MultiWeave.

Ambitions and inspirations

Kadi Pajupuu, inventor

Pallas University of Applied Sciences,

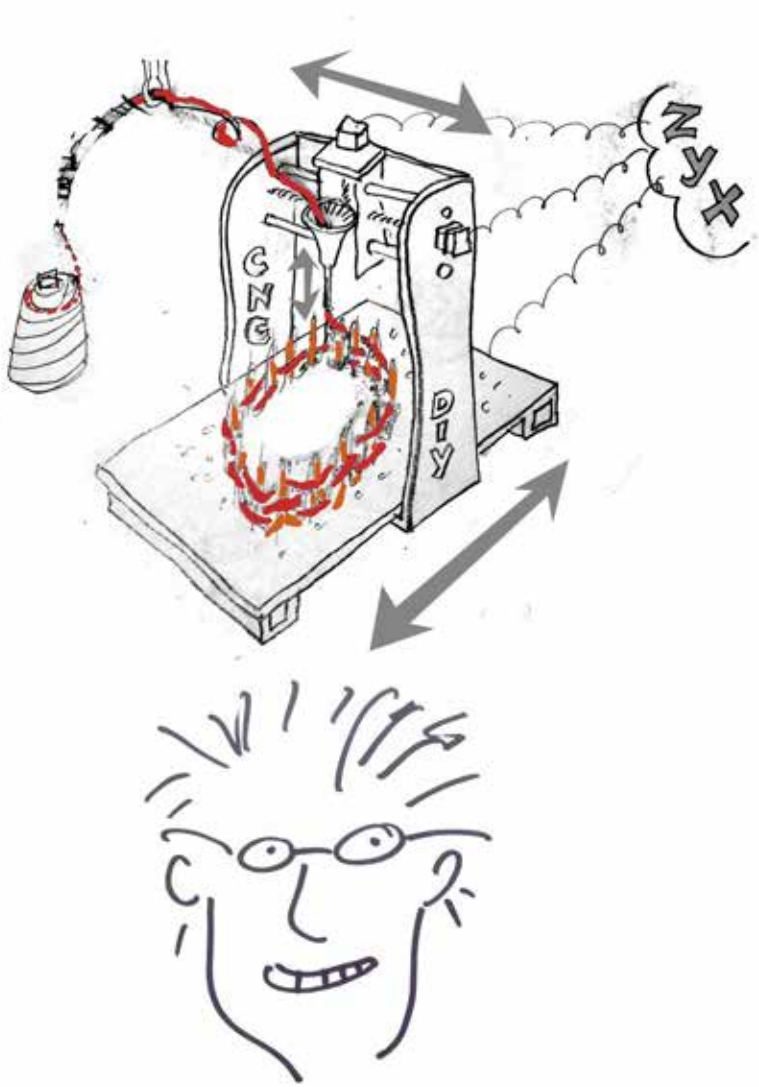
Estonia

Mindset of an inventor

Imagine it! Think and draw!

Make it!

Find the right people!

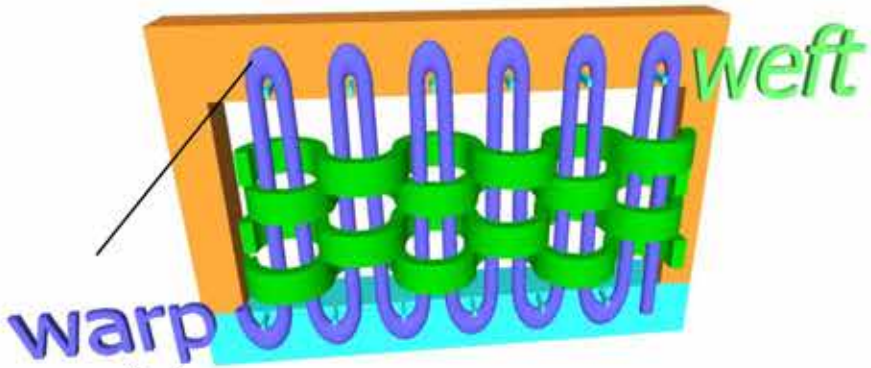


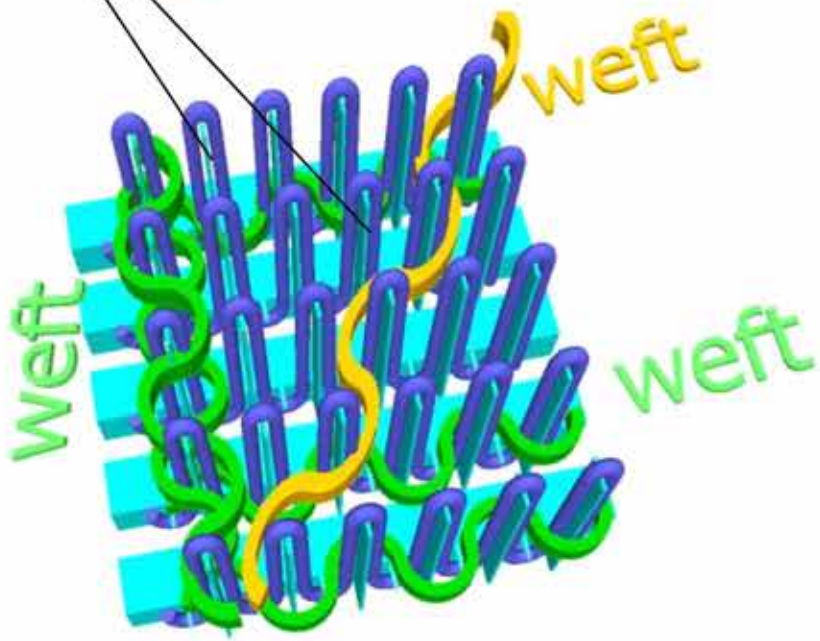
2016. Hackathon

Idea: build a 3D printer that uses yarn, no adhesives.

Pre-supported warp yarns and weft guided around and between the warps.

Traditional weaving





Multiweaving

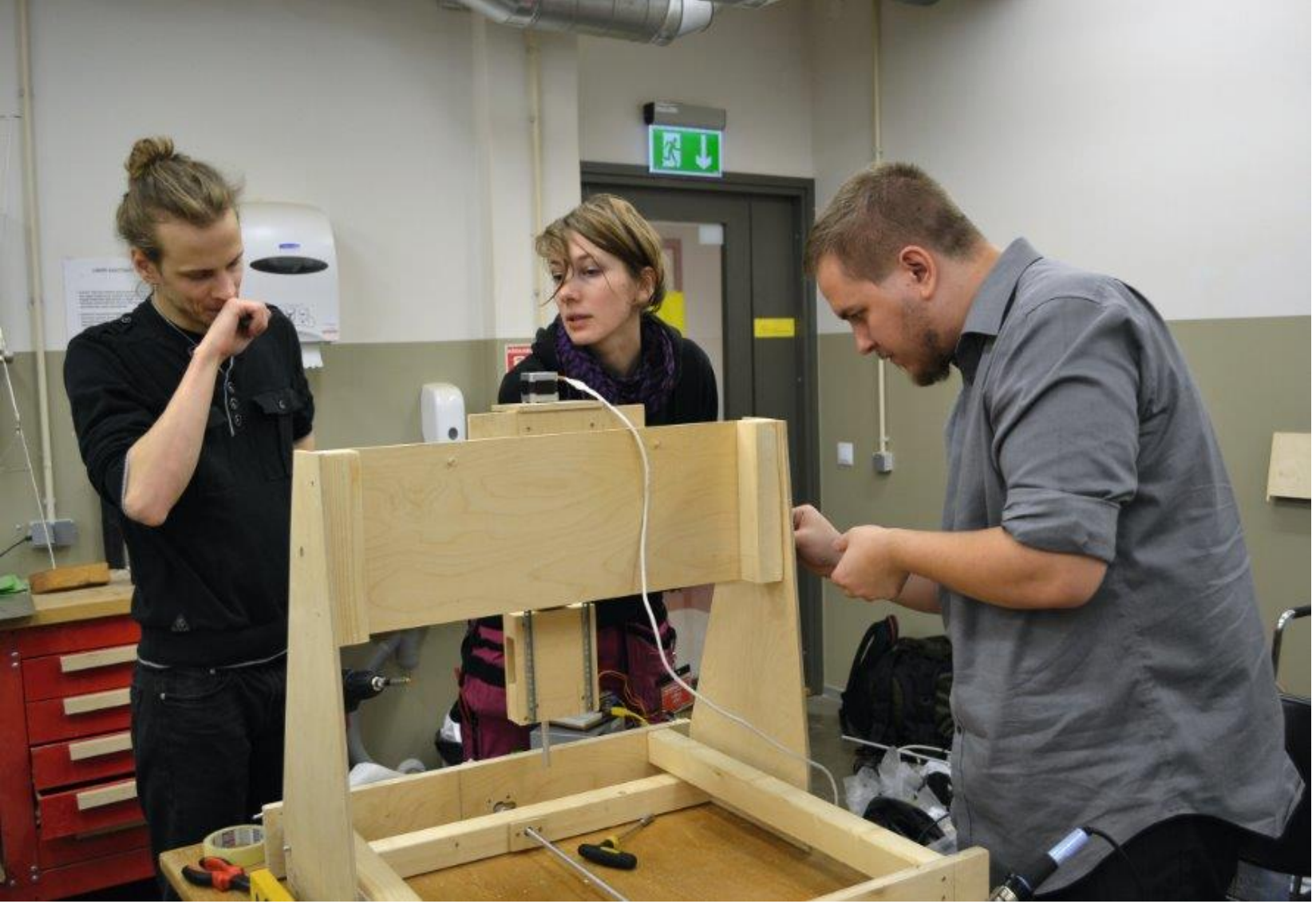
IDEA

Combining ancient with modern

Weaving + 3D printing = MultiWeaving

Method of creating material that consists of warp and weft, where weft yarn placement follows the logic of additive manufacturing.

