




12 Brain Rules

by John Medina



exercise boost brainpower
we used to walk 12 miles a day
exercise improves executive
functions
increase of oxygen = mental
sharpness



the strongest brains survive

we create alliances

we learn from mistakes

a safe environment improves

learning

wiring

everybody has a different brain

learning changes the brain

customization = 😊

attention

no attention to boring things

the brain can not multitask

error rates go up by 50%

our classrooms are multitask-

environments = 😞



short time memory

a 7 digit number disappears in
our memory after 30"

repeating within 30" helps you
remembering it for hours



long time memory

remember to repeat 90 to 120'

after initial learning

it takes 10,000 repetitions to

transform memory into habit



sleep well

the brain does not sleep

a 26' nap at 3 p.m.

= 34% improvement



avoid stress

30' stress = natural
long periods of stress =
cognition damage



sensory integration

our senses work together
stimulate all of them

A large, bold, black number '1000' serves as the background for the entire image. The number is centered and occupies most of the frame.

vision


1 image = 1,000 words

use visuals to boost memory



gender

male + female brains =
a better team

A large, bold, black number '12' serves as the background for the text. The '1' is a simple vertical bar with a small hook at the top. The '2' is a thick, curved shape that starts from the top right, goes down, and then curves back up to the right.

stay curious

explore your world

20% time off to play pays off

Avans University of Applied Sciences

Academy of Building and Infrastructures (AB&I)

