KEN NSIEMPBA
Portfolio

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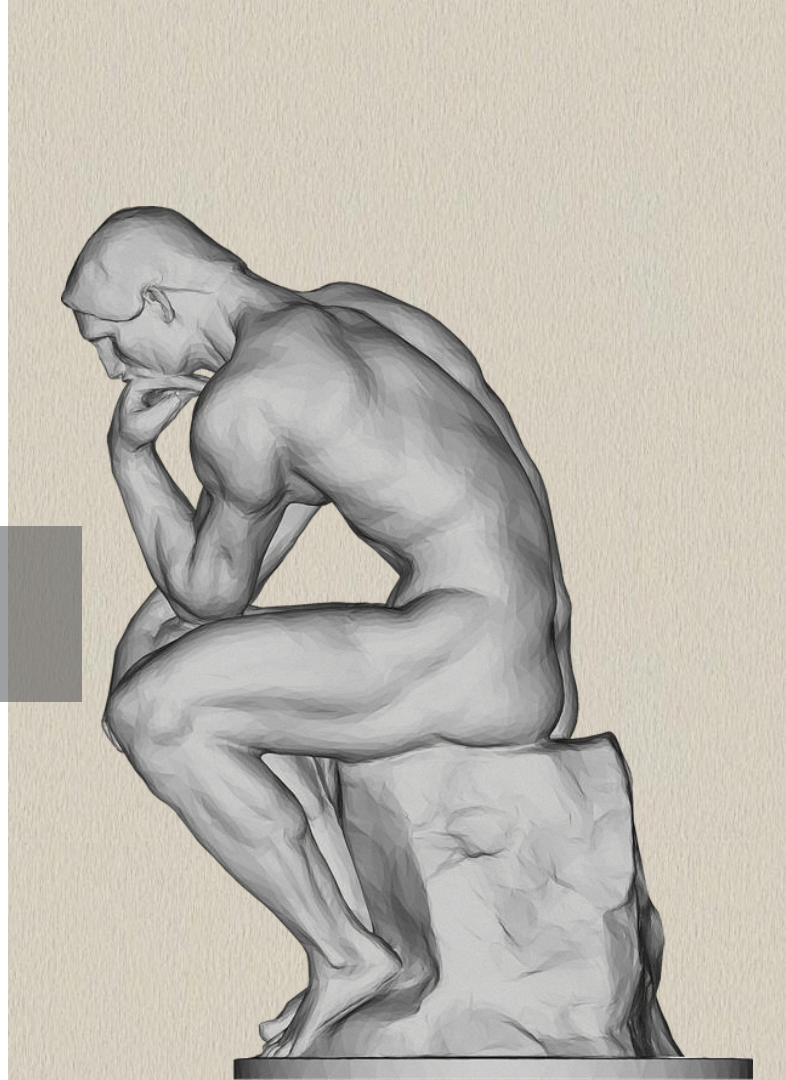
01.

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.

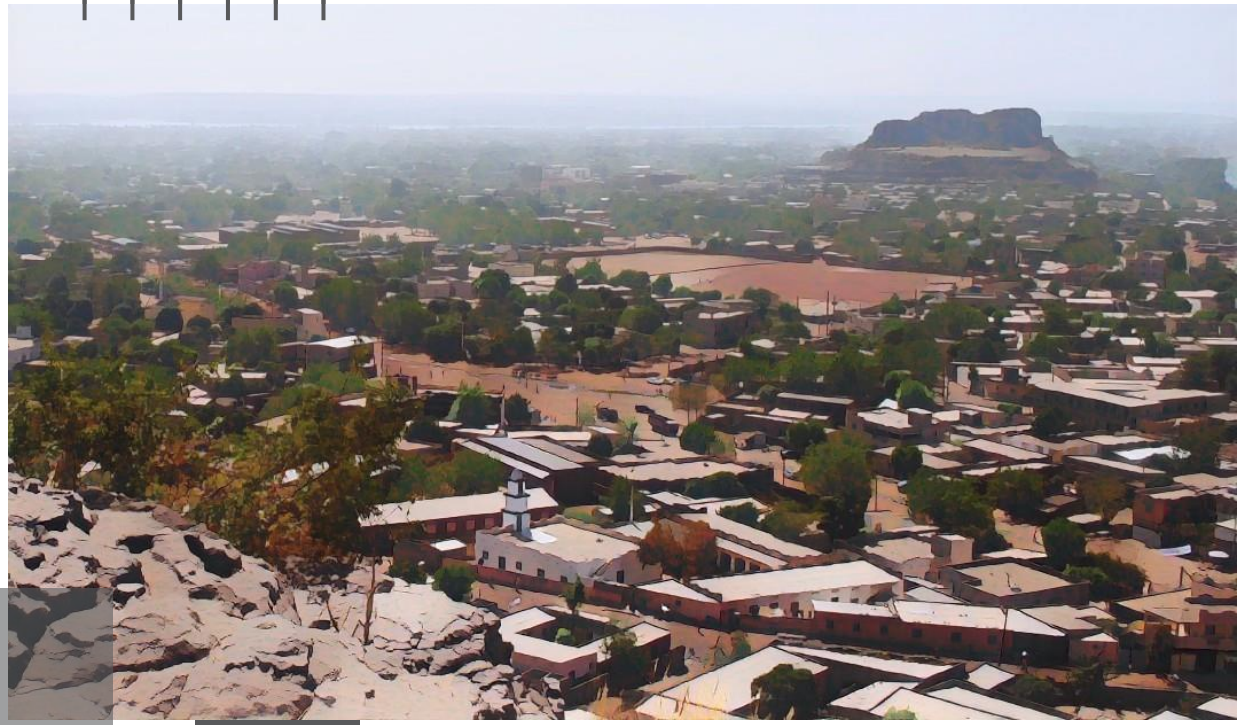
Now what is interesting is that, with the rise of algorithmic modeling, more focus is given to the geometric algorithms/concepts used to generate structures.