https://doi.org/10.21428/108765d1.ea9ce1dc

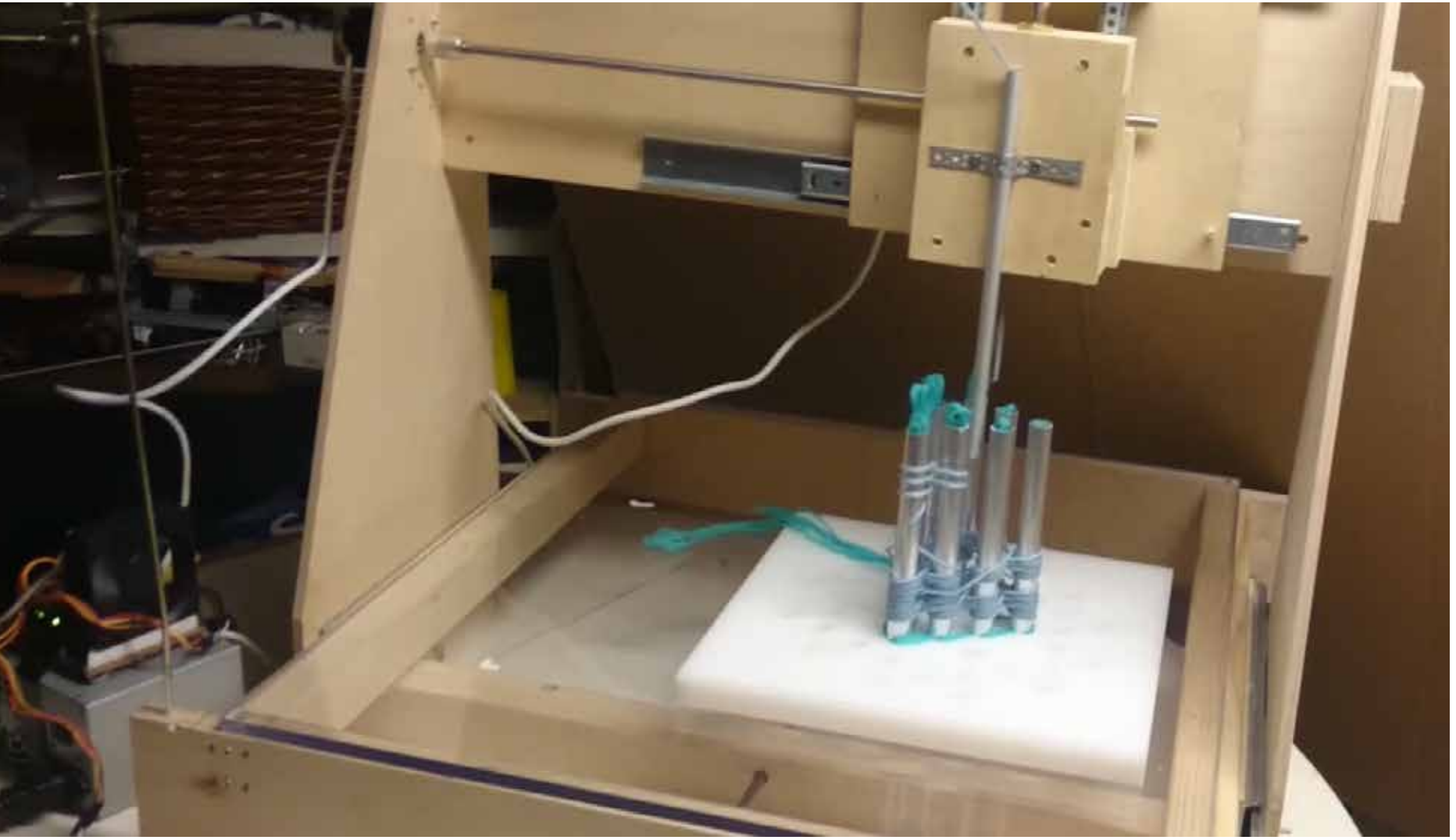


2016.
Hackathon.

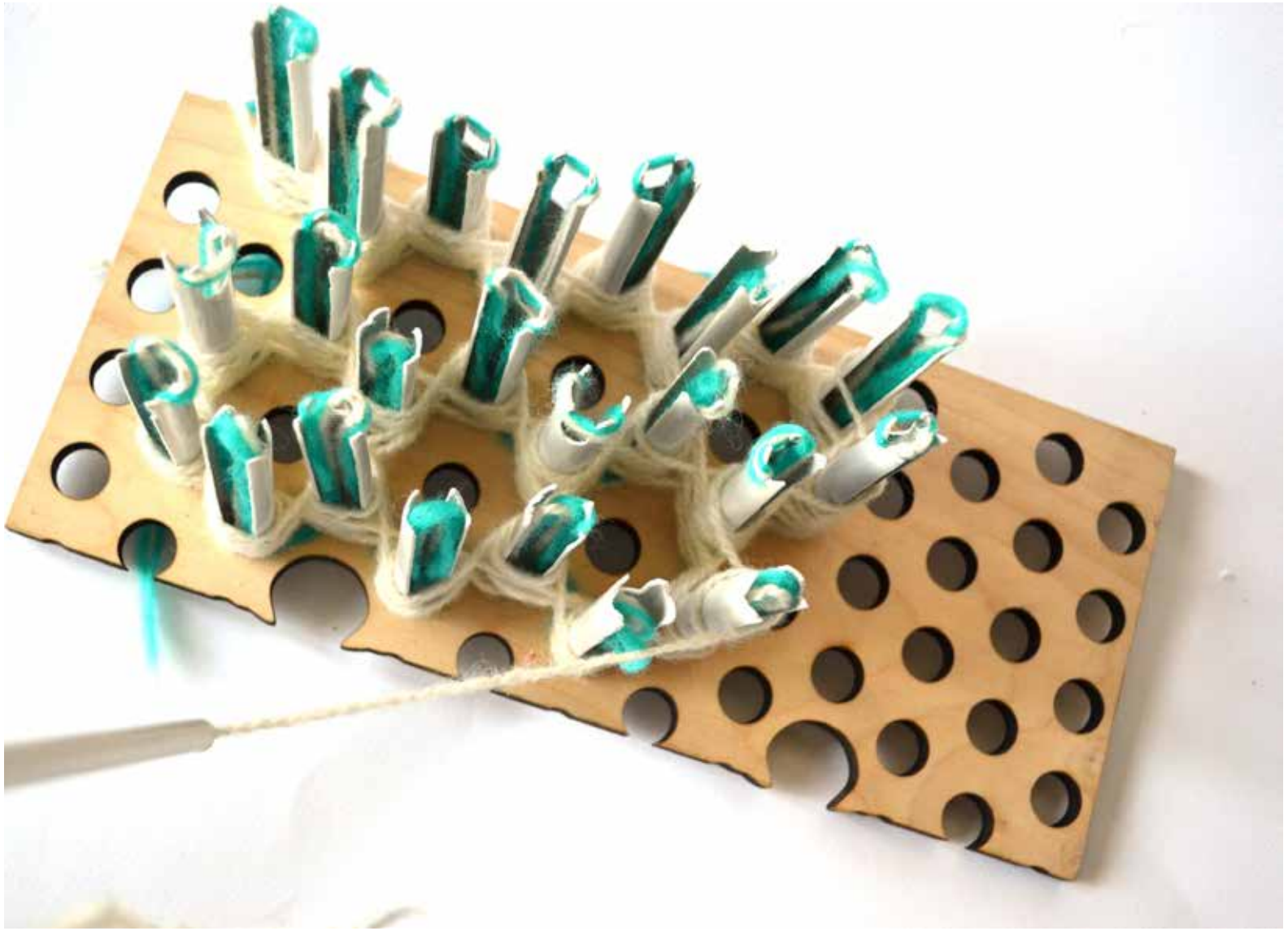
Finding the right DIY people

Oleg, Anna and Johan building the first prototype


SKEEMIPESA.EE
TTÜ MEKTORY
INNOVATION AND BUSINESS CENTRE
TehnoHack
October 21st to 23rd 2016, TALLINN
The Best
Prototype Implementation
MULTIWEAVE
Heigo Mölder
Skeemipesa
Tanel Kerstna
Skeemipesa
Kristin Rammus
Mektory



