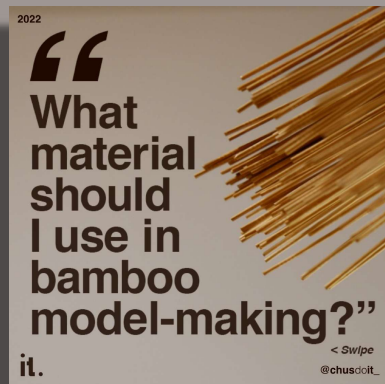
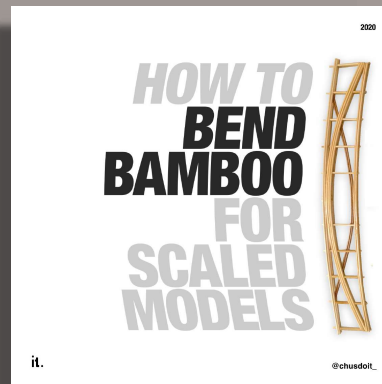


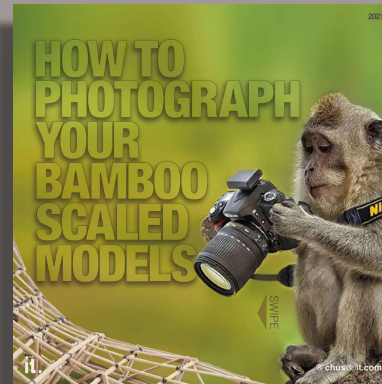
# 5 Keys to Upgrading Your Bamboo Models



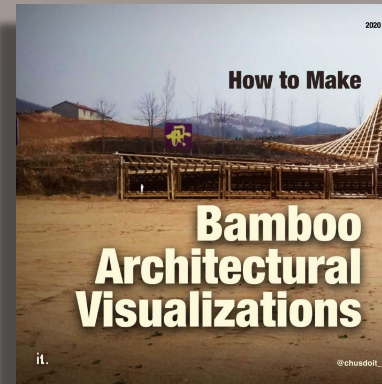
1



2



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4



5







Nice to meet you...



SELECTED

# The Summit

CLIENT

KALTIA

BUILT

2021, Mexico City.

DESCRIPTION

The 60 million-dollars tower was running out of budget in the final phase of the construction. 8 Heavy concrete columns (7.5m high- 0.8m width) were supposed to carry the second floor of a parking lot. Now they wont. Demolish them is expensive too. It was the client's idea to create what he named "bamboo trees". We came out with this pre-fabricated solution with straight elements for economic means. I solved the principles in Sketchup and CAD, then Sofia translated it into Grasshoper. Then, the engineering team calculated it using the RFEM software. Prefabricated in 30 days, installed in 6 days.



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# The Anji Pavilion

CLIENT

HUST

BUILT

2019, Zhejiang, China.

DESCRIPTION

The requirement was to build a bamboo structure completely out of symmetry, without structural engineers. Therefore I created a series of prototypes from 1:50 to 1:25, to 1:10, to 1:1. It was in the 1:10 bamboo model that we felt confident to share it to the workers for their interpretation. Both, the scaled model and the real construction were built using Moso bamboo. The 1:10 model took me 3 weeks full time.



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# Lavander Gate

## CLIENT

Sino-Lavander Eco-park

## UNBUILT

2018, Shandong, China.

## DESCRIPTION

Unlike what many would think, this bamboo structure as we see it, never crossed the digital modeling process. Only physical scaled model merged in photoshop. Due to internal issues of the client, the project couldn't continue to the digitalization process therefore structural calculation using software. However, eventhough it is an early phase of the project, it already shows a structural concept that solves the architecture in terms of scale and use, but yet to be refined. One person job so far.



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# The Bam-bridge

CLIENT

Hunan Red Cross

UNBUILT

2018, North Hunan, China.

DESCRIPTION

This is another example of a bamboo structure that never crossed the digital modeling process and still solved his structure. Only physical scale model merged in photoshop. This structure is designed for Moso bamboo, and is inspired by the "fish-truss" learned years before in Colombia with Guadua. This small project is part of a revitalization process of an abandoned rural town, using logical resources.



it.

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it.

SELECTED

## Area X

CLIENT

HUST

BUILT

2017, Hubei, China.

DESCRIPTION

Bamboo architecture without the bamboo material. Although this project was built using metal scaffolding as a structure, the bamboo, on a philosophical level, is still there. The project received an international award in China and Japan for its ability to consider local conditions, such as history and weather, but without imitating tradition. The project is a 272m<sup>2</sup> recreational space, part of an abandoned rural school transformed into a low-budget rural hotel. Genuine Chinese rural lifestyle. My role was to design the architectural concept, then supervise the construction.



it.

SELECTED

# The Moso Trusses

CLIENT

Chongqing Jiaotong University

BUILT

2016, Chongqing, China.

DESCRIPTION

Here I was invited by Xavier Pino and John Shao to help in the manufacturing of several bridge trusses using Moso bamboo. The designs were provided by Xavier, who is used to the Colombian Guadua. Through a series of scaled models we adapted to the Chinese Moso, scaled up until 1:1. This was the first large bamboo structures made by the experienced Chinese bamboo craftsman. My role was to produce the scaled models then supervise its manufacturing until scale 1:1.



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SELECTED

# Duck-coon

**CLIENT**

South East University

**BUILT**

2015, Lin'an, China.

**DESCRIPTION**

Since 2015, I was invited to coach young students in China. In this case, the design aimed to approach the construction as a natural and primitive "home" for ducks. Due to the students' lack of experience, the design strived to reduce the need for construction accuracy, and choose to "scramble" this weaving methods to ensure the completion effect and allow errors within a certain range. The final construction logic was such that the waves formed the basic structure's shape, and then reinforced it by irregular weaving to form a nest-like natural texture. The volume was nearly 12m length and 3.2m wide.