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 use those algorithms to render parameterized structures.

02.

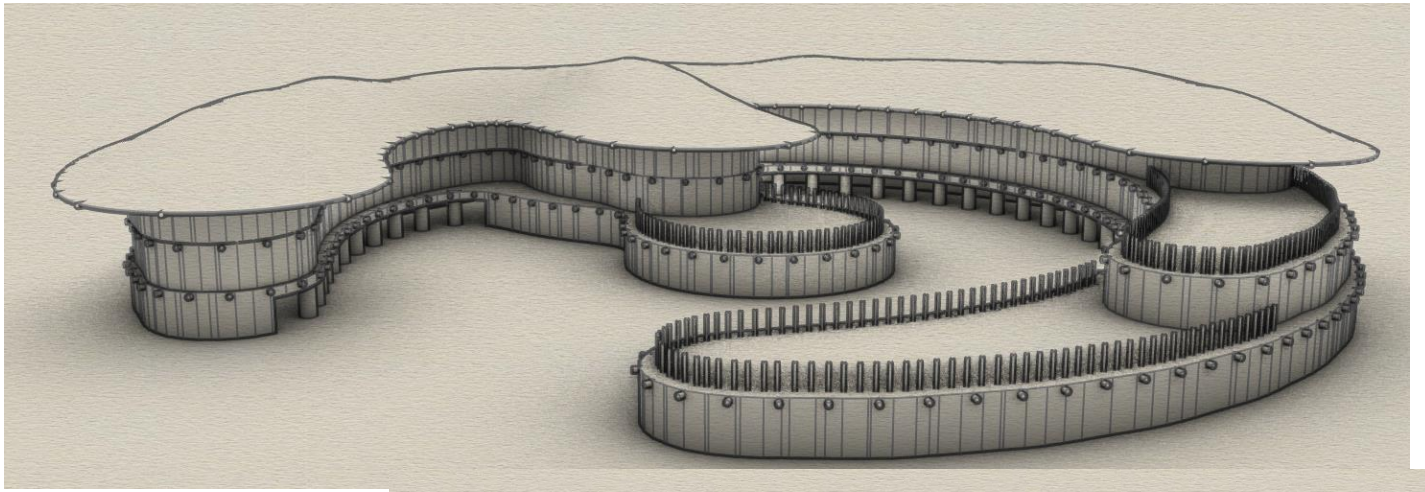


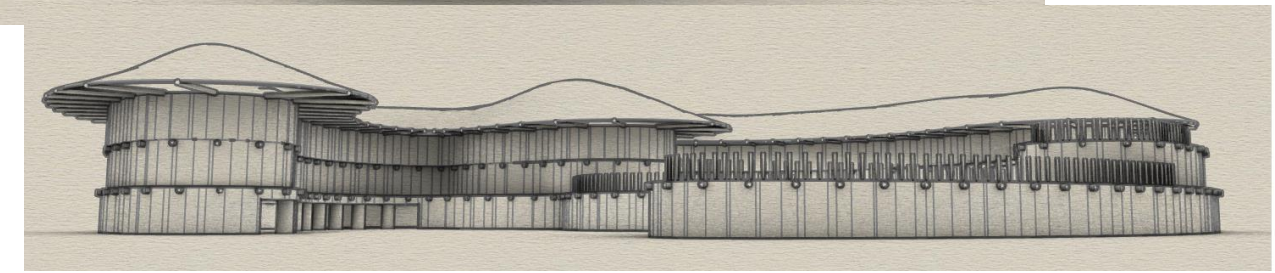
ENKO SCHOOL DESIGN

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.

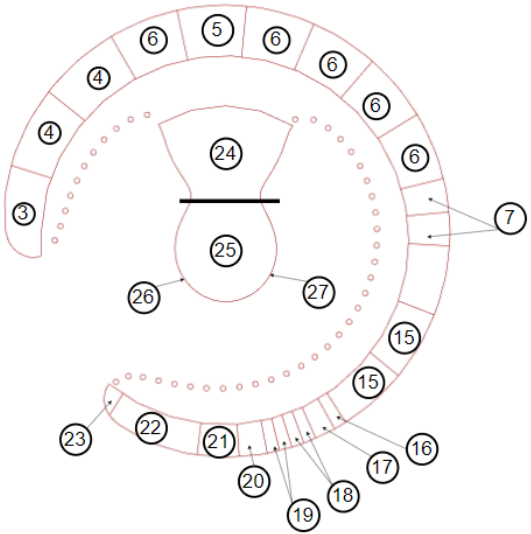
The organizers were seeking for an innovative project that could become Enko's distinctive image. An architectural concept that could be used not only in this project, but also in their future developments across Africa.

