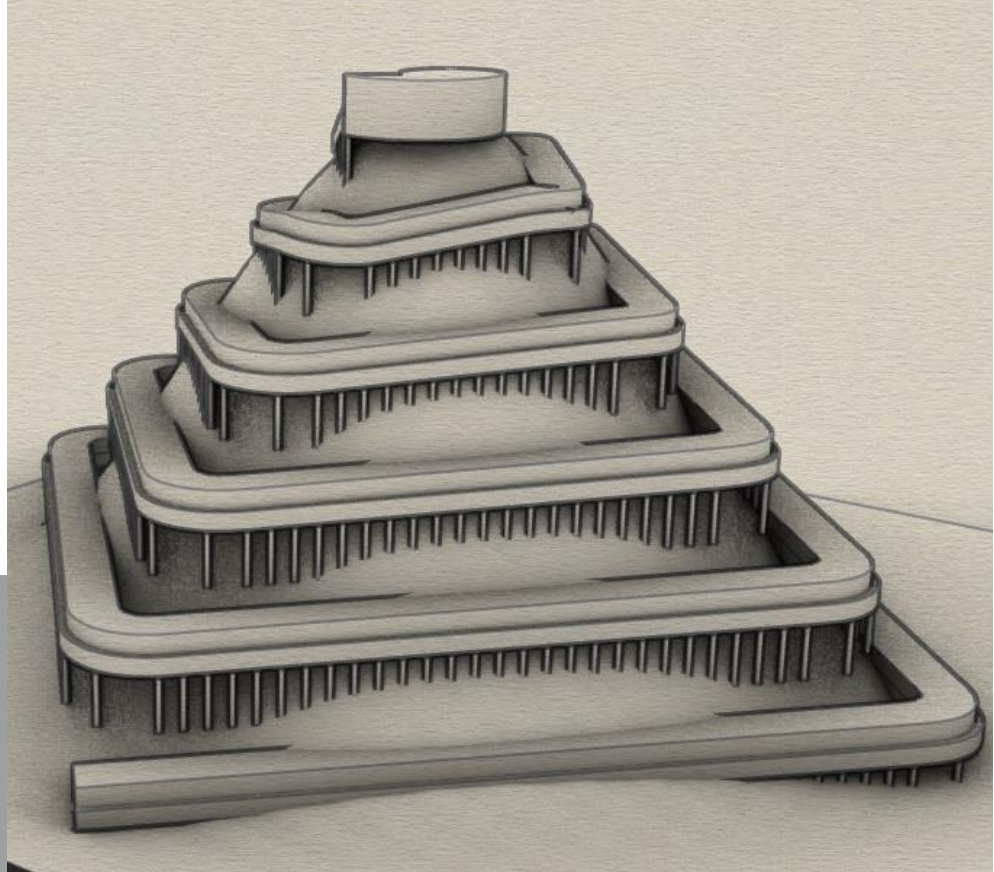
DESIGN OF COMPLEX



Parts of the curves had to be lifted to prevent the curves from intersecting. The curves were then used as rails to create solids that are the actual buildings. The space below the curved buildings will be reserved for parks, gardens, and playgrounds.

“What the elders see while sitting, the young ones standing on their toes won't see.” – African proverb

KAMGA'S OBSERVATORY





Joseph Kamga (1902-1975) was the strategic chief of the Badjoun village. His proximity with the colonial authorities has given him a lot of advantages and his children were able to receive better education opportunities locally, and also abroad. Although it was thought that his reign would be detrimental to the cultural values of his chieftdom it has turned out to be quite the opposite.

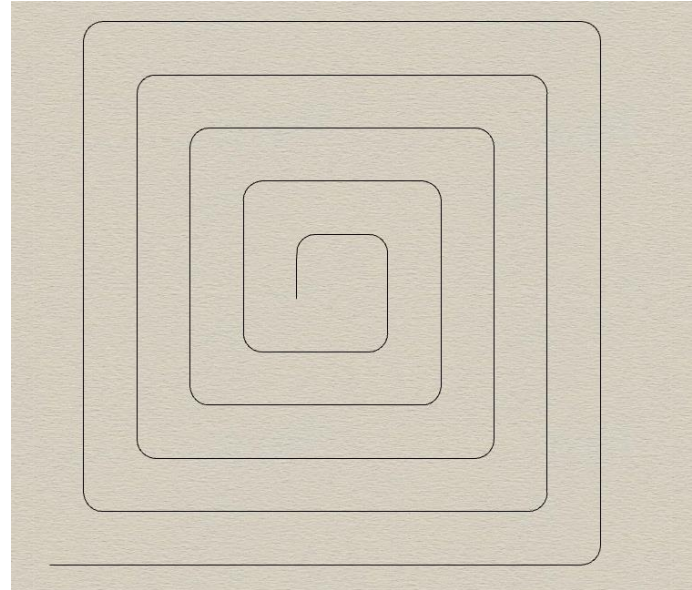
The observatory was named after him to honor his ability to see beyond his surroundings.