Department of Architecture

Tilburg, the Netherlands

Building with Bamboo

at Avans University of Applied Science

2012

Plato Solids





Nodes

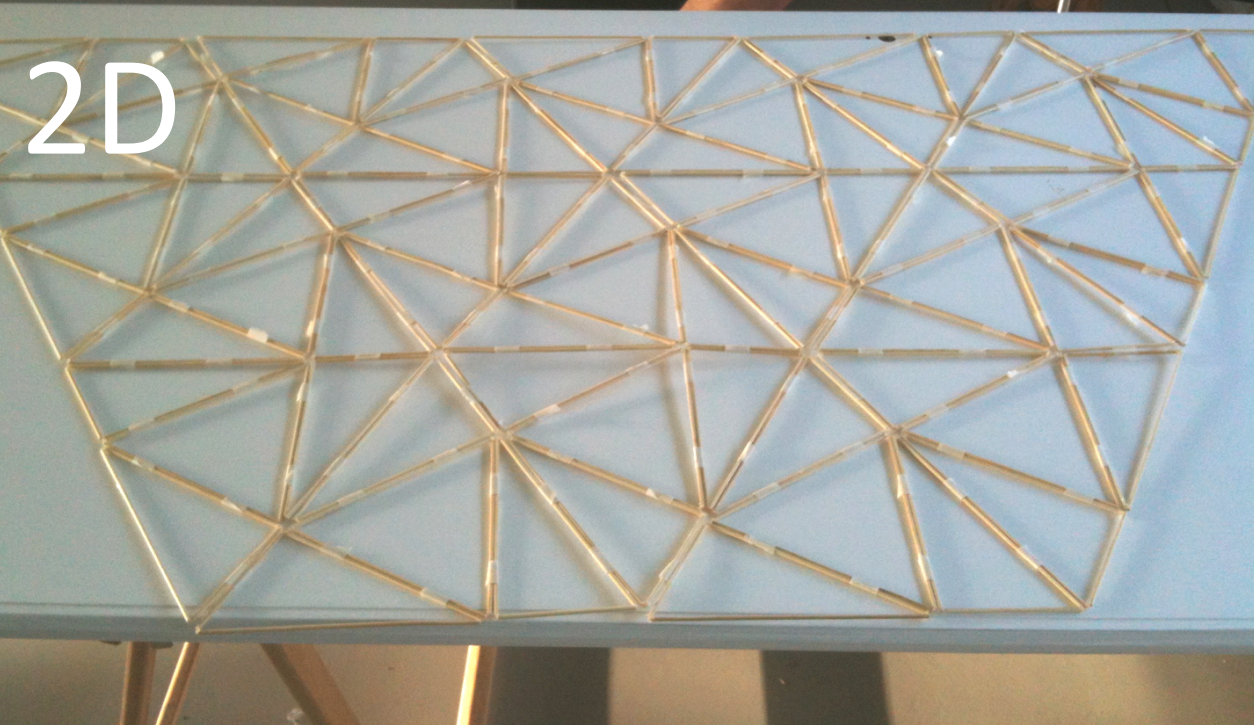