ENKO SCHOOL DESIGN

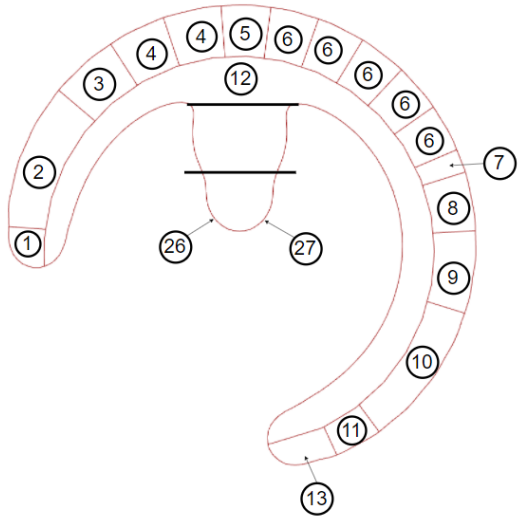




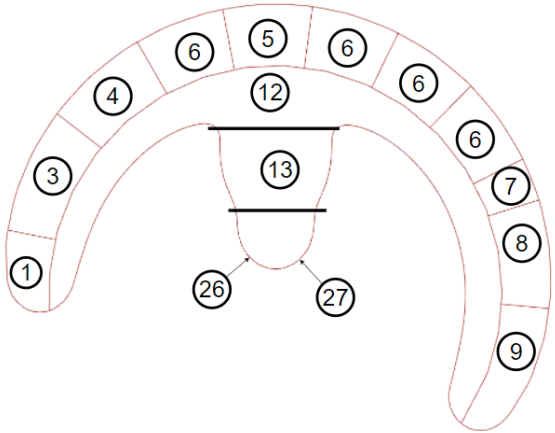
1st Floor



2nd Floor



3rd Floor



1	Study room 1	6	Secondary class	11	Study room 2	16	Finance Office	21	Reception	26	Bathrooms Children
2	Multimedia Library 1	7	Group Workshop	12	Hallways	17	Infirmary	22	Admin Office	27	Bathrooms Adults
3	Nursery	8	Art Room	13	ICT Room	18	Coordinator	23	Security guard vestibule		
4	Primary class	9	Science Lab	14	Science Prep Room	19	Deputy principal office	24	Multisport pitch		
5	Stairs	10	Multimedia Library 2	15	Staff Room	20	Director office	25	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.

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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.

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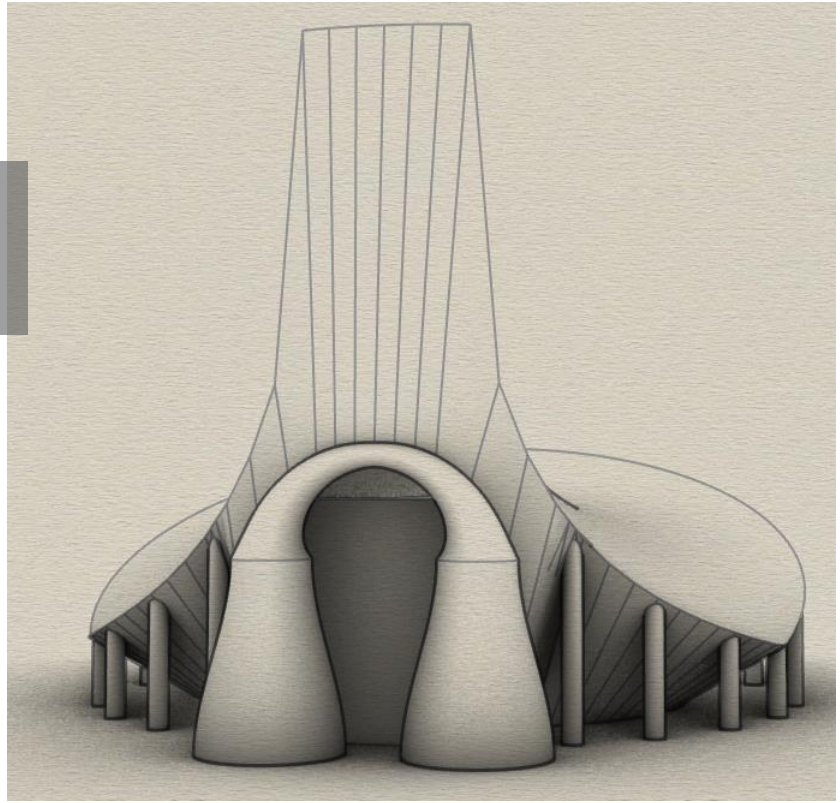
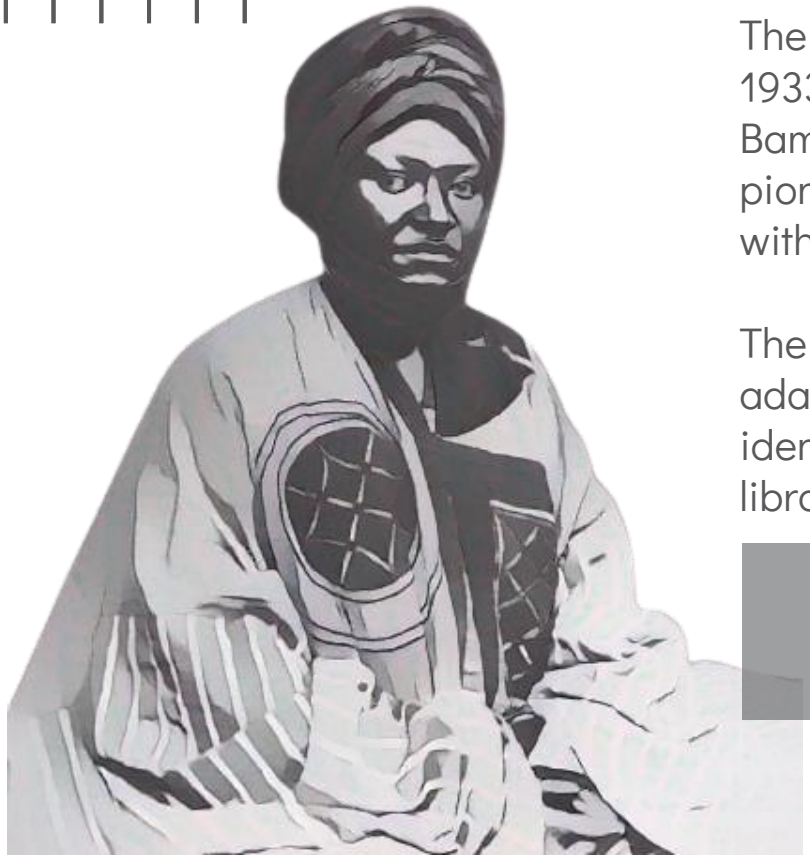
NJOYA'S LIBRARY