Working prototype built in 48 hours



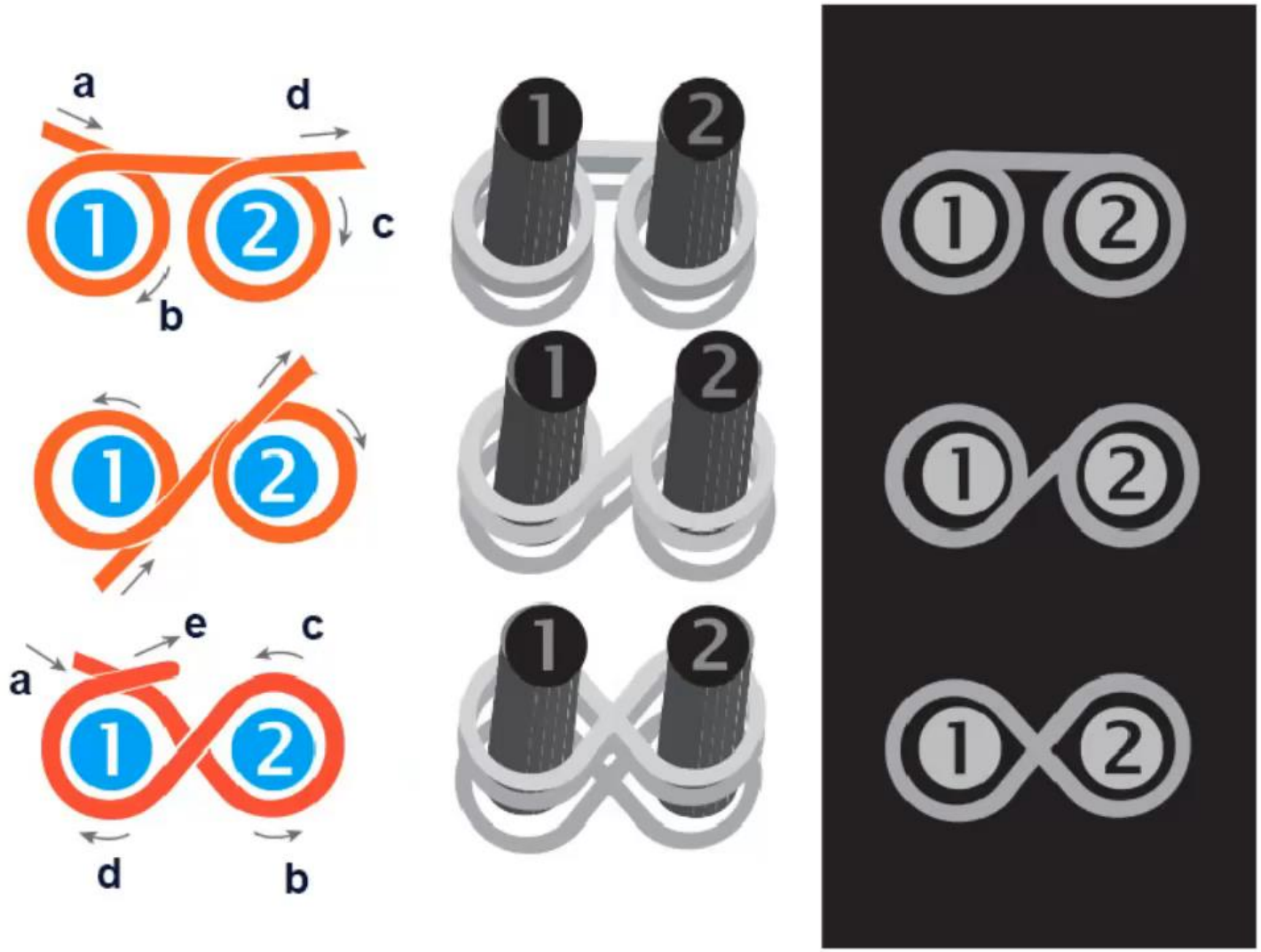
Weaving and MultiWeaving

Similar

Material consists of vertical warp and horizontal weft, material grows row by row

Different

1. How weft can be moved around warp
2. How warp rows are positioned


a
d
c
b
1
2
e
c
a
d
b
1
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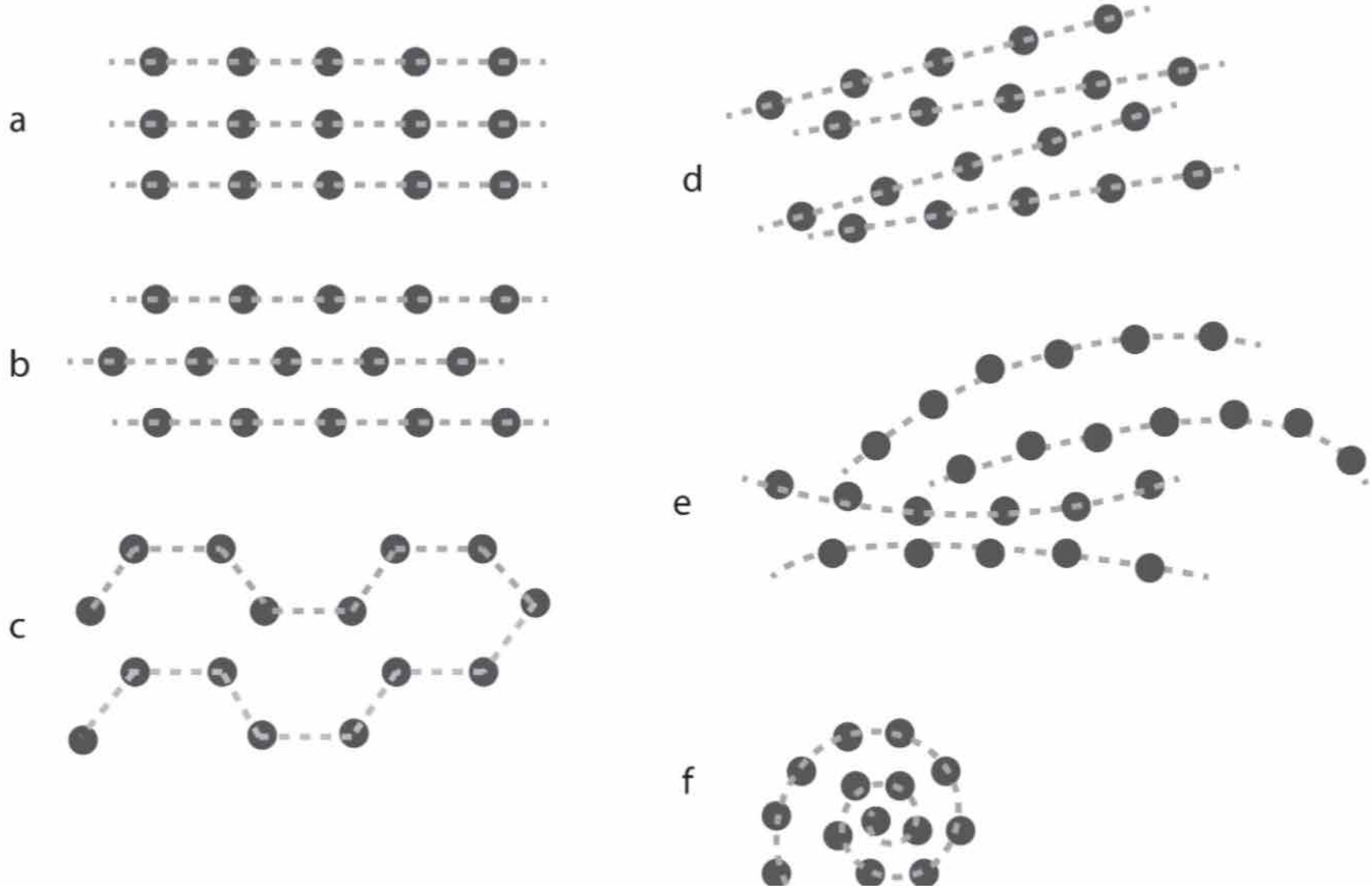
a
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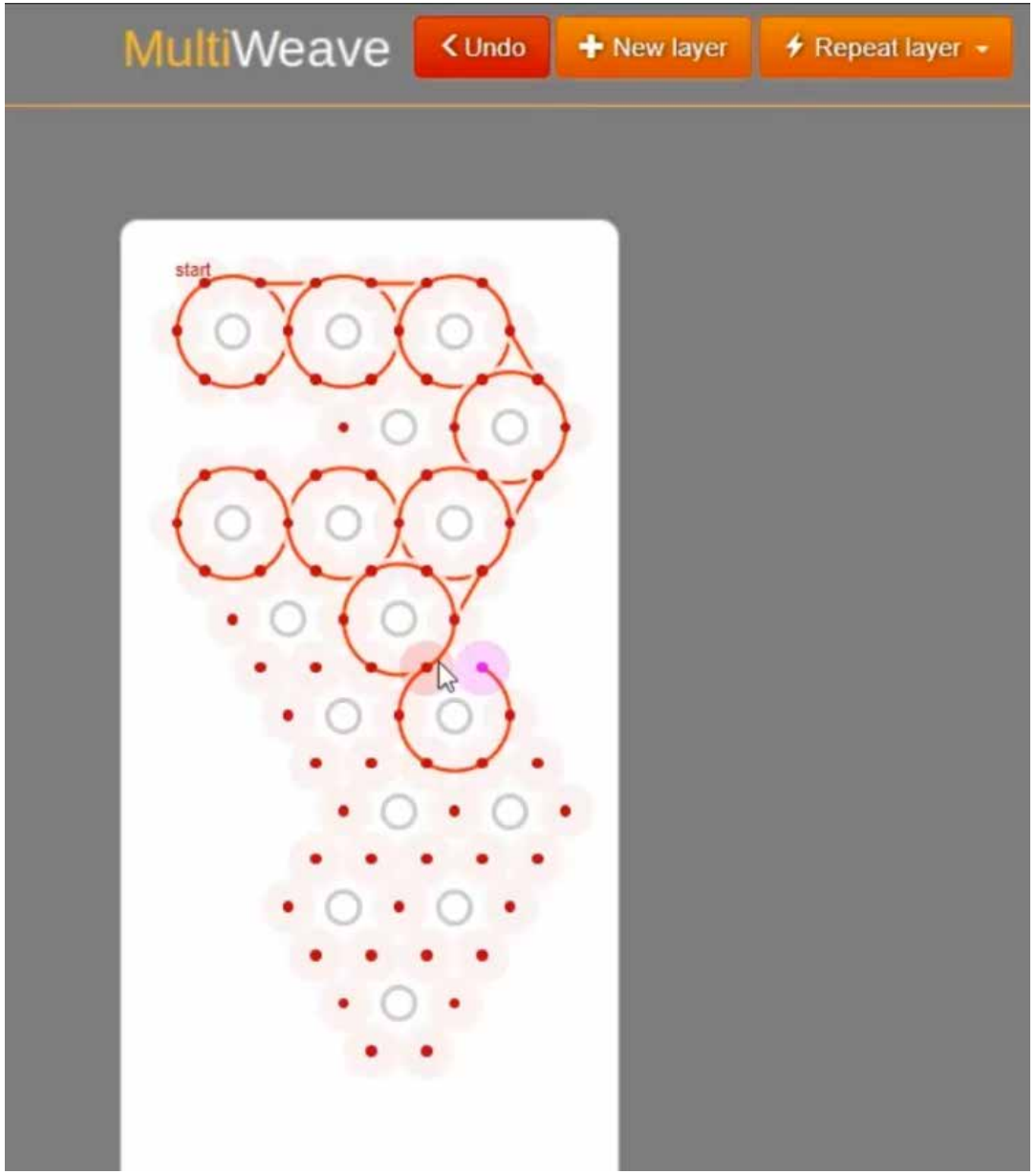
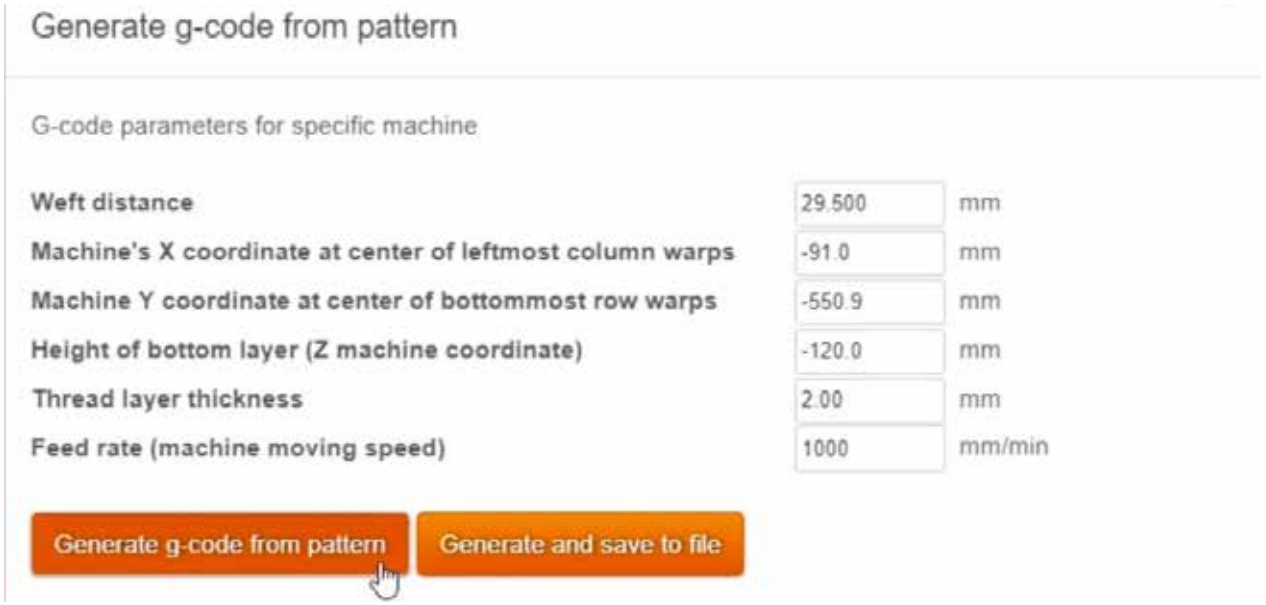