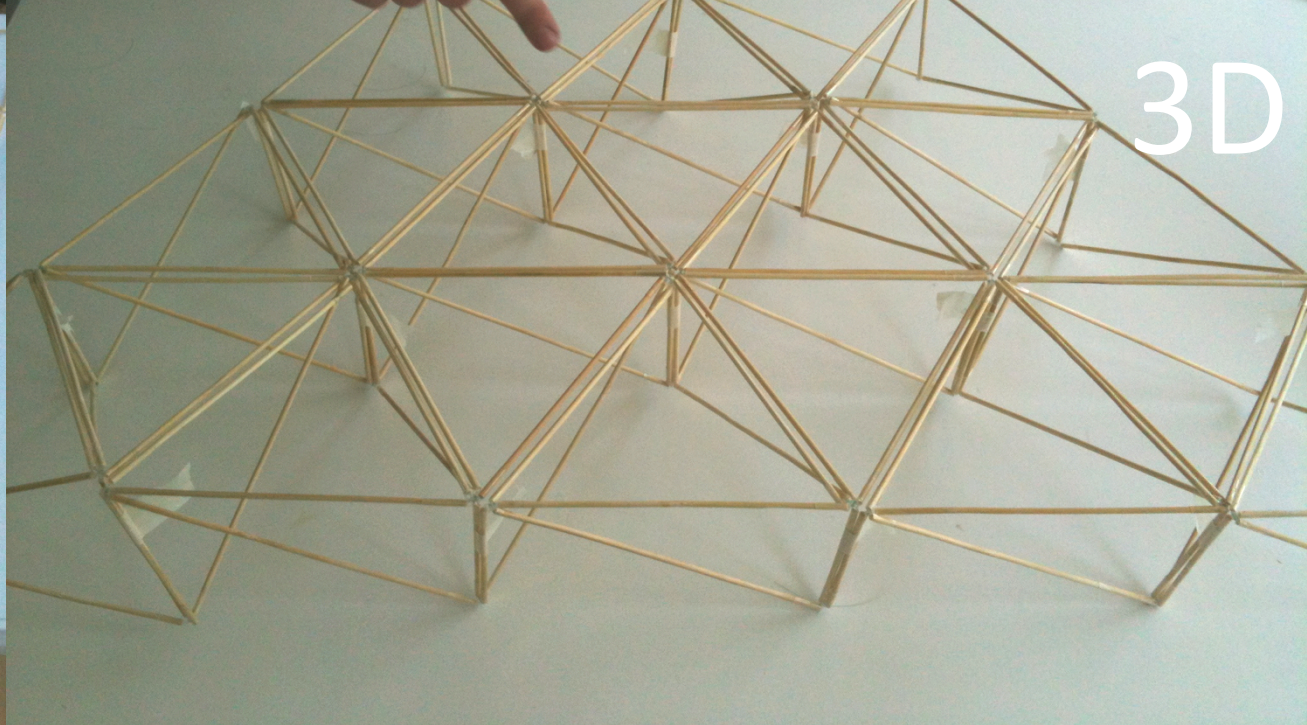
2gather: a project for a foldable stage

Breda, the Netherlands

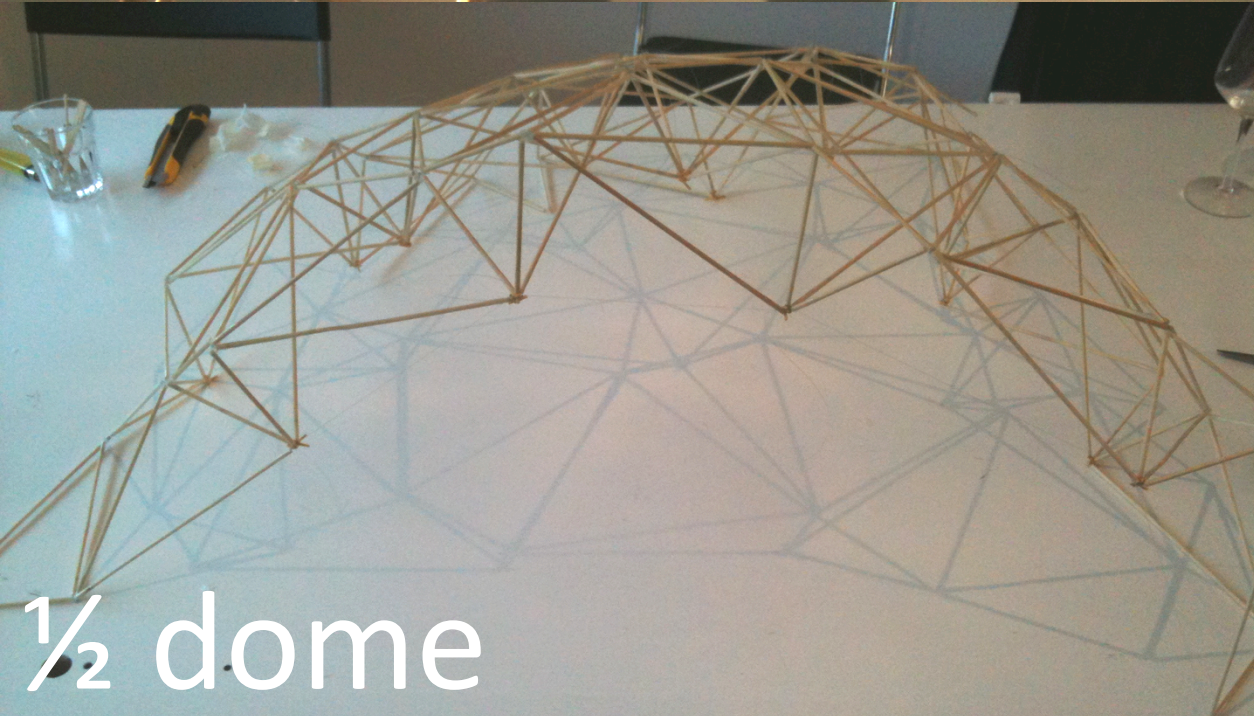
2013



2D



3D



$\frac{1}{2}$ dome



graduation project