**How did I achieve that my bamboo scale models were effectively communicated in multi-cultural environments?**

**Are you in the right place?**

**Before we begin:**



## Before we begin:

- My English is kind of different

## Before we begin:

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- At the end, I'll make you an offer to continue working together

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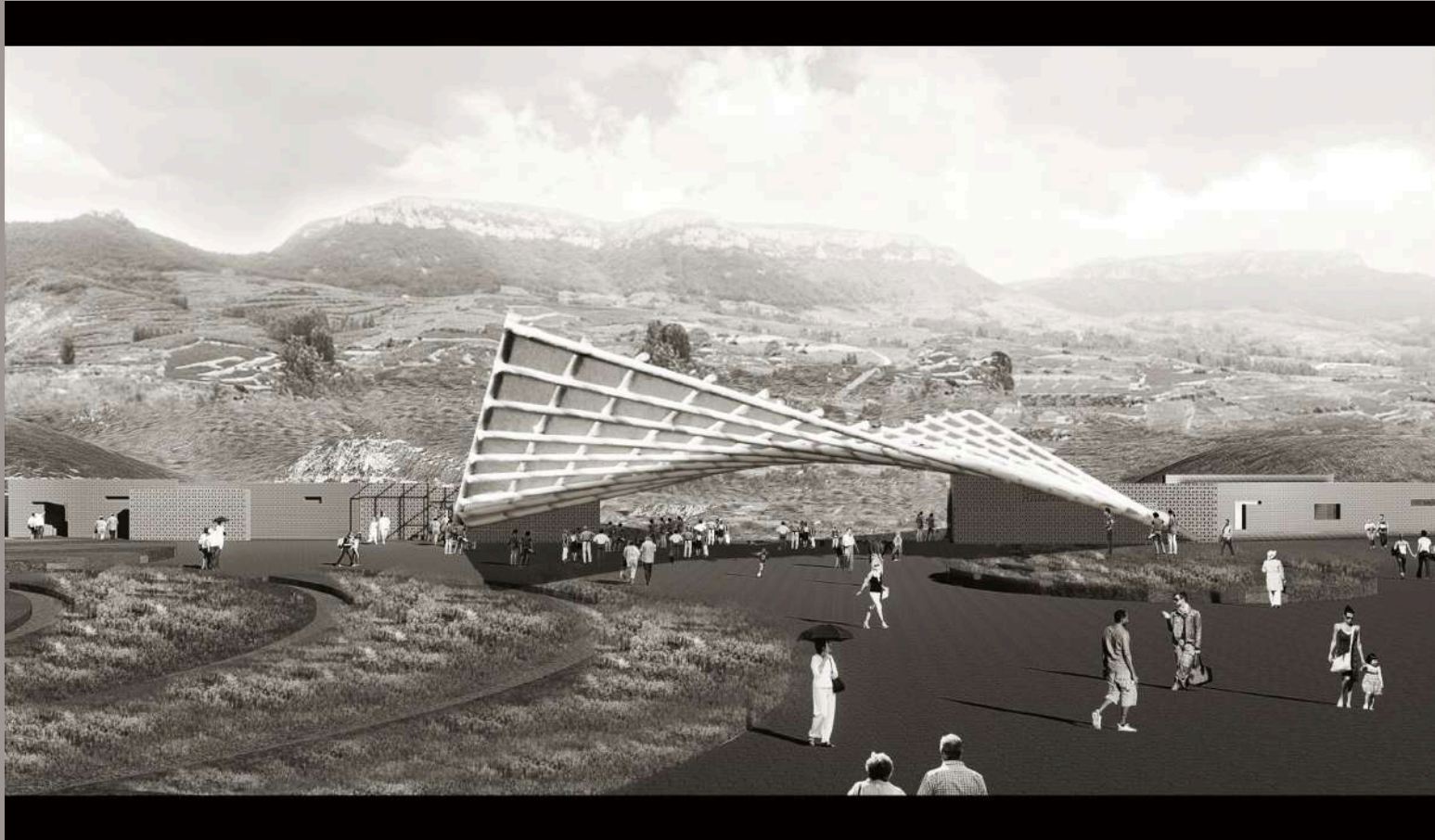
## Before we begin:

- My English is kind of different
- At the end, I'll make you an offer to continue working together
- I didn't keep any secret for this webinar
- It's my best interest that you get results





**During my days in China, I got obligated to develop effective communication techniques for bamboo design (model-making)**