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





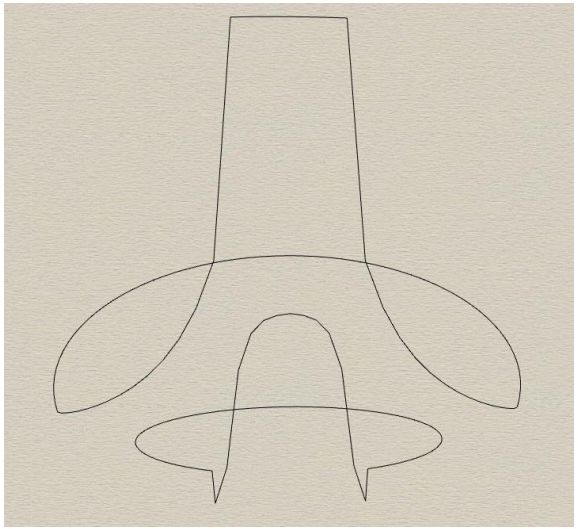
The building was named after sultan Njoya (1860-1933). Sultan Ibrahim Njoya was the chief of the Bamum village. He converted to Islam and was a pioneer in education. He is the one who came up with Bamum script.

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.

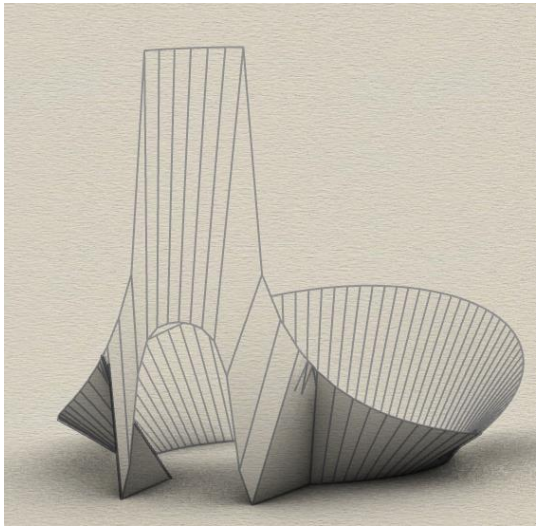
IBRAHIM NJOYA

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.

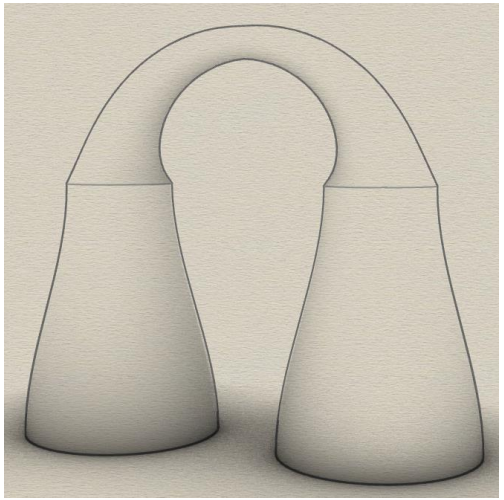


The two resulting curves (left) were lofted and this allowed me to obtain the curve you see on the loft you see on the right.