Software developed by Anna Jõgi

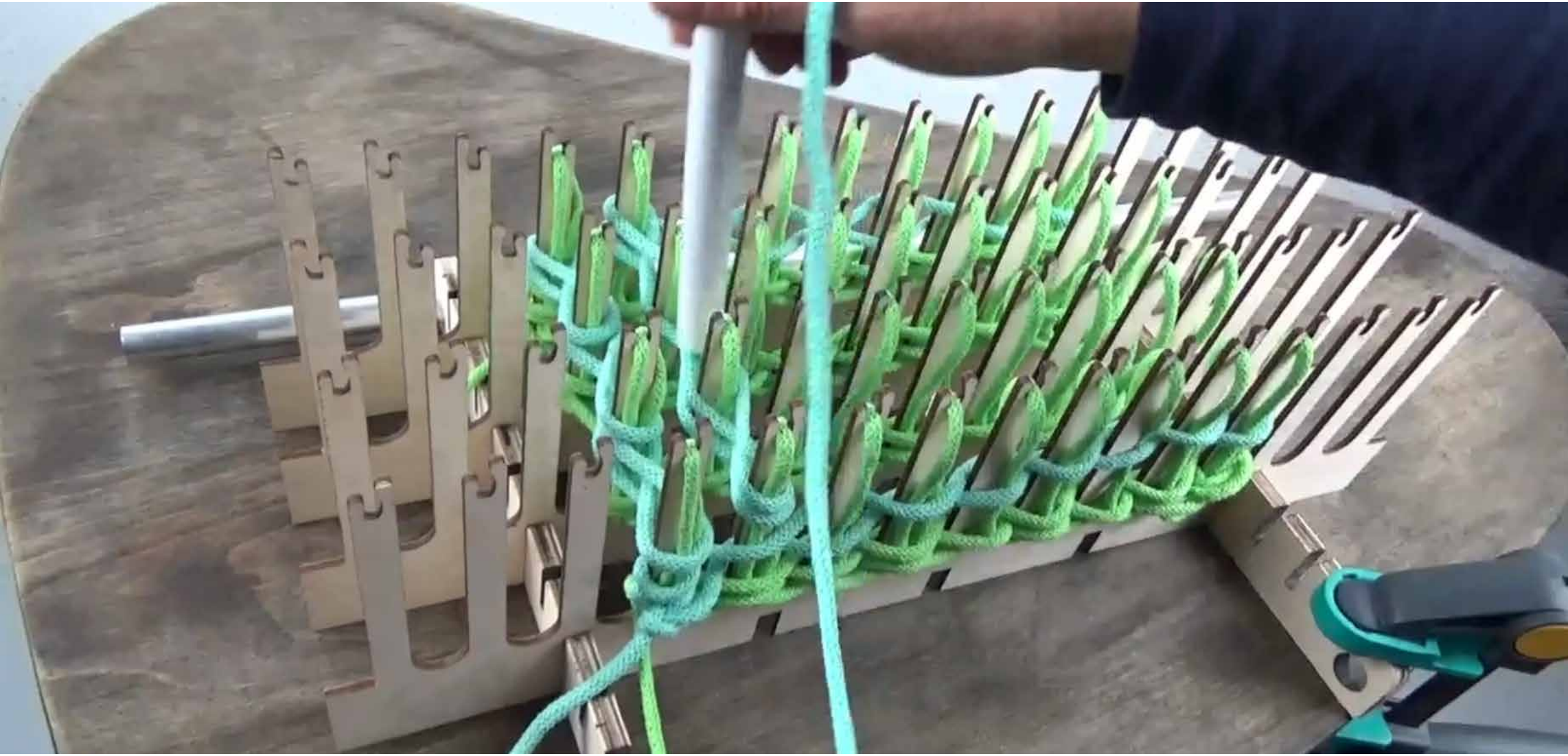


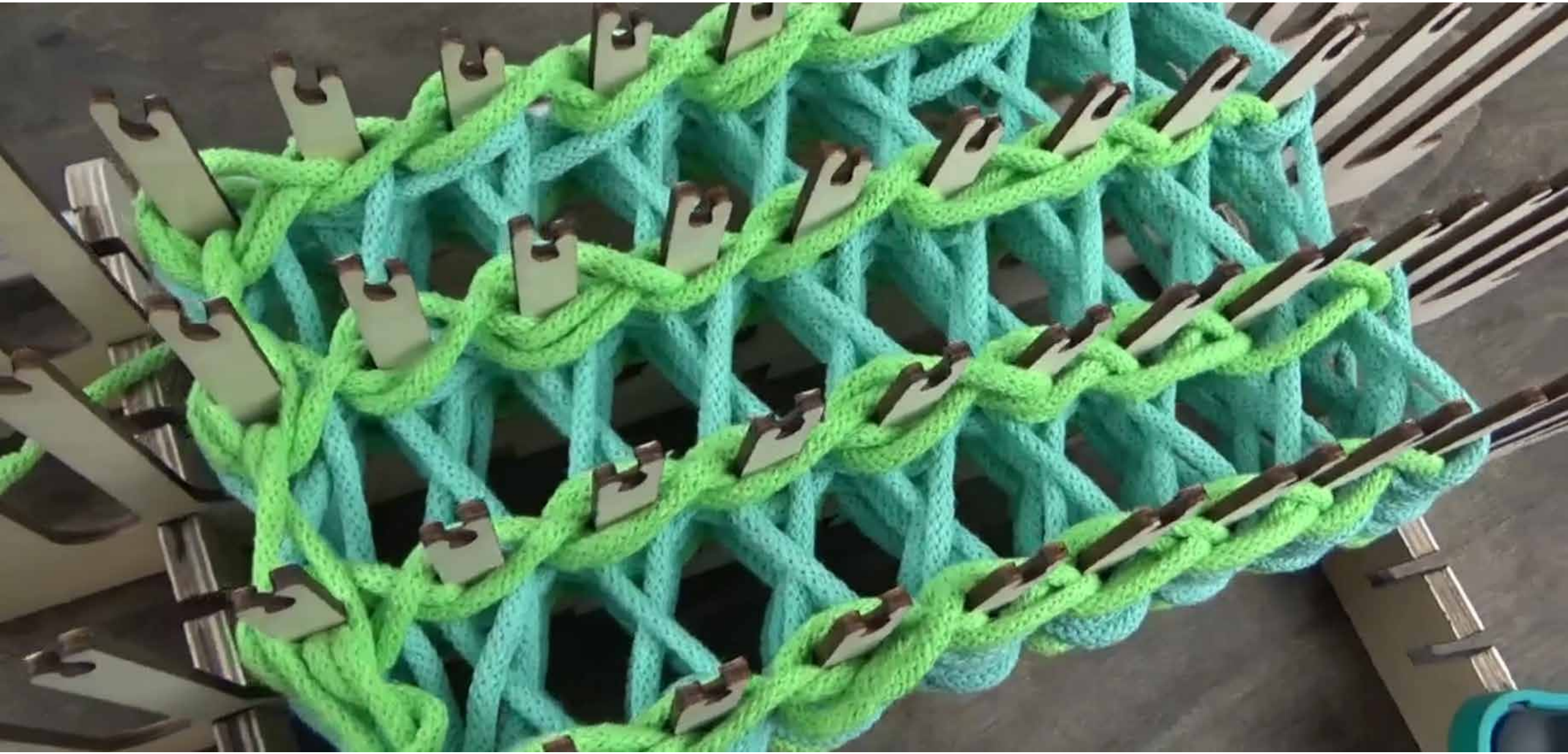
MultiWeave prototypes were built under the leadership of Anna Jõgi.

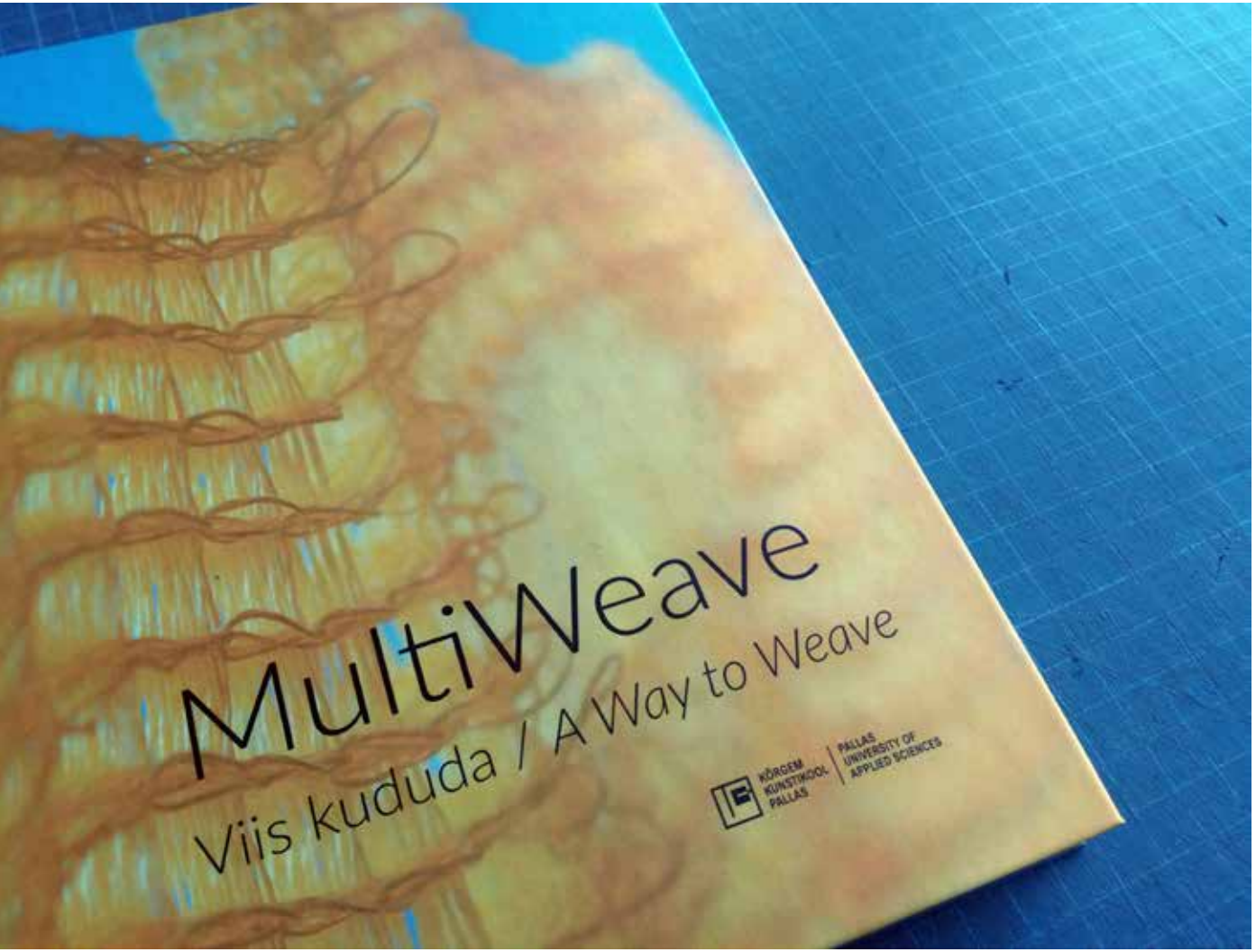
Team members were Liisu Miller, Urmas Mägi, Oleg Kalinkin, Johan Pajupuu, Taavo Lukats, Kadi Pajupuu.

Project was supported by Pallas University of Applied Sciences

MultiWeave as a craft technique







MultiWeave exhibition (2022) and book with students and invited artists from Estonia, Latvia, Sweden, Finland