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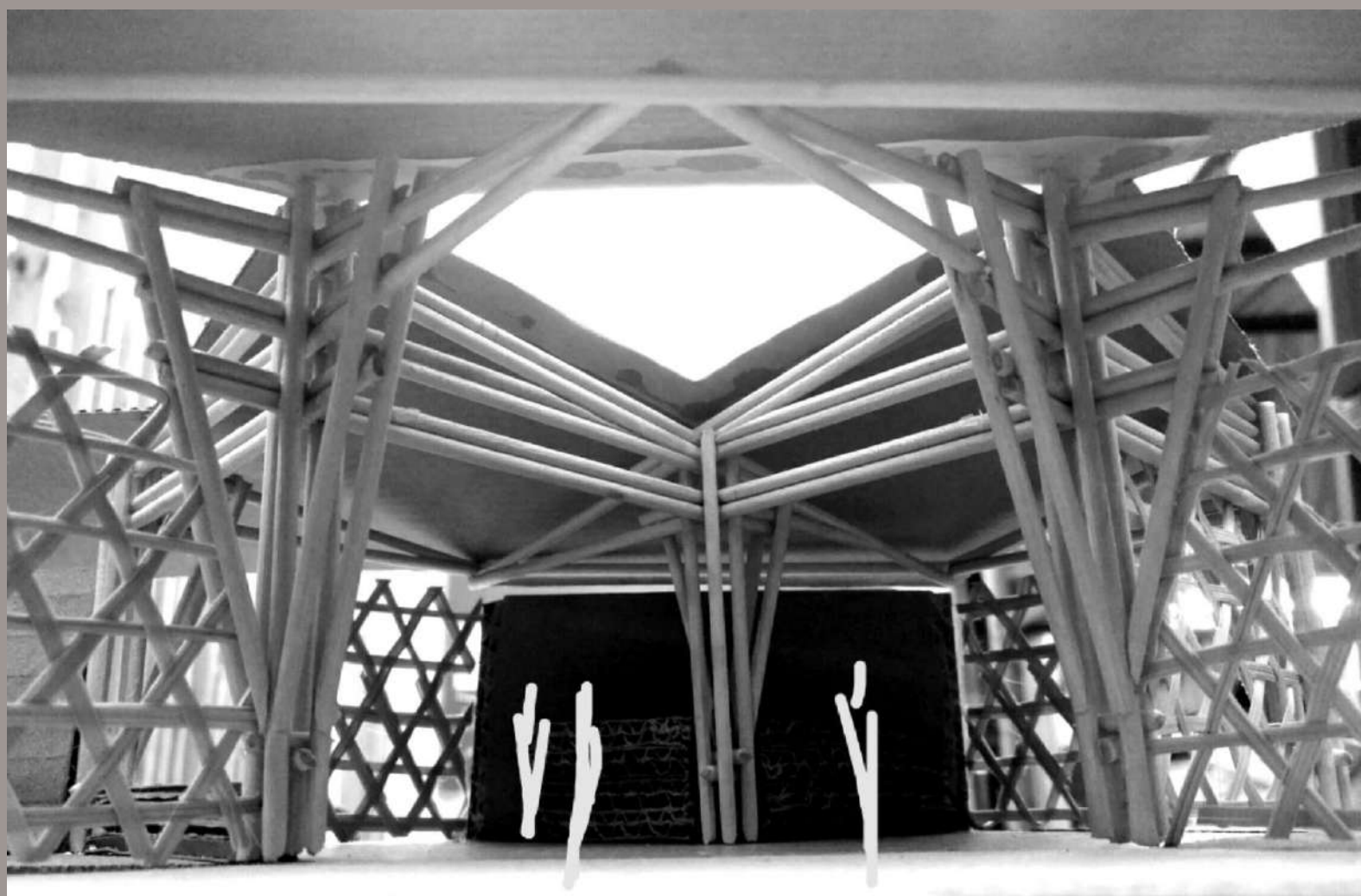
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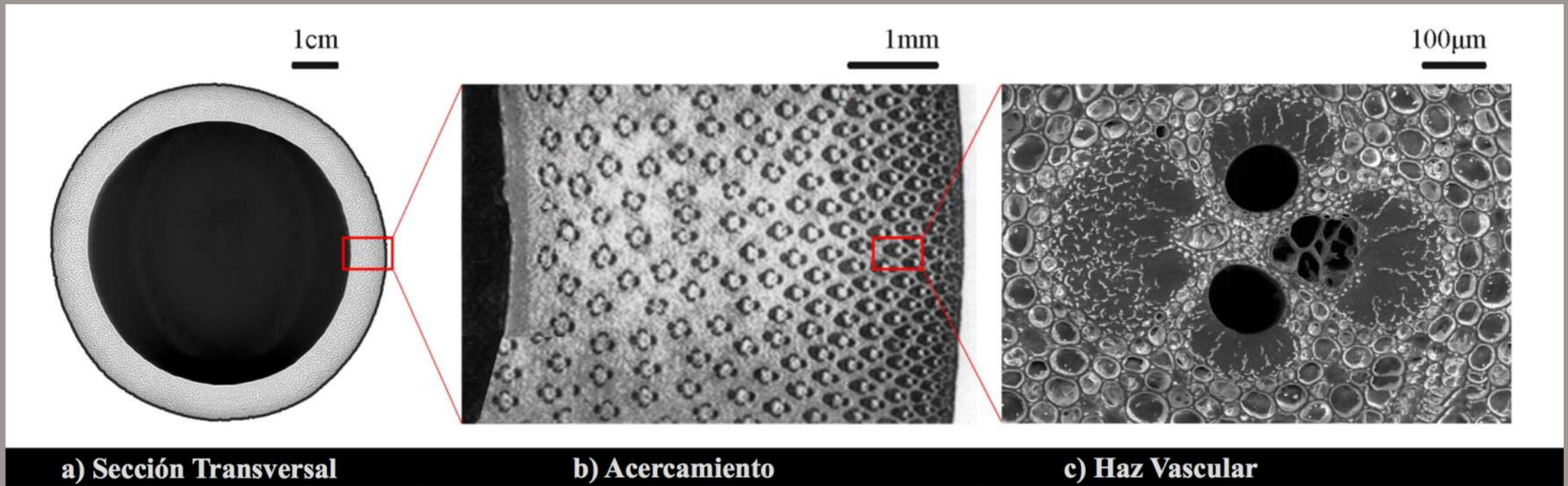
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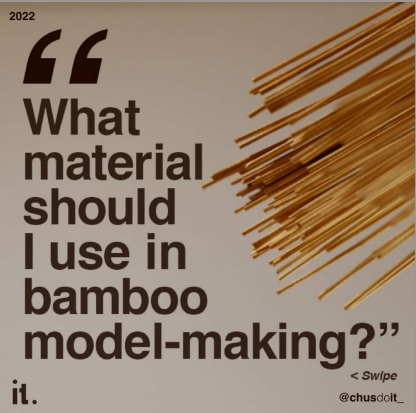


Maybe you don't know but there is a fundamental difference between bamboo models and other material models...

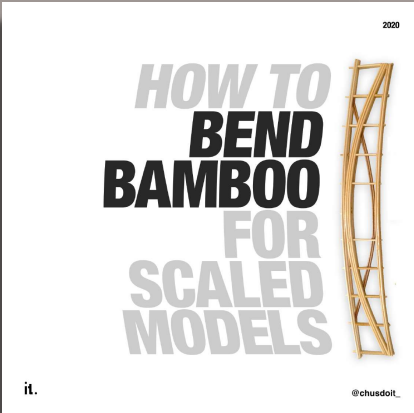
## With the **5 Keys** to upgrade (optimize) your bamboo models

- You don't need a Ph.D. in engineering
- You don't need a long trip to China
- You don't need sophisticated equipment

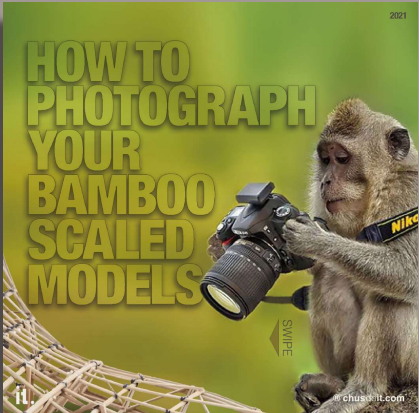
# These 5 Keys are:



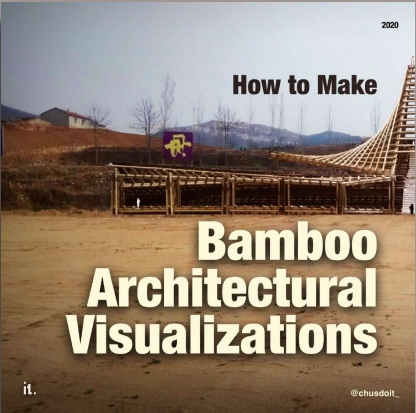
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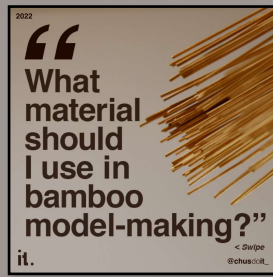


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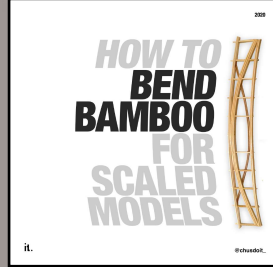


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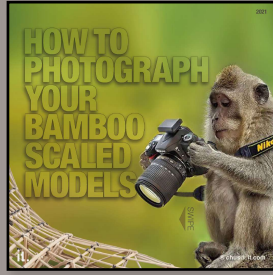
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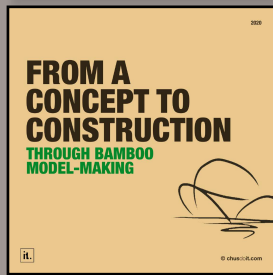
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## The main idea:

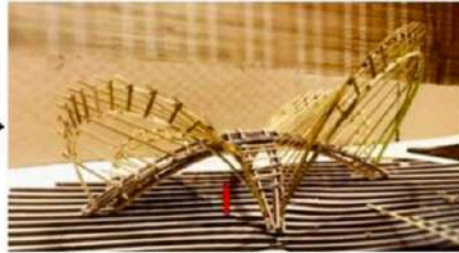
Obtain the 80% of the benefit with the 20% of the effort

# Bird view: bamboo design-to-construction process



## **1. Ideas' assessment**

More than ten concepts were developed by students and teachers during the assessment.



## **2. Scaled model 1:50**

Finding the constructive system through model-making. (Combination of Rhino/Grasshopper).



## **3. Scaled model 1:10**

This scale allows us to determine with more detail the proposed construction system of the last step



## **4. Prototype section 1:1**

This was an opportunity for tech-transfer to younger students and workers.



## **5. Model 1:1**

Because the lack of structural calculation, builders used metallic pieces hidden the bamboo structure.



## **6. Final result**

Ultimately, the roof structure stayed hidden. It was covered by another layer of decorative, organic material.

**As you see, many models to be made...**



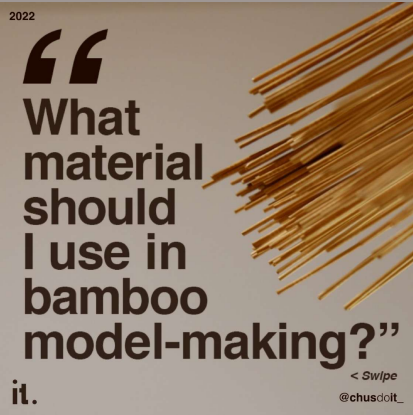
**As you see, many models to be made...**

For coworkers, clients, investors, construction workers...

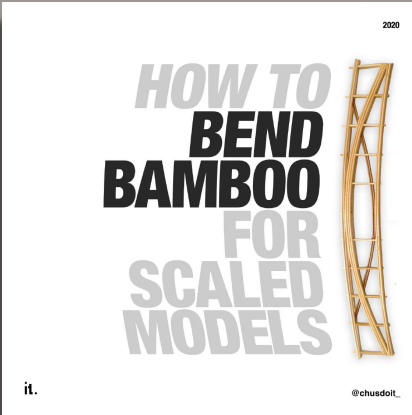
## The good news

It is NOT rocket science...

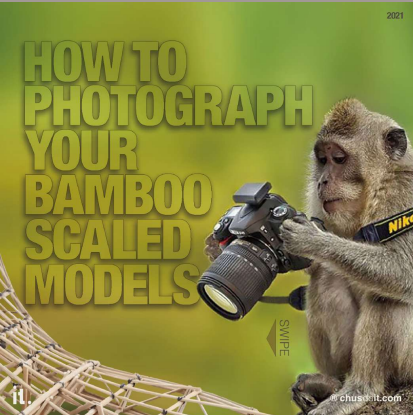
# As long as you follow the 5 Keys



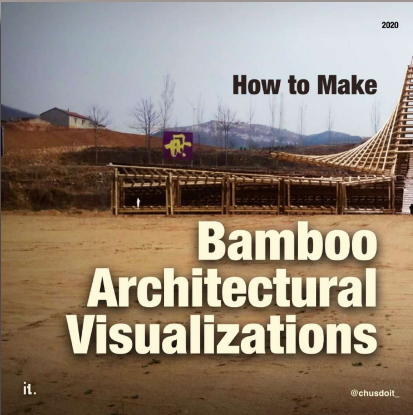
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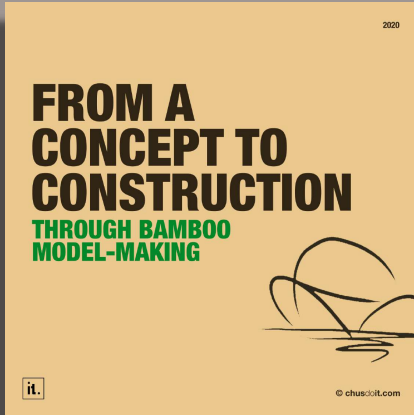
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5

2022

“

1 What material should I use in bamboo model-making?”



it.

it.

< *Swipe*

@chusdoit\_

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2022

**...A top,  
frequent  
question  
among  
bamboo  
model-  
makers.**

**it.**

**it.**

*< Swlpe*

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**chusdoit.com**



**Two general types...**

1) Industrialized and 2) Raw...