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.

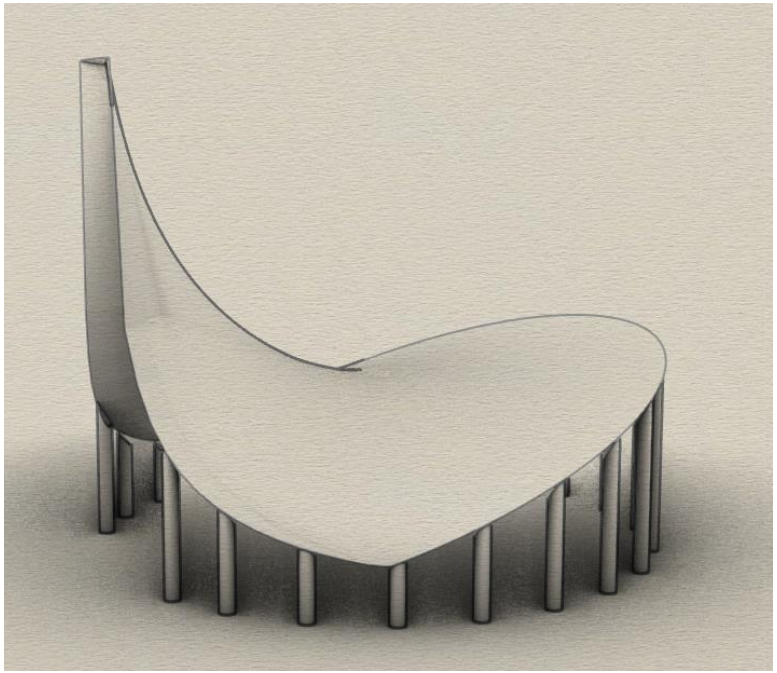


The same way the books and archives of the library are a way of putting us in contact with the ancestral thoughts.

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.



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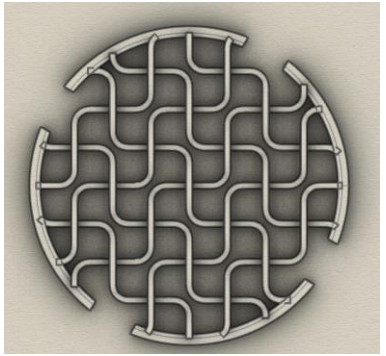
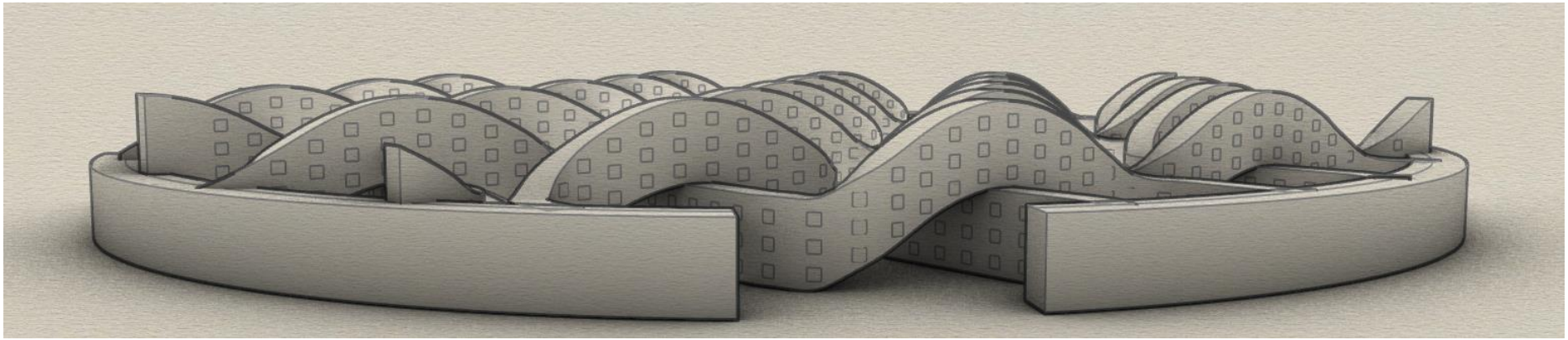
"Home is where our story begins..."