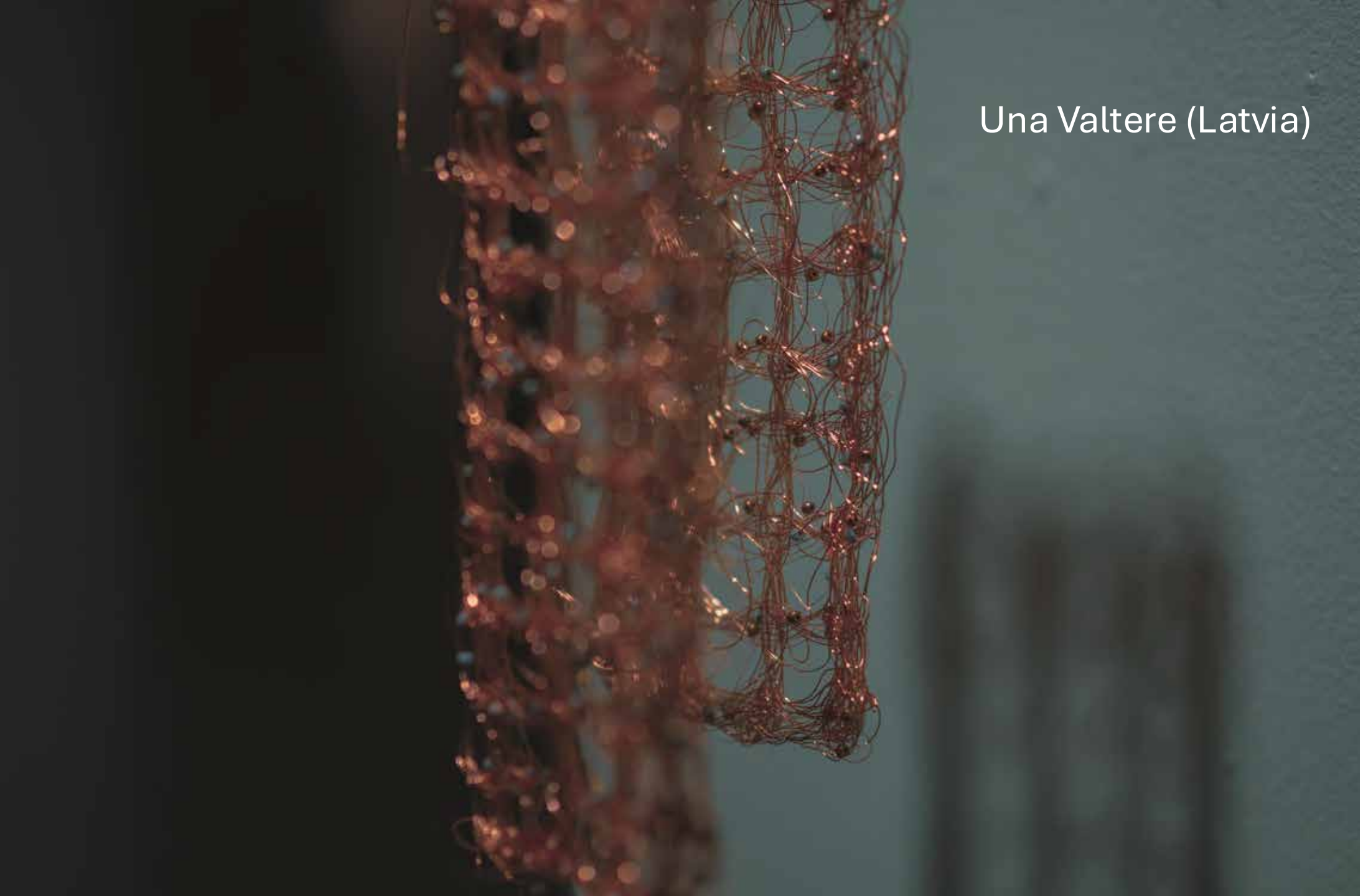
Emilia Elfvik (Sweden)

https://www.format.no/emilia-elfvik

Photo: Lisette Laanoja

Marilyn Piirsalu. @Marilyn_weaving

Arabella Lippur (Estonia)



Una Valtere (Latvia)

Anett Niine

Pallas UAS, 2022

Second hand shirts with MultiWeave structures.