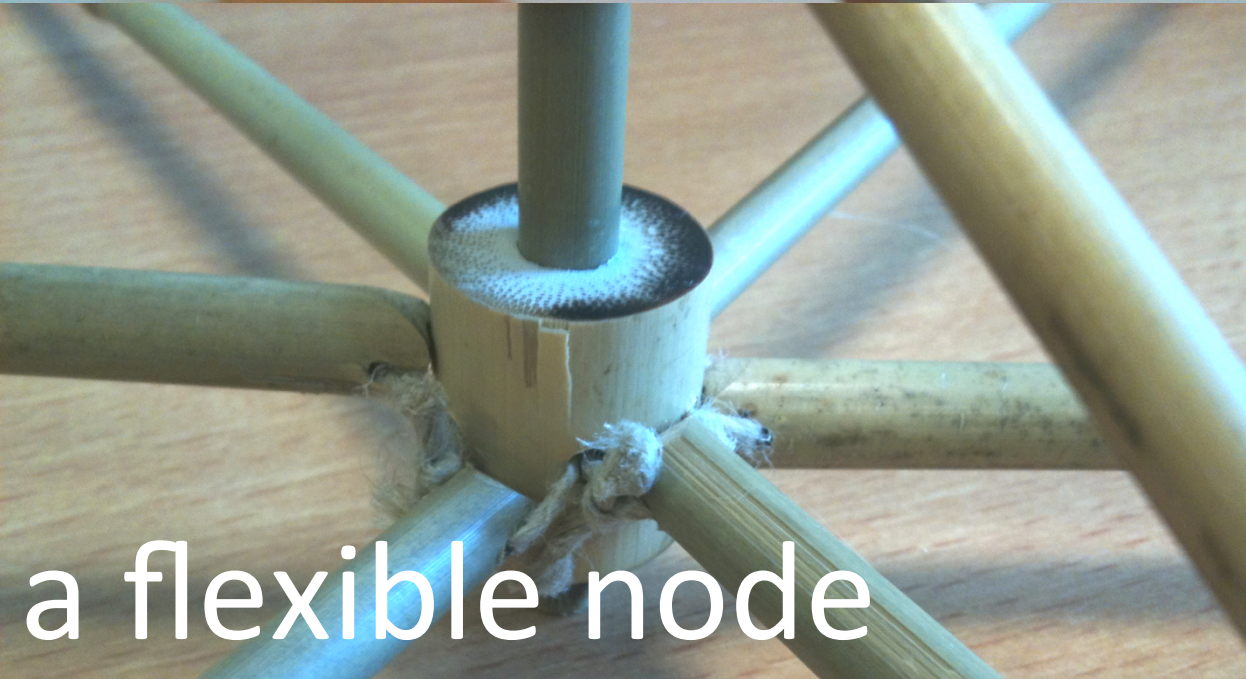
Building with Bamboo

at Avans University of Applied Science

2013



a non flexible node

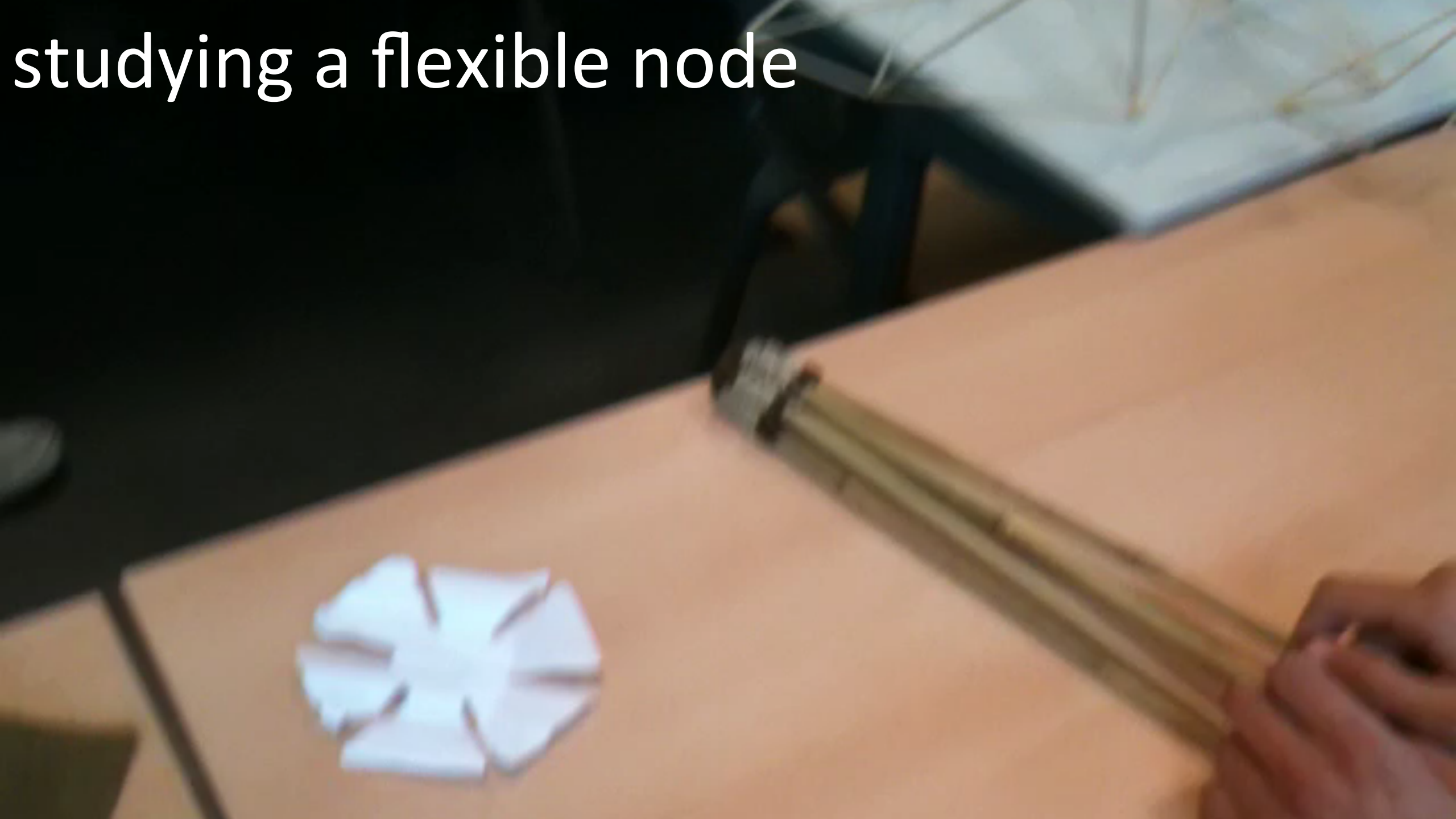


a flexible node