# 1) Industrialized

## Pros.

Standardized.  
Many diameters  
Super clean

## Cons.

Expensive if you don't  
live in China or Japan.

## Where to get it.

Buy a bamboo curtain, or  
sushi mats, or any kind  
bamboo product like that.  
Destroy the item to obtain  
only the bamboo material.  
Or import it directly from  
China through alibaba.com.  
It's not that hard.



## 2) Raw

### Pros.

You can do it yourself.  
Promote local bamboo

### Cons.

Slow process  
Not ready to use  
No standardized

### Where to get it.

Nearest bamboo  
plantation



## Two important considerations:

# 1) The scale


## Please

Make sure that the material you choose represents the real scale of the bamboo that you will use to build it 1:1.

## Example

If my scaled model is 1:50, then:

		
Real size	10cm	2mm
Scale	1:1	1:50



## 2) Real bamboo

### Crucial

Never substitute bamboo to represent bamboo.

The difference between bamboo model-making and other material's modeling is precisely that we test the mechanical properties of the same bamboo but in smaller scale for economic means.

“What material should I use in bamboo model-making??”

2022

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“What material should I use in bamboo model-making??

2022

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2

*HOW TO*  
**BEND**  
**BAMBOO**  
*FOR*  
**SCALED**  
**MODELS**





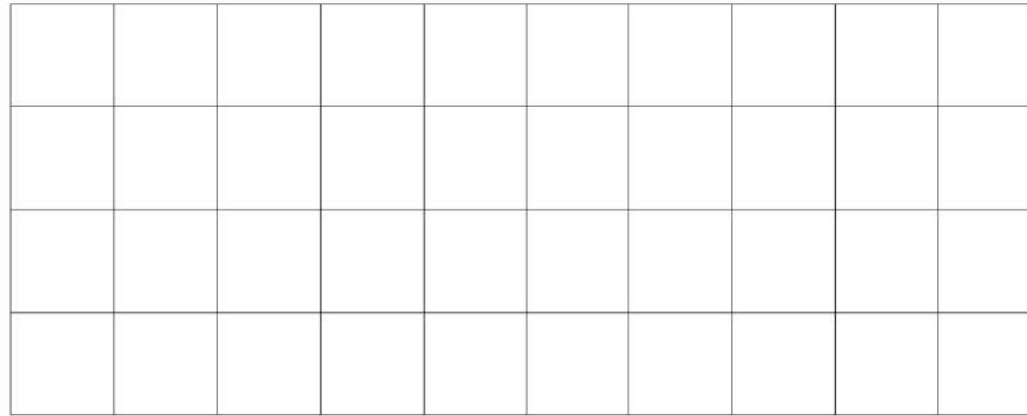
WITHOUT **BURN MARKS** NOR **BREAKING THEM**

IN **SIX** STEPS

1. Cartesian plane
2. Draw the curve
3. Nails on board
4. Bend bamboo
5. Glue more
6. Expand applications

# 1. Cartesian Plane

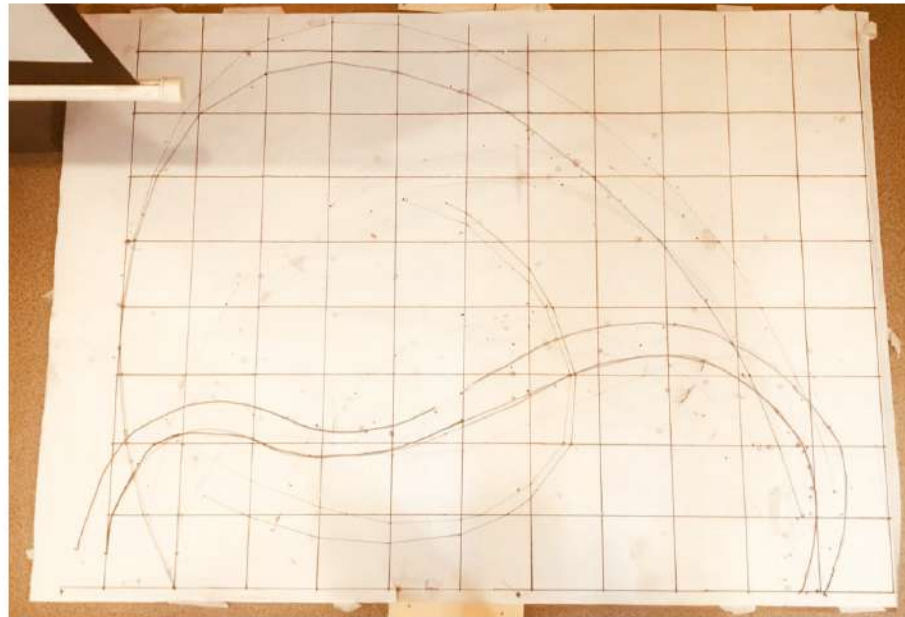
**Draw a cartesian plane on a paper attached to a wood board**



\* This helps to obtain precise measures of each intersection of the curve you will draw next.

## 2. Draw the curve

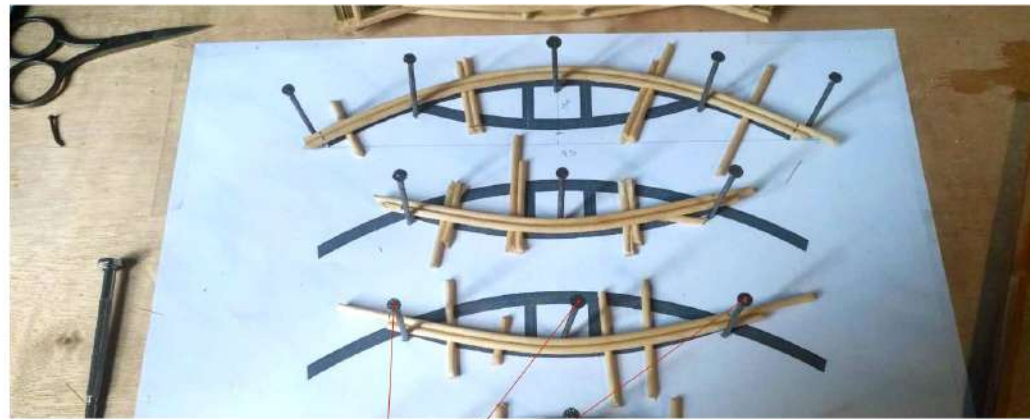
**Any curve you decide to draw on the cartesian plane produces coordinates in several points**



\* The coordinates will ensure that the construction will keep loyal to the design.