OUANDIE'S HOUSING COMPLEX



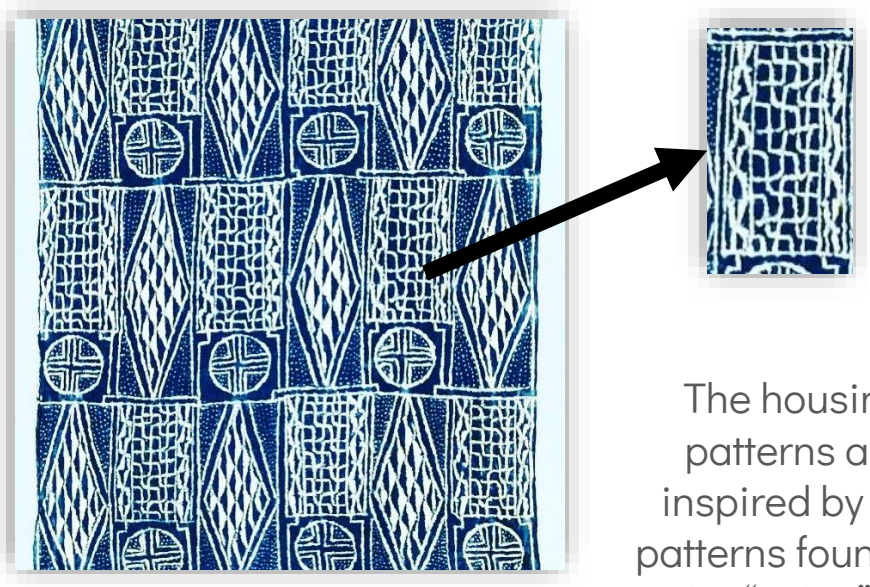
ERNEST OUANDIÉ

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.

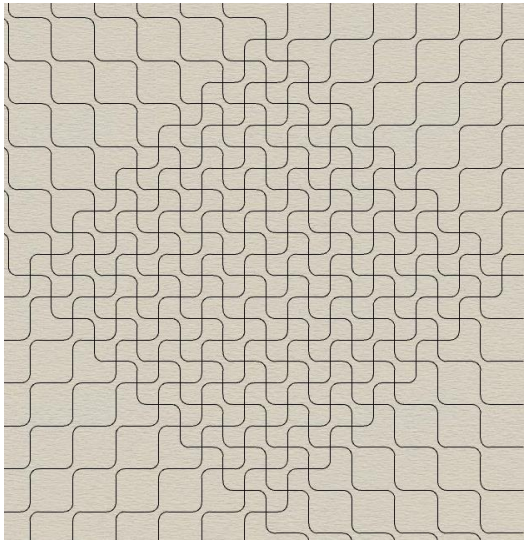
He was captured by the police forces and publicly executed after having hidden for a long time.

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

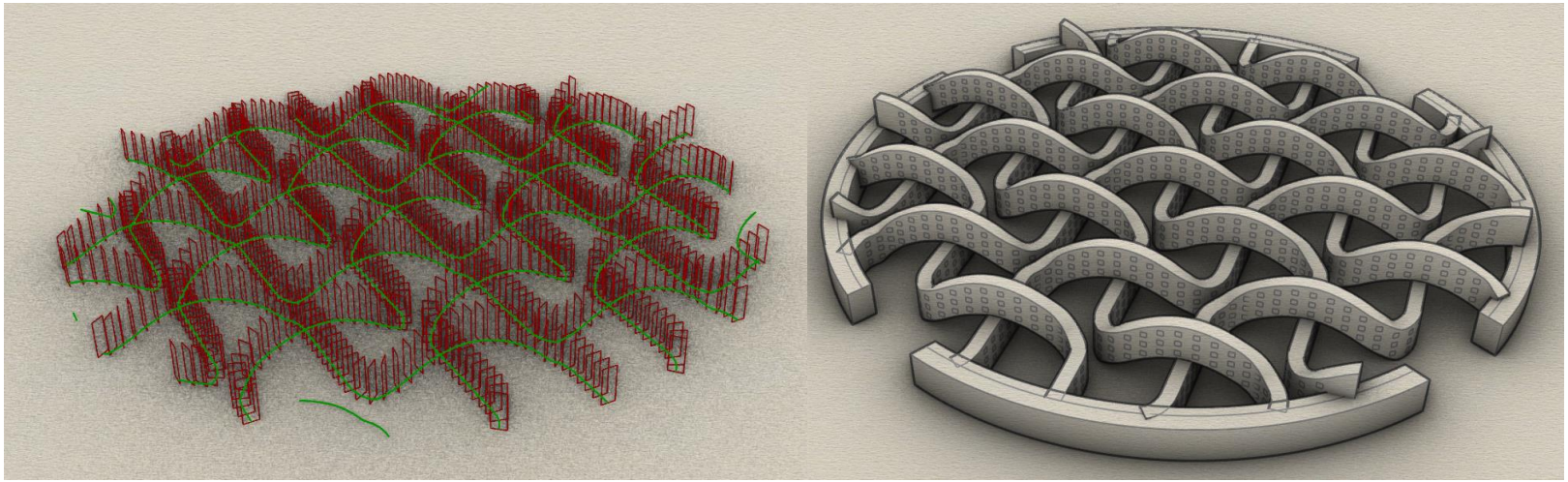
DESIGN OF COMPLEX



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.