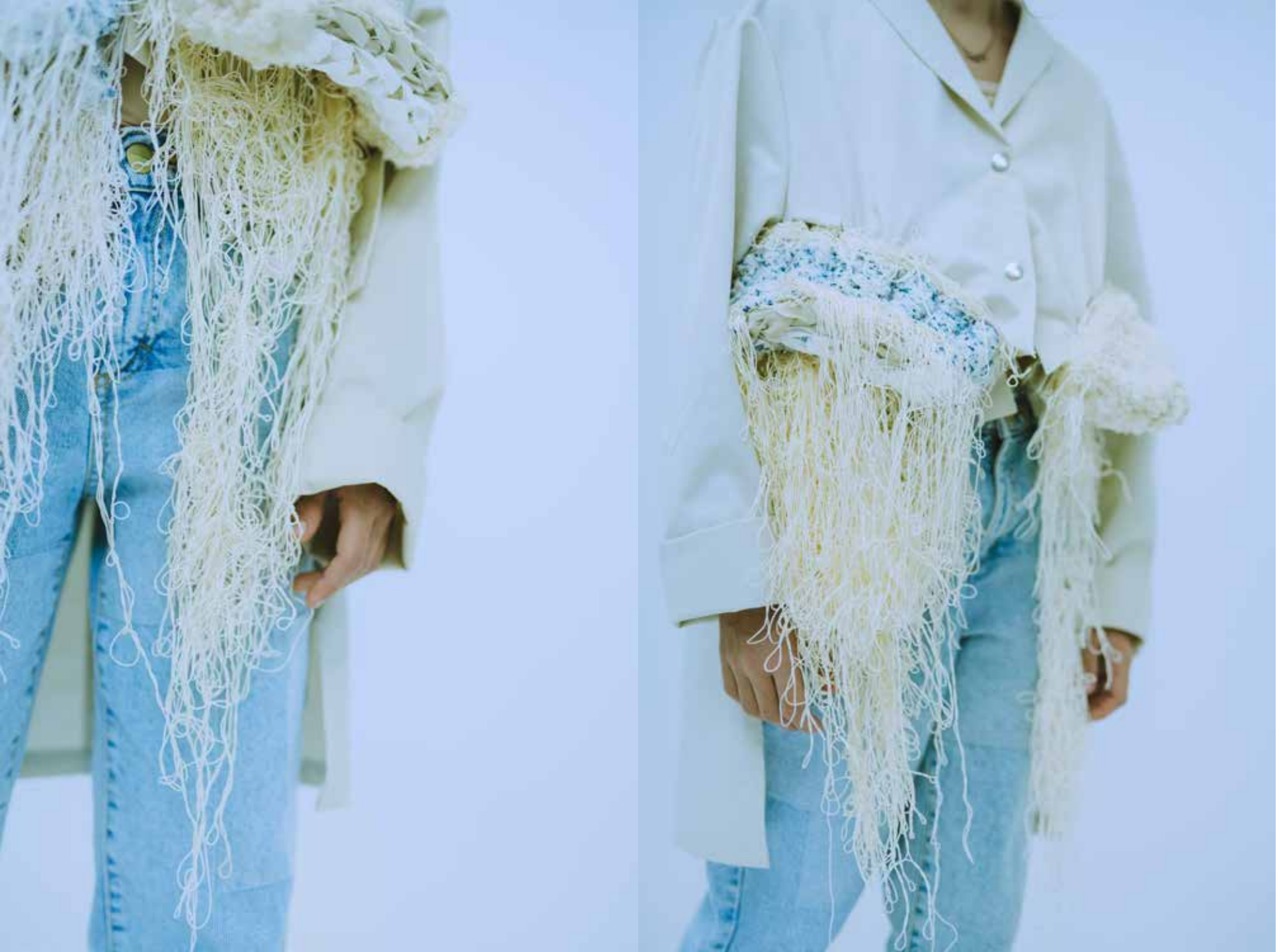
Photos Lisette Laanoja

Marilyn Piirsalu

@Marilyn_weaving

Sonja Kuznetsova

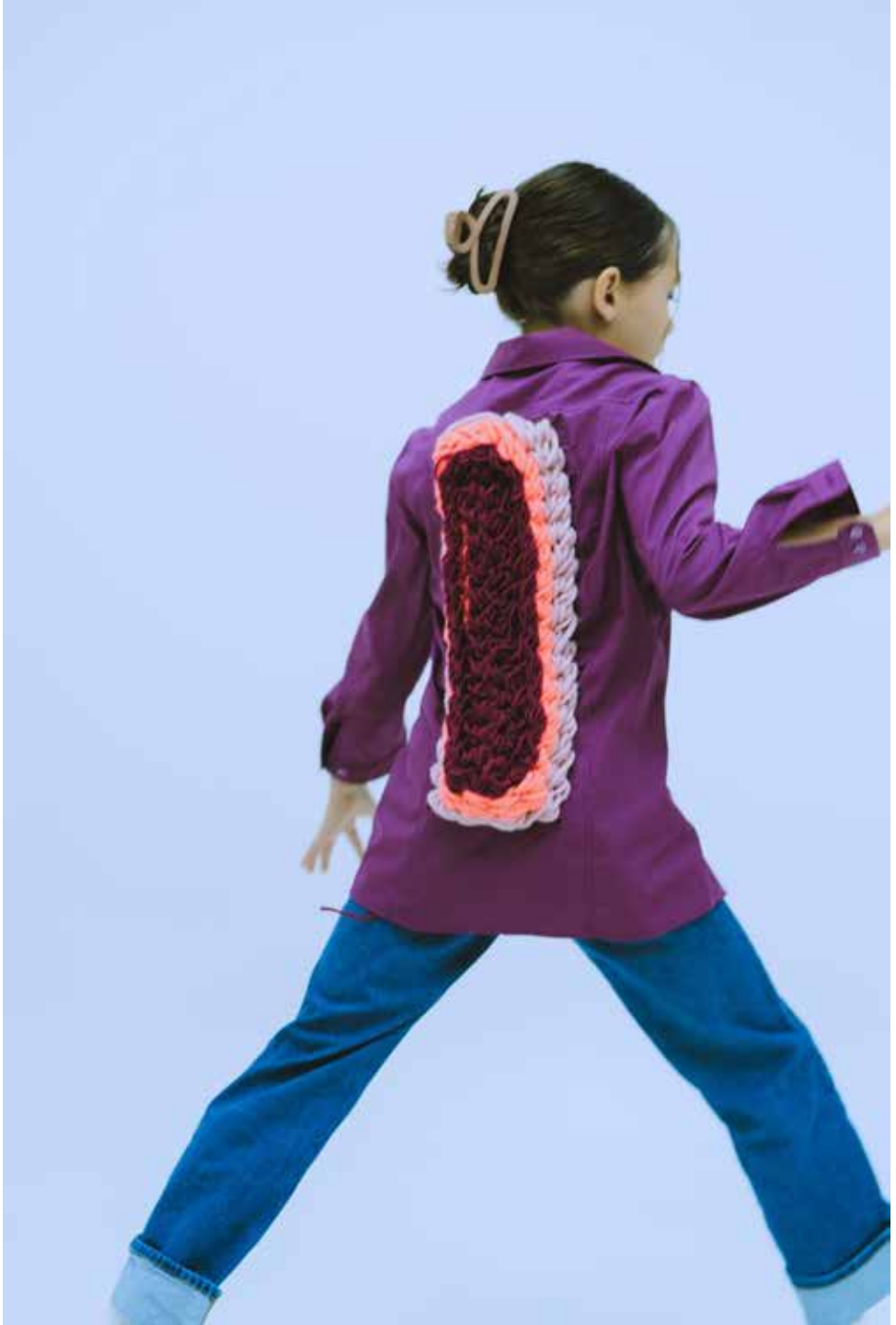
Pallas UAS, 2024



Kristiin Talviste

Pallas UAS, 2024

Janeli Liivak
Pallas UAS, 2024



Elis Privoi

Pallas UAS, 2023

Leena Isobel Pizzolante

Pallas UAS, 2023

Tiina Zukker
Pallas UAS, 2023

struktuur ja materjal, 2023
Mari Saffre
juhendaja: Kadi Pajupuu

I lihtsad aasad mööda joont, kolmurga sees topeltaasad, otstest (kus teine rida veevib) vaid üks

II tagasi veevides täidab kolmurga "taguse"

III "kuusk" täitmaks kolmnurga sisu

kudumisjärjekord:
I II III II I II III II

lõime: ca 4 m kudet: 10 m

lõimetugede kaugus üksteisest: 1–2 cm
rea peal. rida moodustab 2 sakki,
saab ka pikema reaga e rohkemate sakkidega