JOSEPH KAMGA

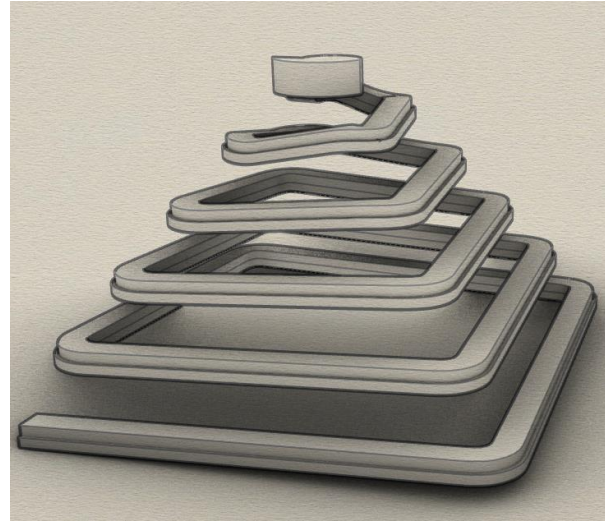
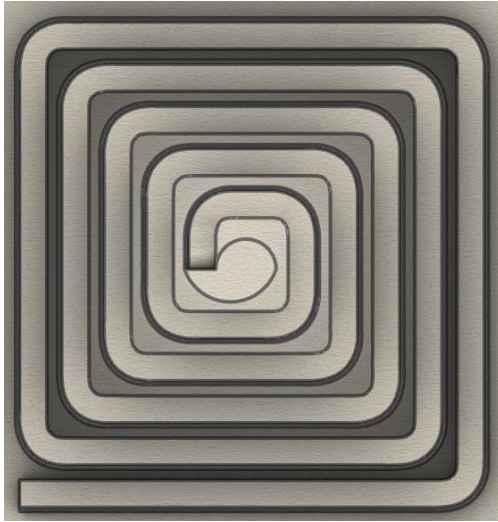
DESIGN OF OBSERVATORY



Once again the “Ndop” patterns are the inspiration behind the observatory.

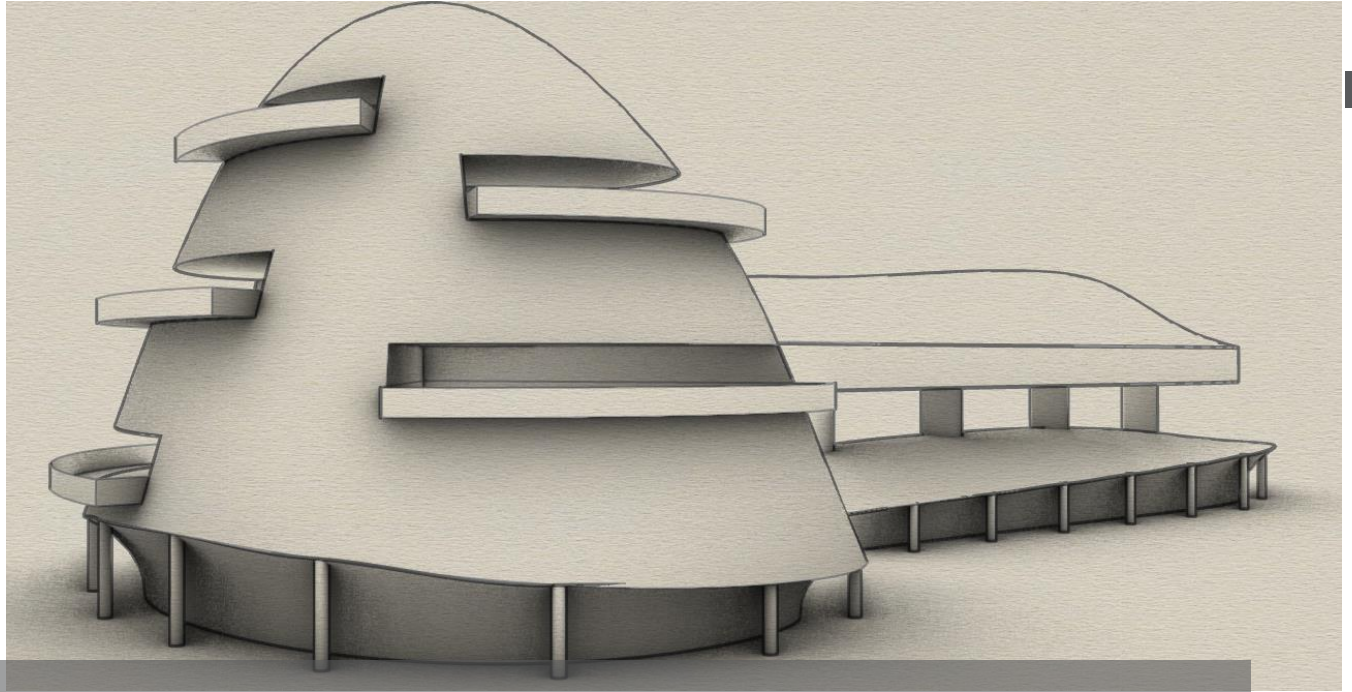


DESIGN OF OBSERVATORY



The rectangular spiral is constructed around a mountain tip and supports are added for when there is too much space between the mountain and the spiral.