### 3. Nails on board

**Add nails in strategic points on a wooden board to force bamboo to bend following the shape of the curve**



\* Sometimes, nails go inside the bamboo, sometimes outside. Great exercise to understand the construction process.

## 4. Bend the bamboo

**Remember to choose scaled bamboo material according to the scale 1:1 construction's intention**



\* This is a 'try & fail' procedure where you test the boundaries of resistance of the material it self. Embrace failure, and go on.



## 5. Glue more

To continue adding bamboos as required by the curve, in China we used 502 glue



\* Just be careful with eyes & hands. Highly effective.

# 6. Expand applications

**Continue practicing  
by experimenting  
different typologies**

HOW TO BEND BAMBOO FOR SCALED MODELS



Turn on  
notifications

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**for more tips about**  
**bamboo model-making**

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# HOW TO PHOTOGRAPH YOUR BAMBOO SCALED MODELS

2021



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**WITH  
LOW BUDGET  
AND  
SIMPLE GADGET**  
NEXT TO ZERO  
A SMART PHONE CAN DO

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# 1. GO OUTDOORS



**SUN-LIGHT**

**VS.**



**IN-DOOR**

Enhance the natural golden tones of bamboo with exterior lighting

# 2. BLACK BACKGROUND



**CUT THE BLACK**



**MERGE IN SITE**

Put a black material behind the model to cut easy in Photoshop

# 3. WHITE BACKGROUND



Use white contrasts to edit less & enlight more



# 4. HUMAN EYE



**UNREAL  
PERSPECTIVE**



**REAL  
PERSPECTIVE**

Give realism: shoot it like if you were in the real building

# 5. ADD HUMANS



Use your taste & Photoshop skills to insert people as real

**REMEMBER**

**SHOOTING  
MODELS  
PROPERLY  
ELIMINATES  
NEED OF  
RENDERING**



# SAVE POST FOR LATER CONSULTANCY



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For more tips about  
bamboo model-making



2020

4

**How to Make**

# **Bamboo Architectural Visualizations**

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**Without Computer Rendering**

**Only**



**Bamboo Models**

**+**

**Photoshop**

**In Four Steps**

1. Photograph the site
2. Make the model
3. Photograph it
4. Merge it



# 1. Photograph the site

**Keep in mind that you will use it in  
photoshop to express your further design**



# 3. Photograph it

**Use your eye-taste to make sure it matches into of the real site**



# 4. Merge it

**Use your Photoshop skills to cut the model and tune its light as the real site's**



# Collateral Benefit

**Besides the visualization result, you are also testing the performance of the structural design**

HOW TO MAKE BAMBOO ARCHITECTURAL VISUALIZATIONS



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# FROM A CONCEPT TO CONSTRUCTION

THROUGH BAMBOO  
MODEL-MAKING



# But,

**...how to translate a simple sketch into the first bamboo scaled model**





# Just do it.



At this point, **done** is better than **perfect**.

# Scale 1:50



This scale is perfect to handle & define the **constructive system**.

# Scale 1:10



**Let it grow.** Asses joinery & structure without computer.

# Scale 1:1



**Sample it.** This is an opportunity for tech-transfer to the younger.

# Scale 1:1



Now, workers can follow the **construction logic** defined before.

# Scale 1:1

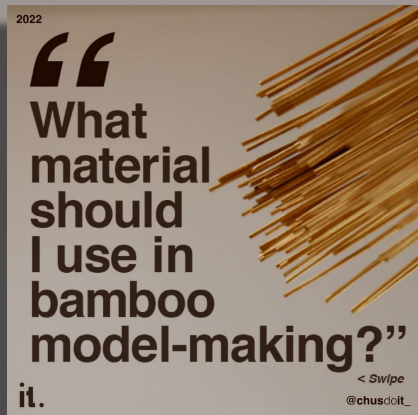


With bamboo, the building is **still** a scaled-model, 1:1.

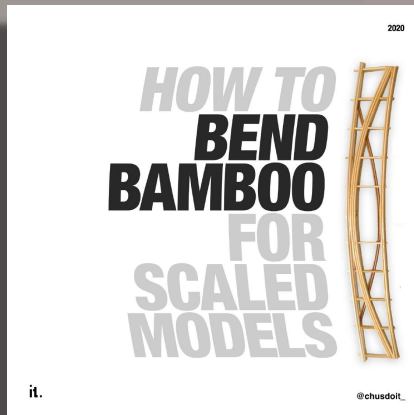


**DONE  
IS  
BETTER  
THAN  
PERFECT**

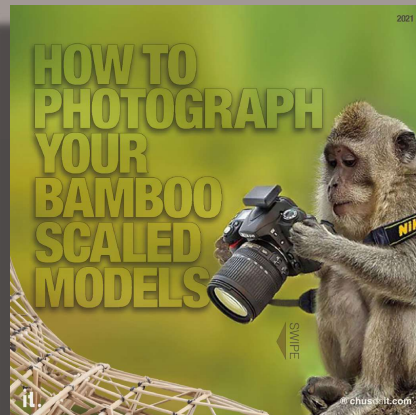
# Recap the 5 Keys:



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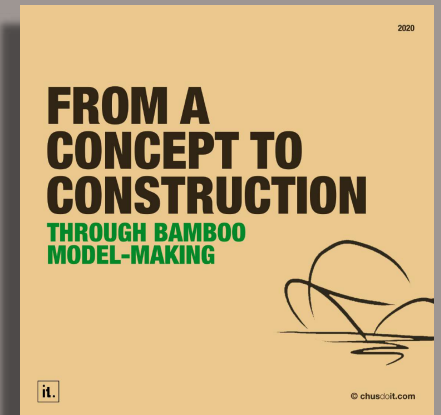
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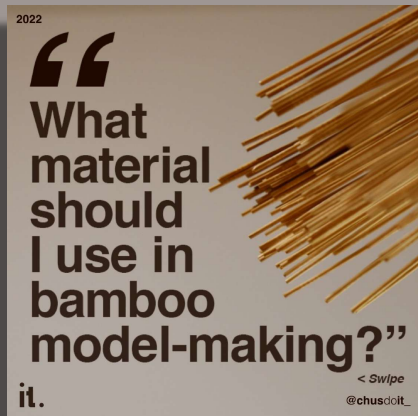
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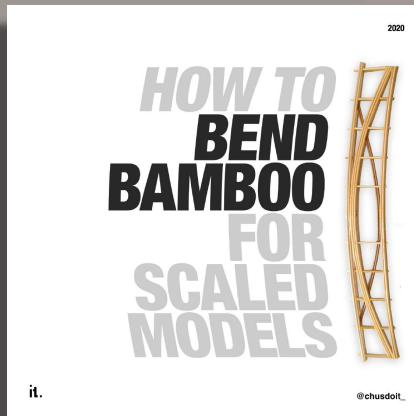
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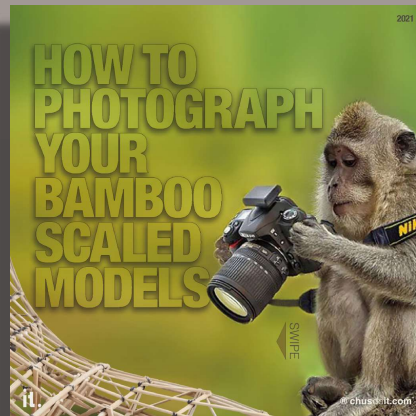
Now you know the **5** keys to upgrading the impact of your bamboo models!



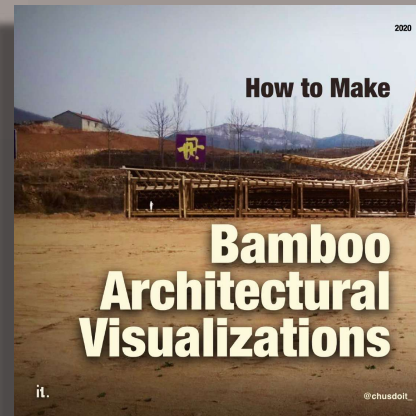
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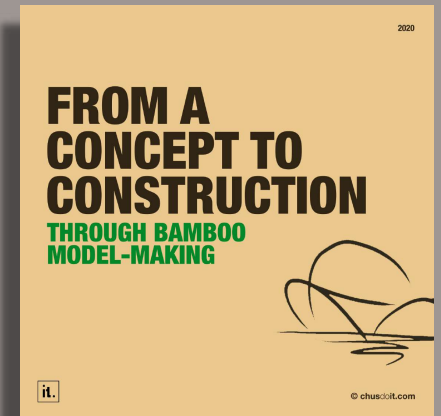
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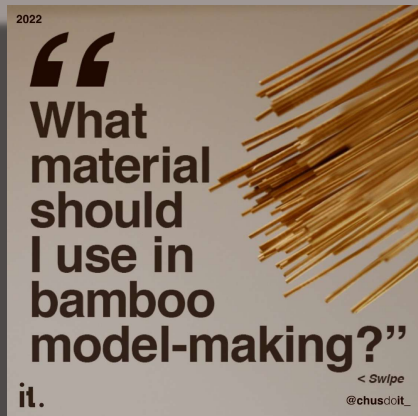


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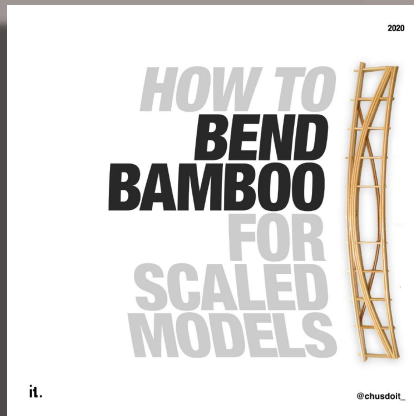


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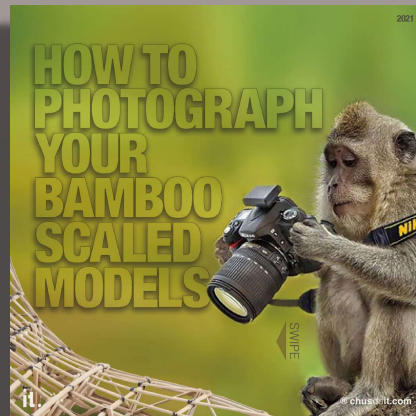
Welcome to join us in our Facebook private group:  
"Upgrading Your Bamboo Models". It's free!



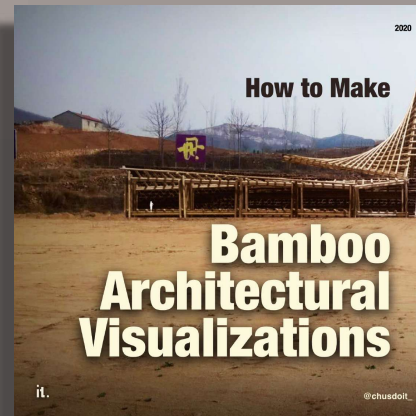
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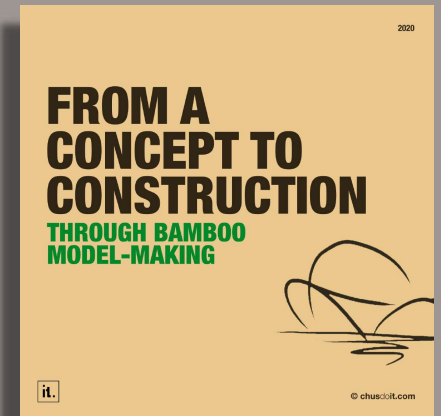
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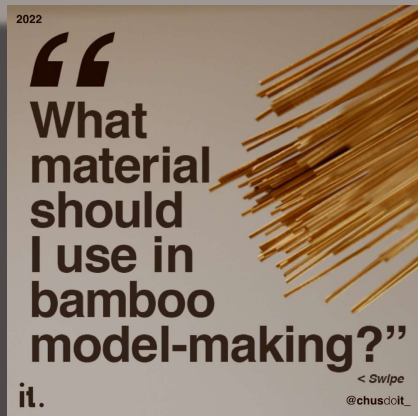