koe kõrgus: 7 cm

I lihtsad aasad mööda joont, kaks rida, tähtis väljapoole aasad, mitte jooksud jätta

II kaheksad laiupidi mööda sakkide otsi

III kaheksad pikkupidi mööda sakkide otsi

II ja III tekitavad suure võrgulaadse struktuuri ja on vajalikud sakilise põhistruktuuri säilitamiseks

kudumisjärjekord:
I II I III I II I III

lõime: 10 m kudet: 30–40 m

lõimetugede kaugus üksteisest: 1–2 cm
rea peal, 4 rida 2 sakki

koe kõrgus: 4–5 cm

TÖÖVAHEND JA MATERJALID

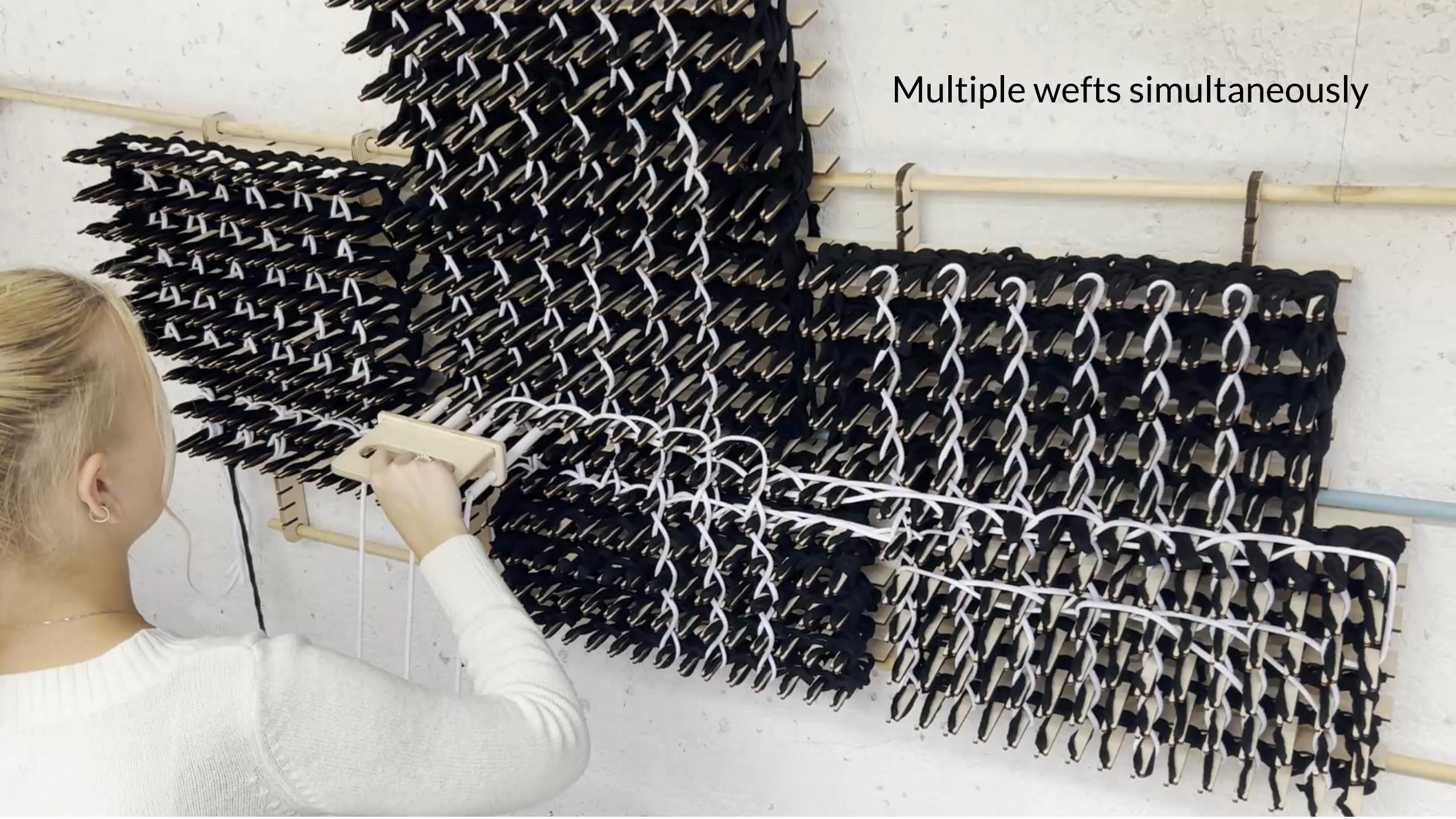
Töövahend on valmistatud kihtplastikust ja grilltikkudest, mis on teibitud. Kudumisel abivahendiks plasttoru.

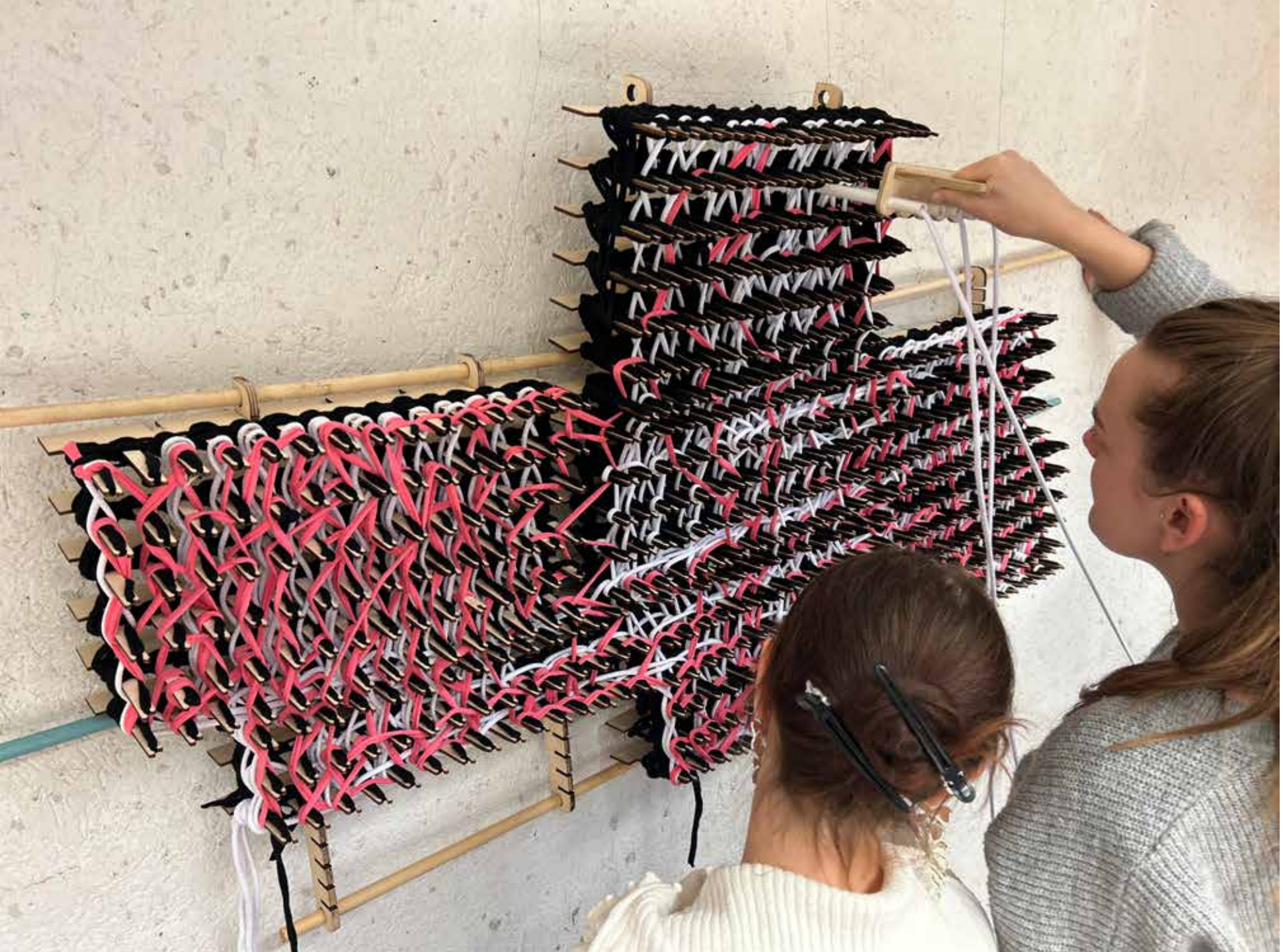
On võimalik kasutada eraldi reana või kahe risti läbi torgatud grilltiku abil mitu rida koos.