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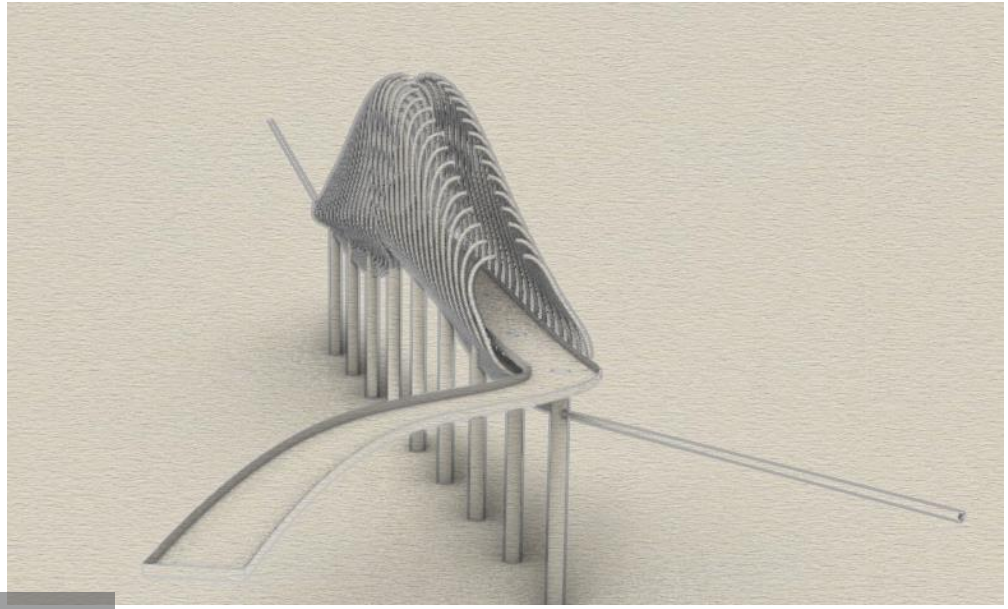
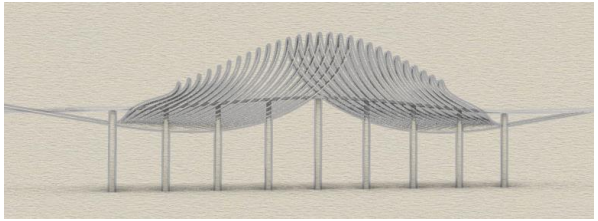
"During a crisis, the wise build bridges and the foolish build dams." – African proverb



KAMGA'S BRIDGE

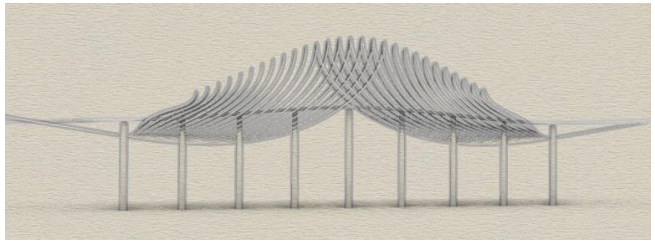


Joseph Kamga (1902-1975) was the strategic chief of the Badjoun village. His proximity with the colonial authorities has given him a lot of advantages and his children were able to receive better education opportunities locally, and also abroad. Although it was thought that his reign would be detrimental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

The bridge was named after him to honor his ability to bridge traditions with western culture.

JOSEPH KAMGA

DESIGN OF BRIDGE



The horse tail is a traditional Bamileke element which symbolizes conquering danger. The horsetail has inspired the bridge truss frames.

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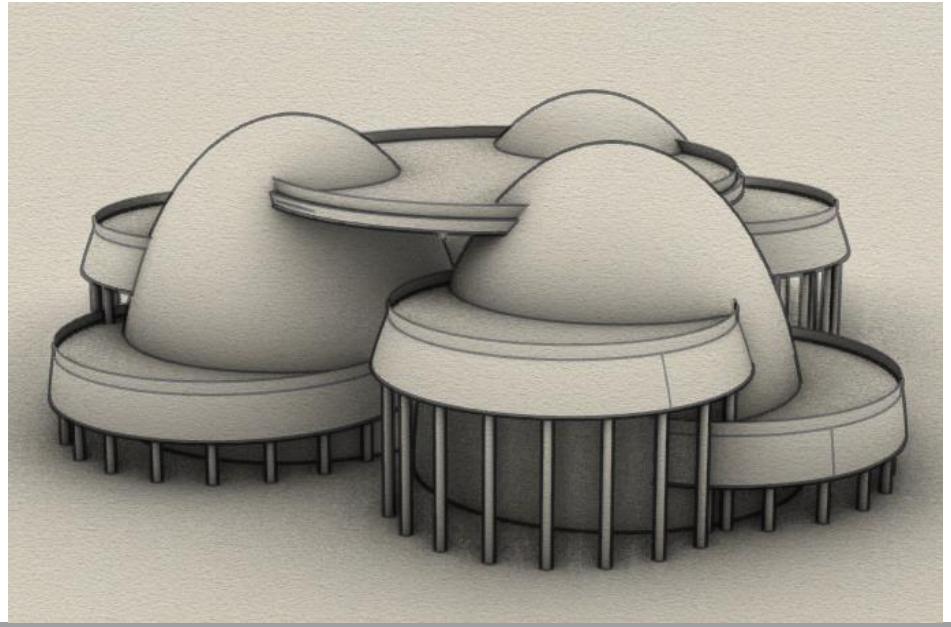
“Having a good discussion is like having riches.” – African proverb