a umbrella type node

studying a flexible node



raising a dome structure



ECOWEEK 2013

CRACOW, POLAND

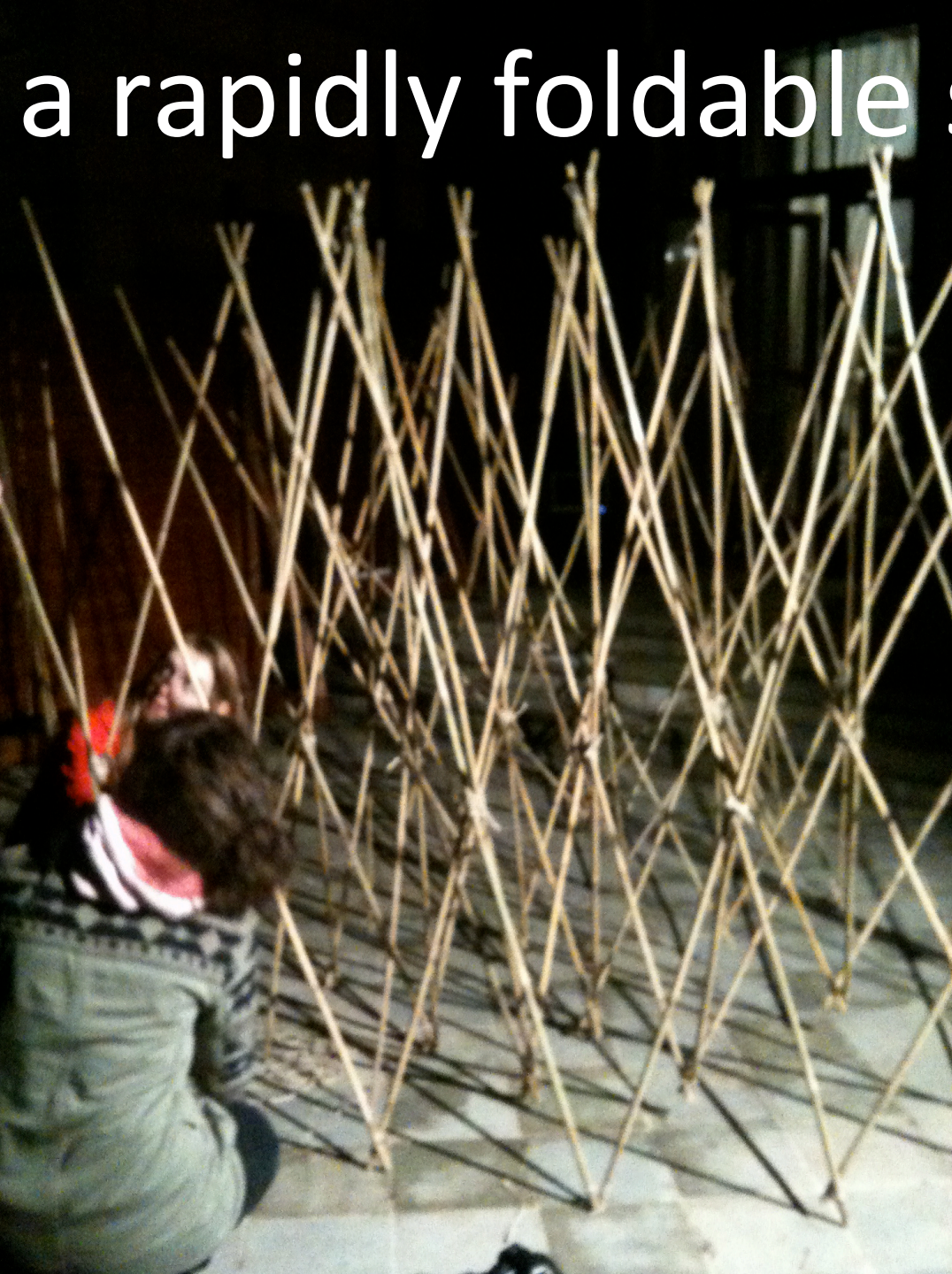
<https://www.youtube.com/watch?v=-MYD8LAAFl> (3'04")