“Having
a good discussion is
like having riches.” –
African proverb



DJOUMESSI'S CONVENTION CENTER

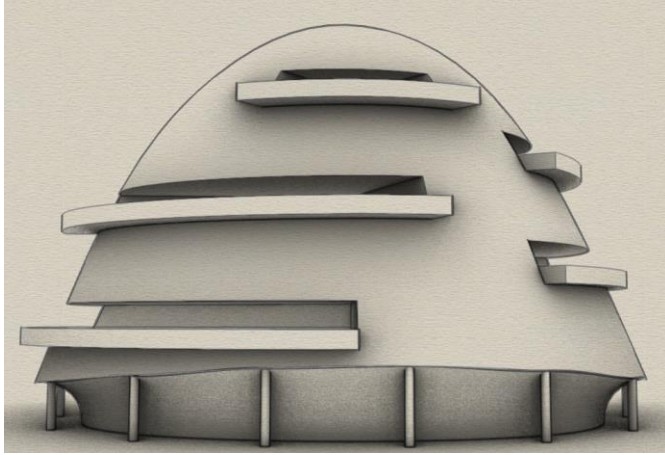
■ Djoumessi Mathias (1900-1966) was the Chief of the Foréké Village. He was a key member in the events that preceded the independence. He was part of the launch of the RDA (African Democratic Rally). He was president of the “Bamileke Chiefs Association”. He has also been implicated in the UPC (alongside Ernest Ouandié). He came up with an alphabet in his local language and also was well educated in western culture.

As a chief who assisted a lot of rallies and conferences, it only makes sense that the center is named after him.



||||| **MATHIAS DJOUMESSI** ■

DESIGN OF CENTER



The roof of the traditional hut is usually an empty space or used as a granary. The Djoumessi convention center differs in the fact that it fills the space in the roof with upper floors. On each of those floors, there is a balcony.



DESIGN OF CENTER



The mask on the right is another important element of the Bamileke culture. It is an elephant mas (with a dangling trunk). The mask belongs to members of the Kuosi society, a secret society of the Bamileke people that maintains the political and social order of the kingdom.

The mask was the inspiration behind the floor's design on the left (top view).



04.

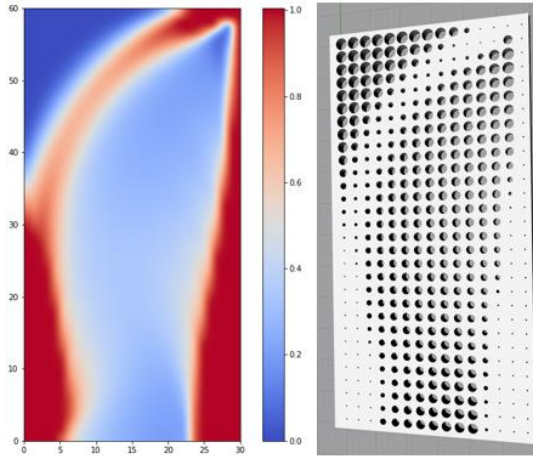
MY WORKS IN OTHER FIELDS



Music videos on youtube channel



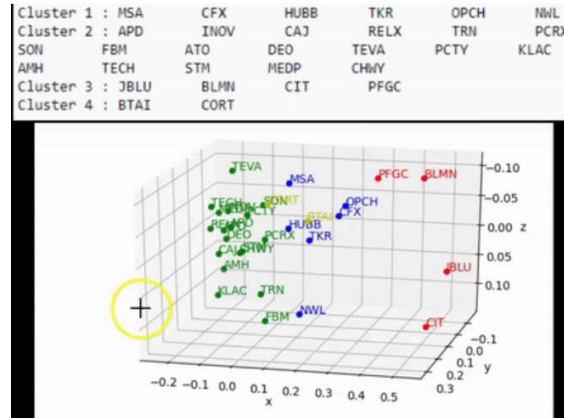
Design for 3D printing




All those projects can
be found on my website:


<https://botengu.github.io/portfolio/>

Algorithms for finance





“A gem cannot be polished without friction, nor a man perfected without trials.”



-CHINESE PROVERB



End