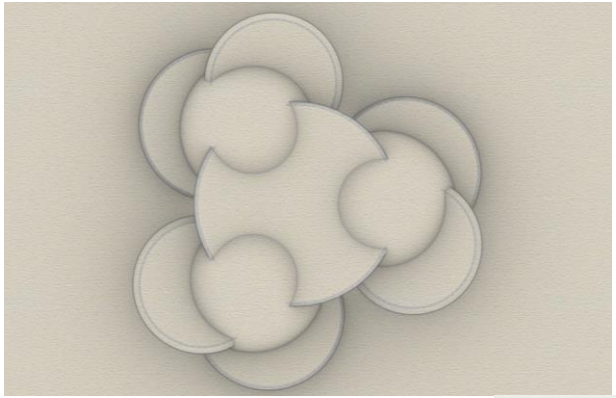
DJOUMESSI’S CONVENTION CENTER

MATHIAS DJOUMESSI

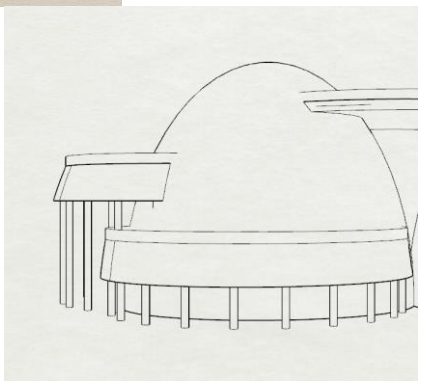
Djoumessi Mathias (1900-1966) was the Chief of the Foréké Village. He was a key member in the events that preceded the independence. He was part of the launch of the RDA (African Democratic Rally). He was president of the “Bamileke Chiefs Association”. He has also been implicated in the UPC (alongside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

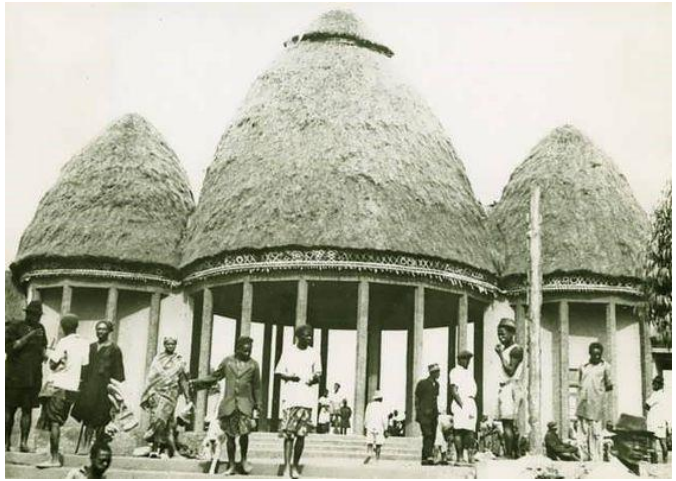
As a chief who assisted a lot of rallies and conferences, it only makes sense that the center is named after him.

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 some of those floors, there is a balcony.





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04.

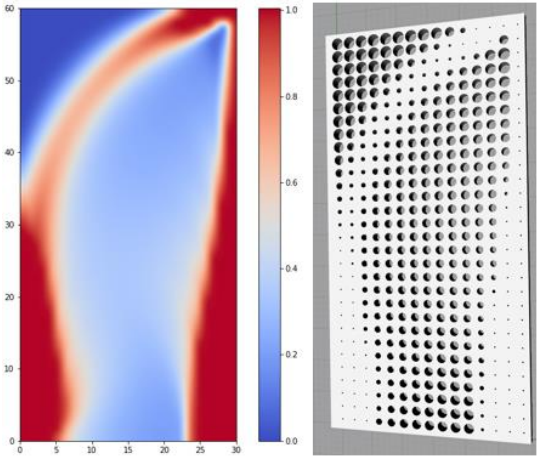
MY WORKS IN OTHER FIELDS

All those projects can
be found on my website:

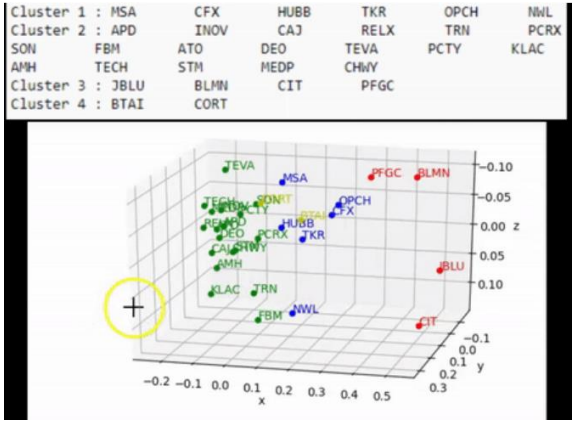
https://botengu.github.io/portfolio/

Music videos on youtube channel

GEOMETRICAL PROJECTS



DATA SCIENCE



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

-CHINESE PROVERB

End