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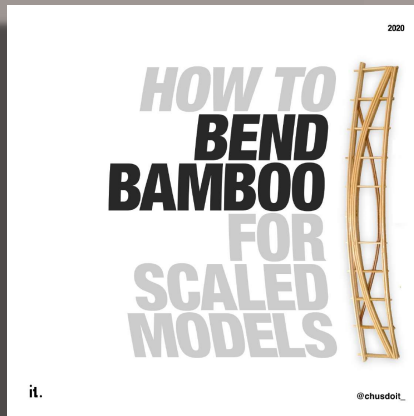


5

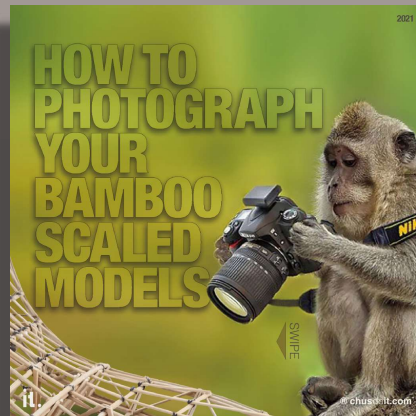
# Can't wait to see the results you get in your next project!



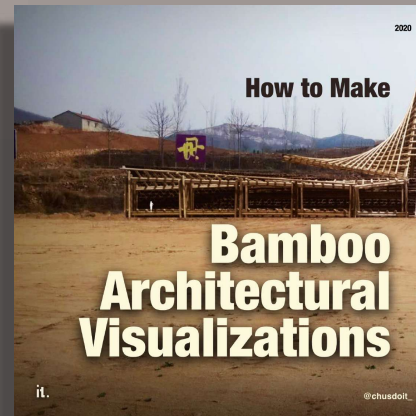
1



2



3

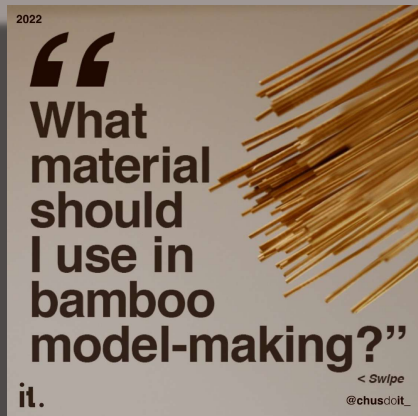


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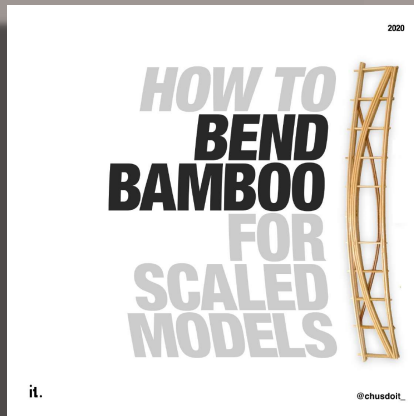


5

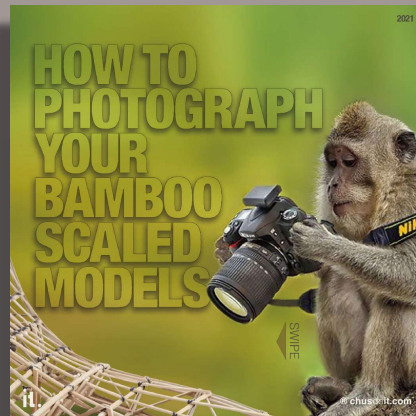
But if you prefer to be guided to produce your next project by someone who has done it multiple times, here is my offer...



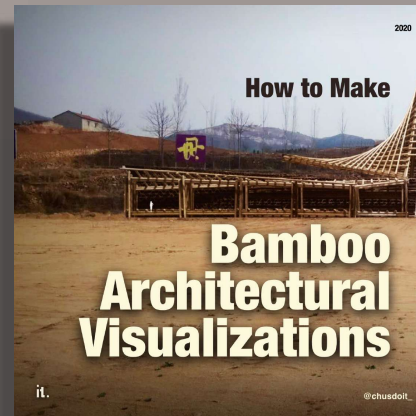
1



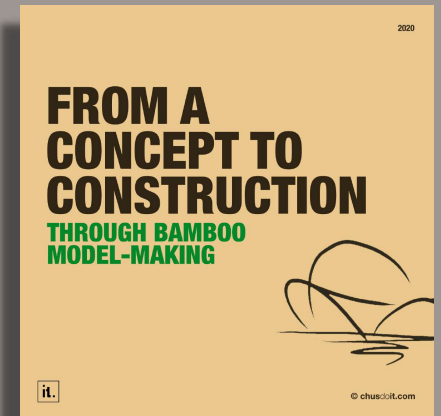
2



3



4



5

**From April 29 to June 3, 2023 you will be guided through my exact 5 steps process to design the concept of an architectural structure, from scratch.**

- **5 weeks.** Each Saturday live sessions.
- **Assignment in between the weeks.**
- **You will come out with a conceptual bamboo structure project made by you and a clear map of what's next.**

**We call it “Protocol of Creation”  
for bamboo architecture.**



# We call it “Protocol of Creation” for bamboo architecture.



By Taj, from USA



By Emiliano, from Mexico



By David, from Peru

## **We call it “Protocol of Creation” for bamboo architecture.**

- **Program dates: April 29 – June 3 (Saturdays live)**
- **Registration deadline: Feb.20, 2023 = ~~\$499~~**
- **Early registration today only 50% off = \$249**



## We call it “Protocol of Creation” for bamboo architecture.

- **100% Live workshop!** But you will get the recordings after our live sessions.
- **It's 100% guaranteed.** No results after the protocol? Your money back, no questions asked.
- **My goal here is to create more cases.**

## **There is only one inconvenience about this extremely reduced price**

- **You would need to accept to become a testimony of the results of your project.**
- **If you are not up to share your results, please don't accept my offer.**

**But if you do want to participate, then please register  
in this link now:**

**[www.chusdoit.com/workshop](http://www.chusdoit.com/workshop)**

**But if you do want to participate, then please register  
in this link now:**

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