<https://www.youtube.com/watch?v=78eKO8wE3SA> (0'20") unfolded

<https://www.youtube.com/watch?v=TGRfmZIRO8Q> (0'11") folded

2013

a rapidly foldable structure







folding the structure

Playing with my nephew on Koksijde beach

2014

Aryan





Aryan & a truncated icosahedron

rolling the truncated icosahedron



Building with Bamboo

at Avans University of Applied Science

<https://www.youtube.com/watch?v=cfQwZQh2Us8> (6'33")
~~<https://www.youtube.com/watch?v=LrnMpVj1t00>~~ (2'22")

2014

Bamboo Ball Races

prefabricated parts

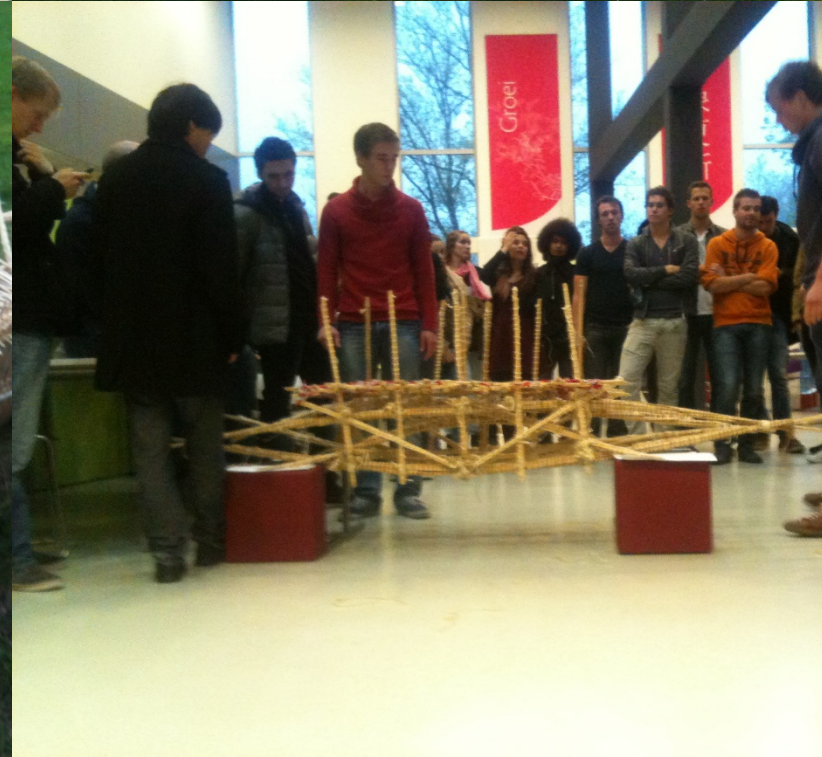
finishing the ball

assembling parts

checking the rolling

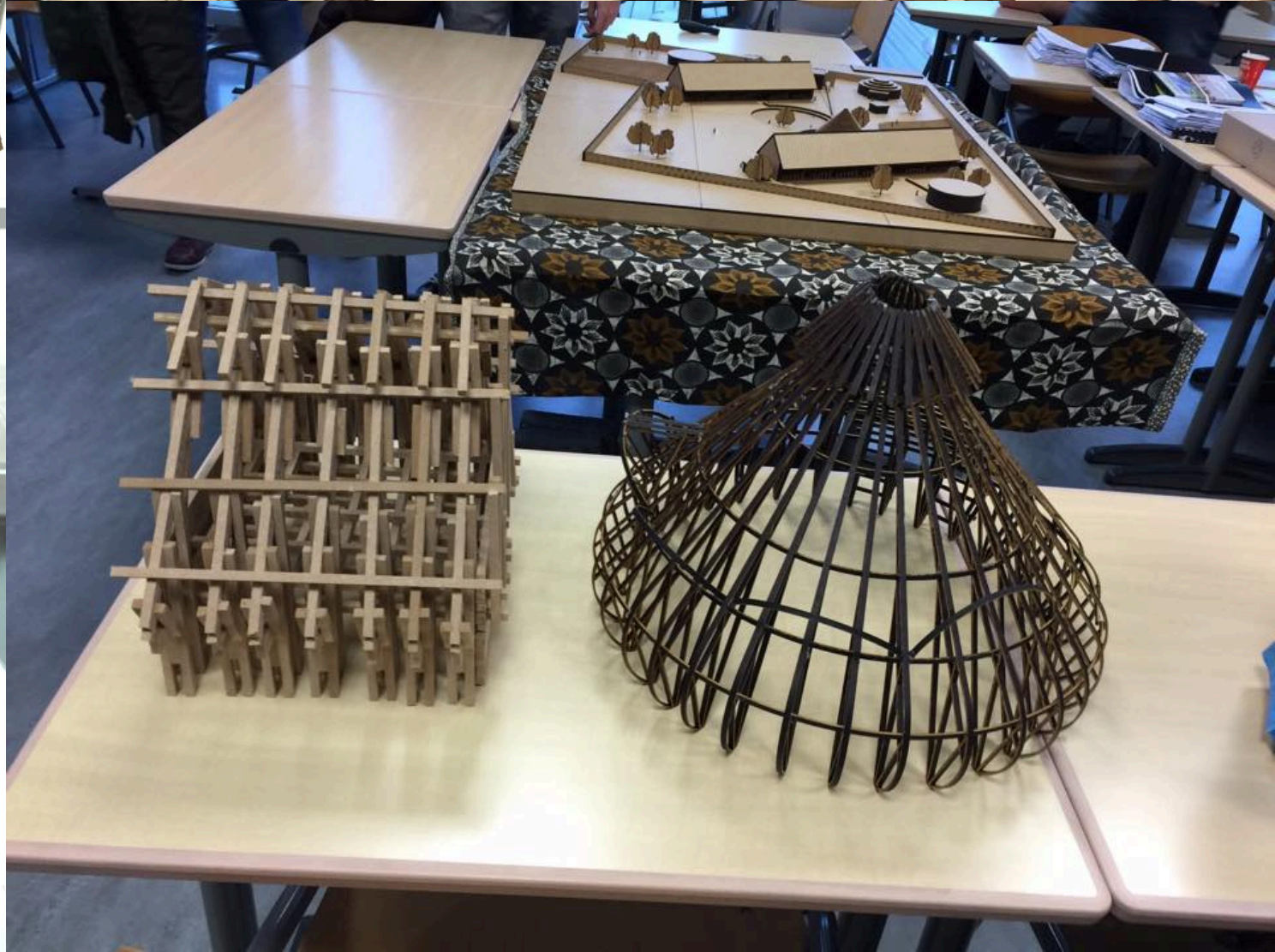
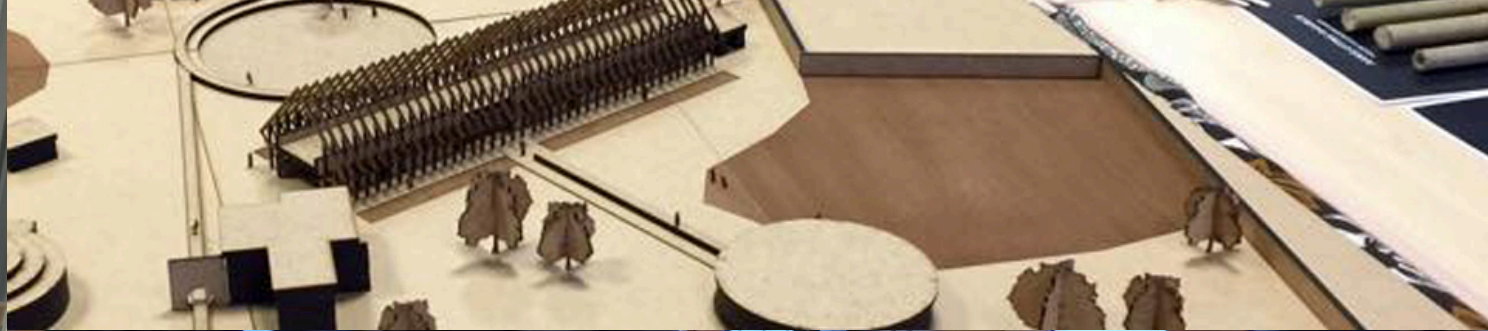