Kudumisel on lõimeks villa- ja akrüülisegune lõng, koeks lambavillane heie. Detaili kaunistused sünteetilisest köiest. Struktuuri katsetamiseks kasutatud mõlemaks pakse sünteetilisi nööre.

Mari Saffre

Pallas UAS, 2023

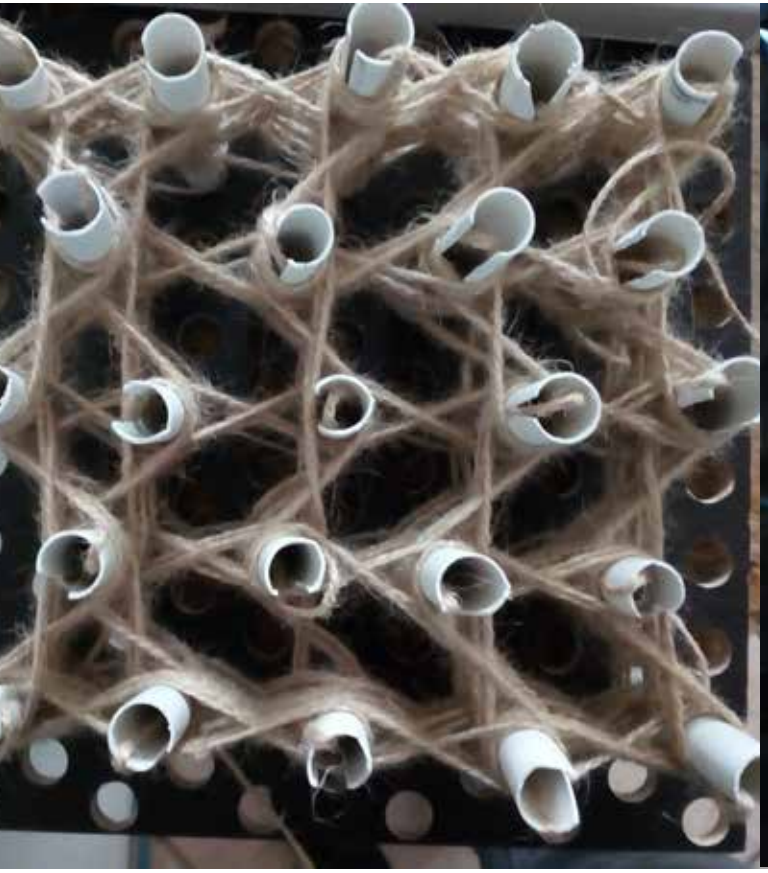

Multiple wefts simultaneously



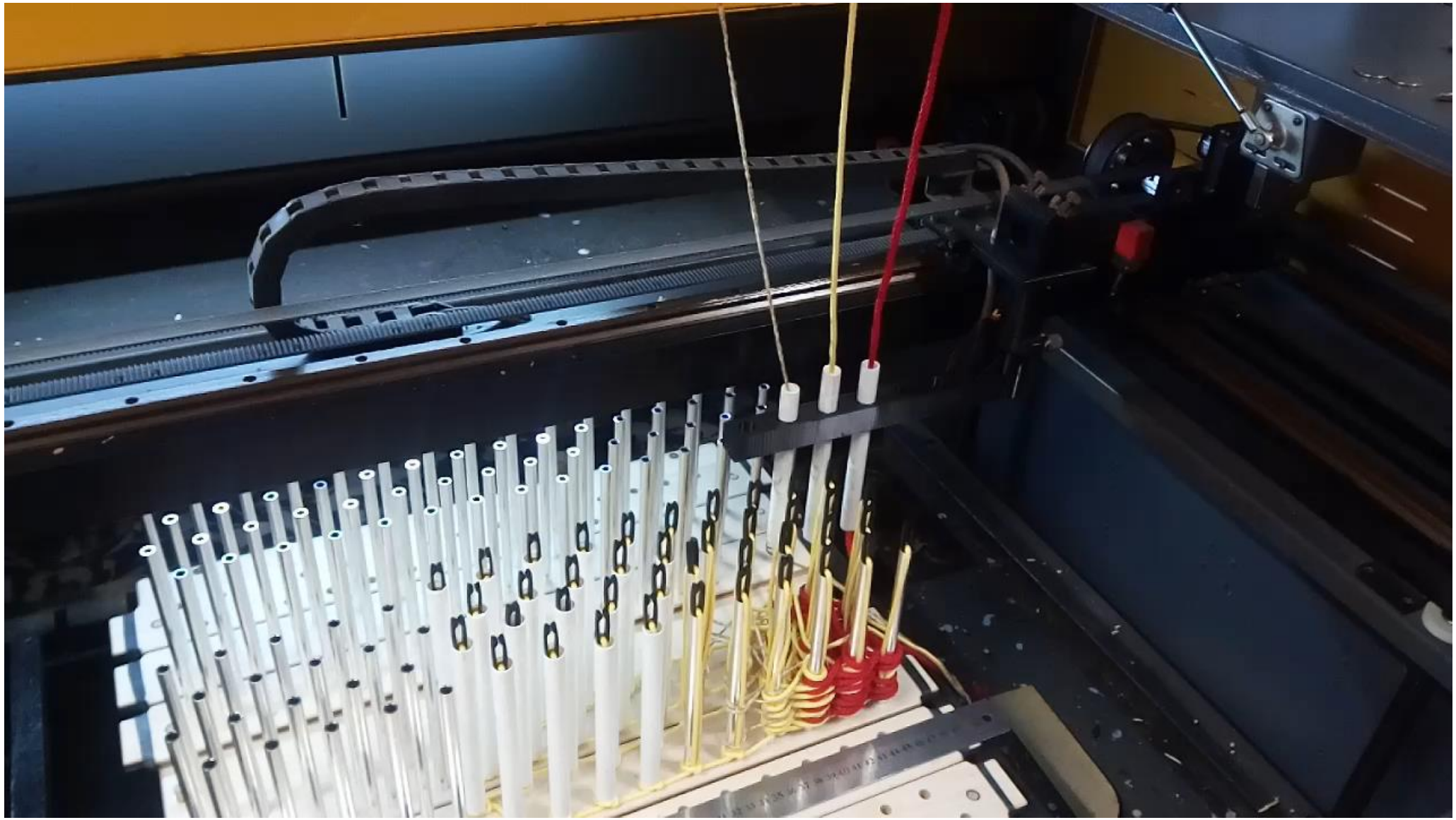
MultiWeaving was done by students Christina Kasesalu, Liisi Tasso, Sigre Kodasma, Hanna-Maria Org, Grete Käärma

Marilyn Piirsalu, 2022

Svea Tisell (Sweden)
@sveatisell



Project Growth and Decay, Pallas UAS, 2018



Video about using laser cutter as weft placer. Rasmus Eist, 2023

WHEN MONEY ENDS ask questions

How it is made.....Who gets inspired..... Where to

BY THE MACHINE

Challenge to find technical solutions
Production speed
Expensive

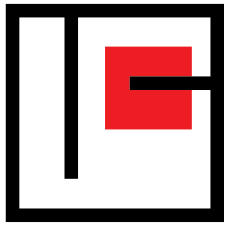
BY HAND

Easy to learn
Tools cheap to make
Variations of 3D structure
International cooperation

ENGINEER
INVENTOR
ARTIST
DESIGNER
TEACHER
...

Geotextiles
Military
Constructions
Acoustics

Art
Fashion
Interior design
Education



MultiWeave is the project of Pallas University of Applied Sciences.

We are open to cooperation!

kadi.pajupuu@pallasart.ee