Bamboo Bridges



Graduation projects

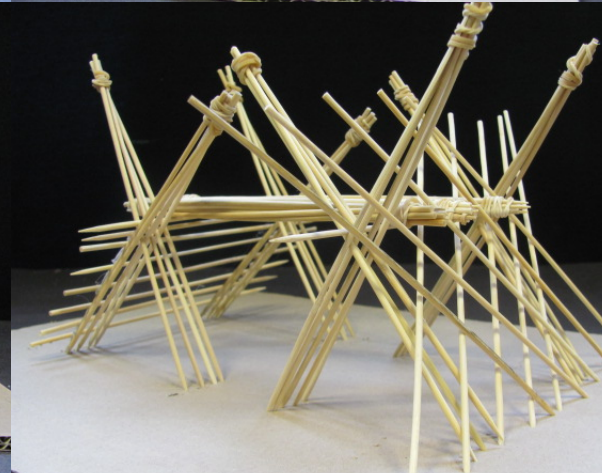
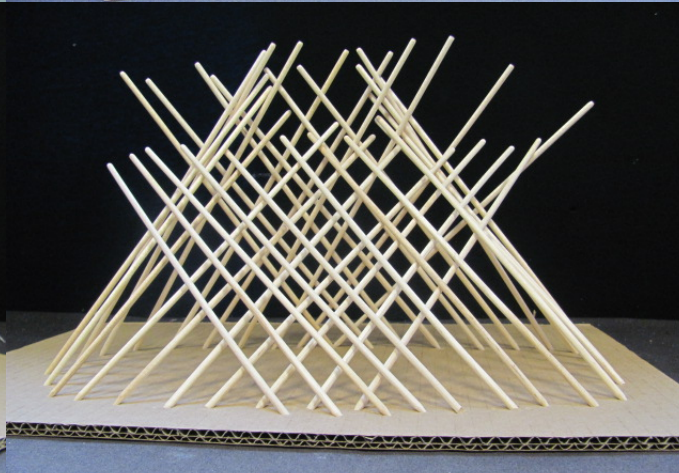
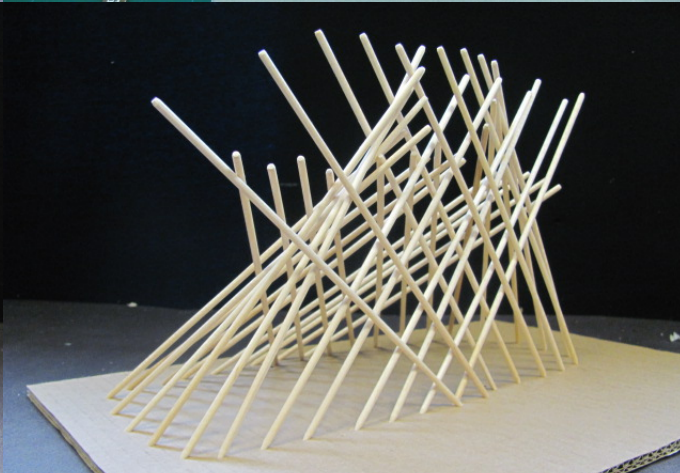
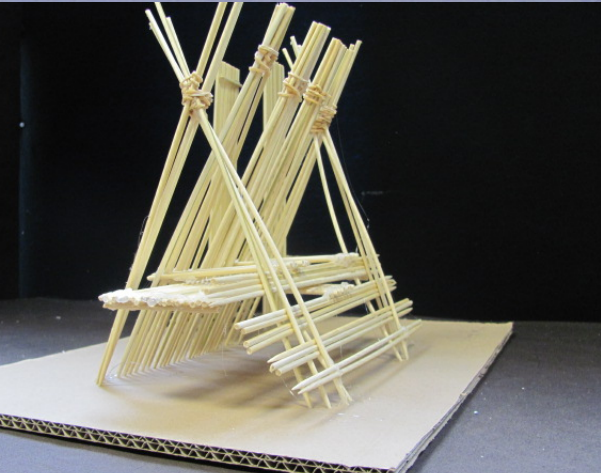
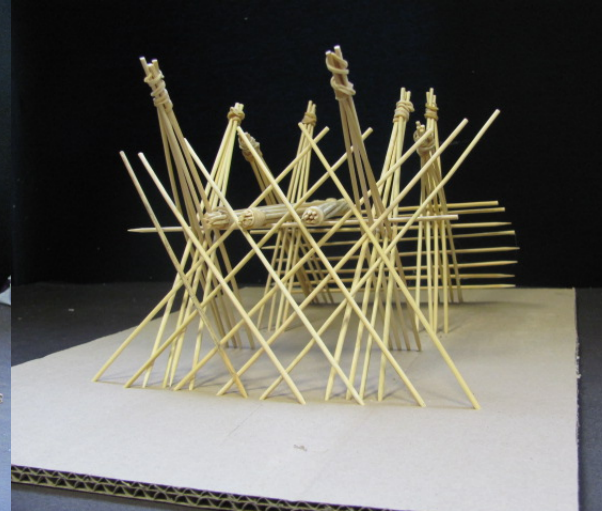
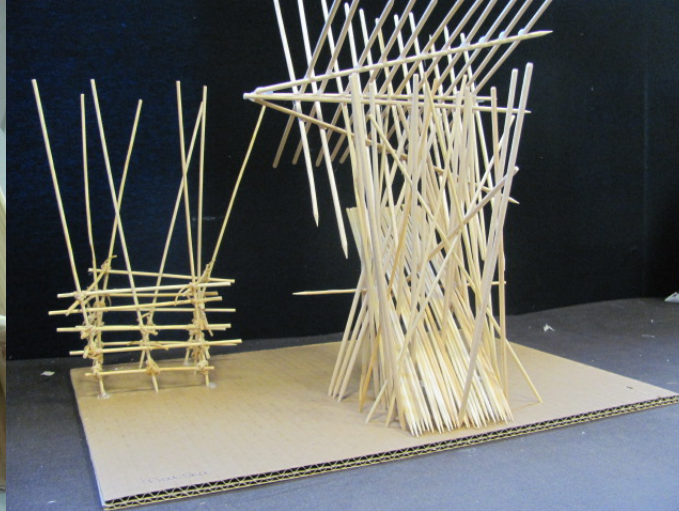
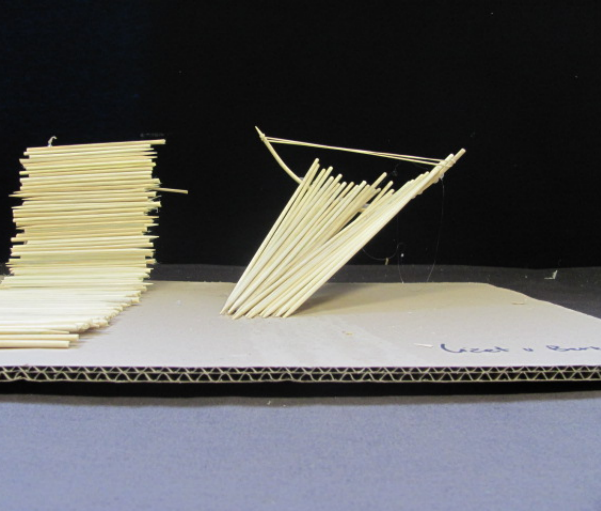
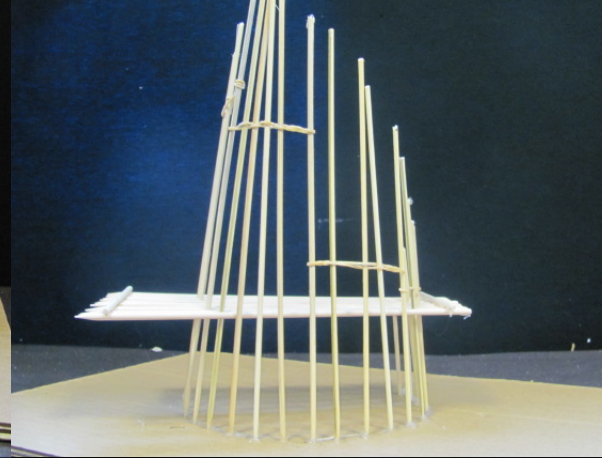
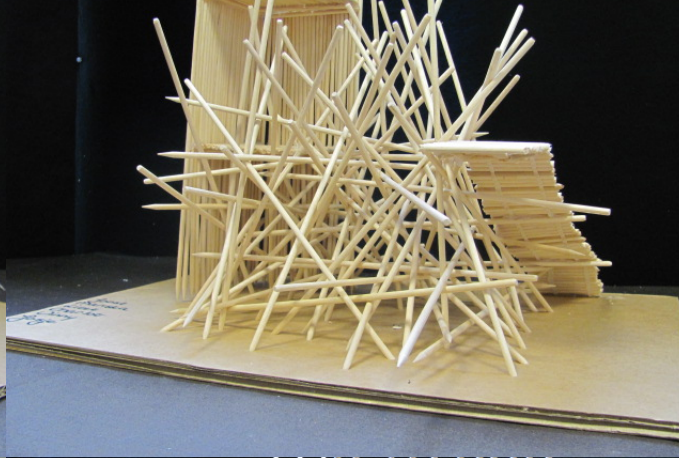
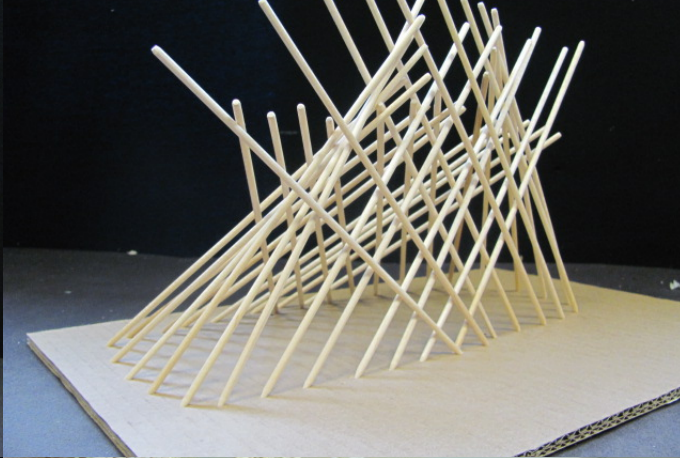
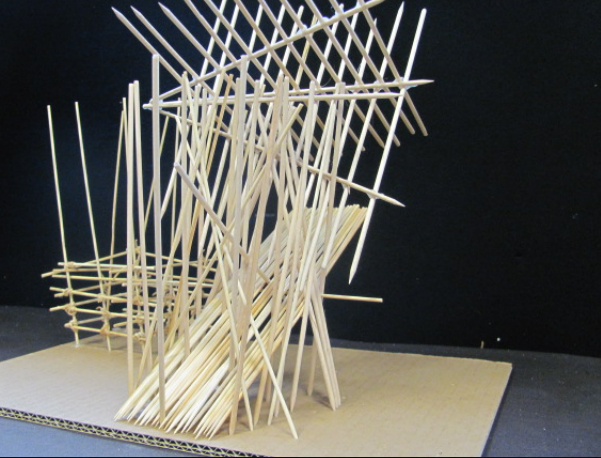
2014



Building with Bamboo

at Avans University of Applied Science

2015





Introducing Bamboo

into the education of the building engineer

- part 2 -

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