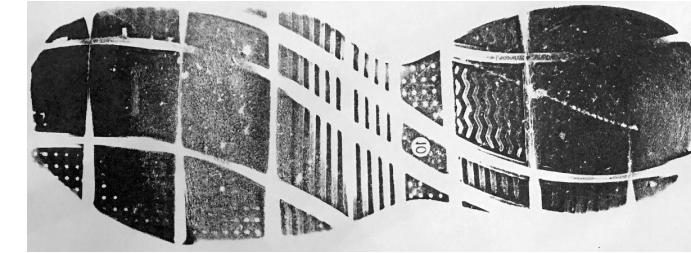
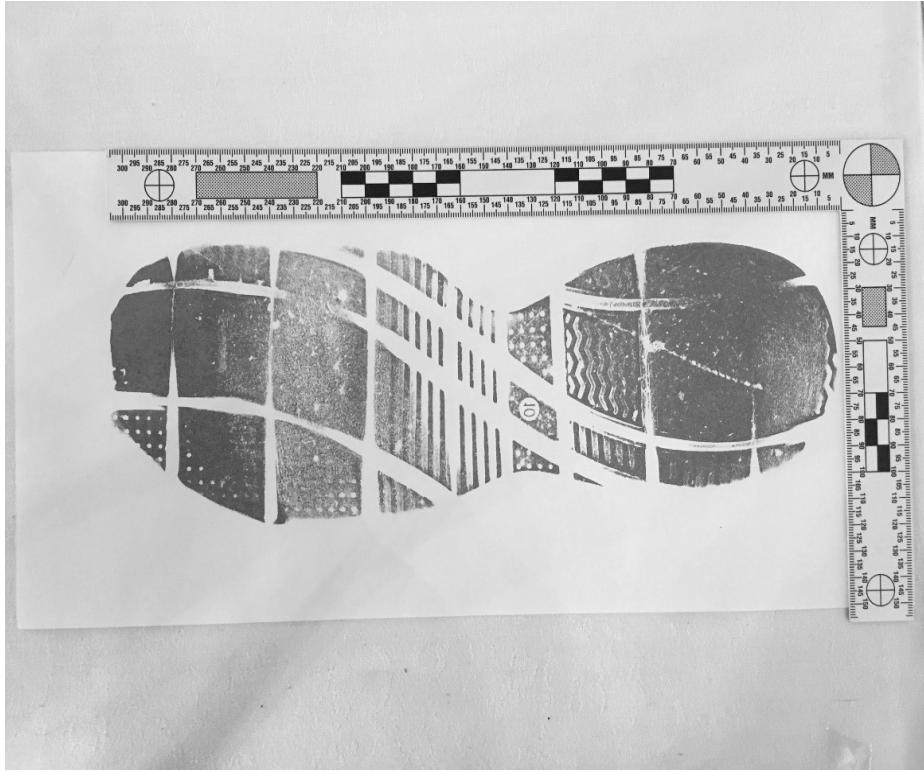


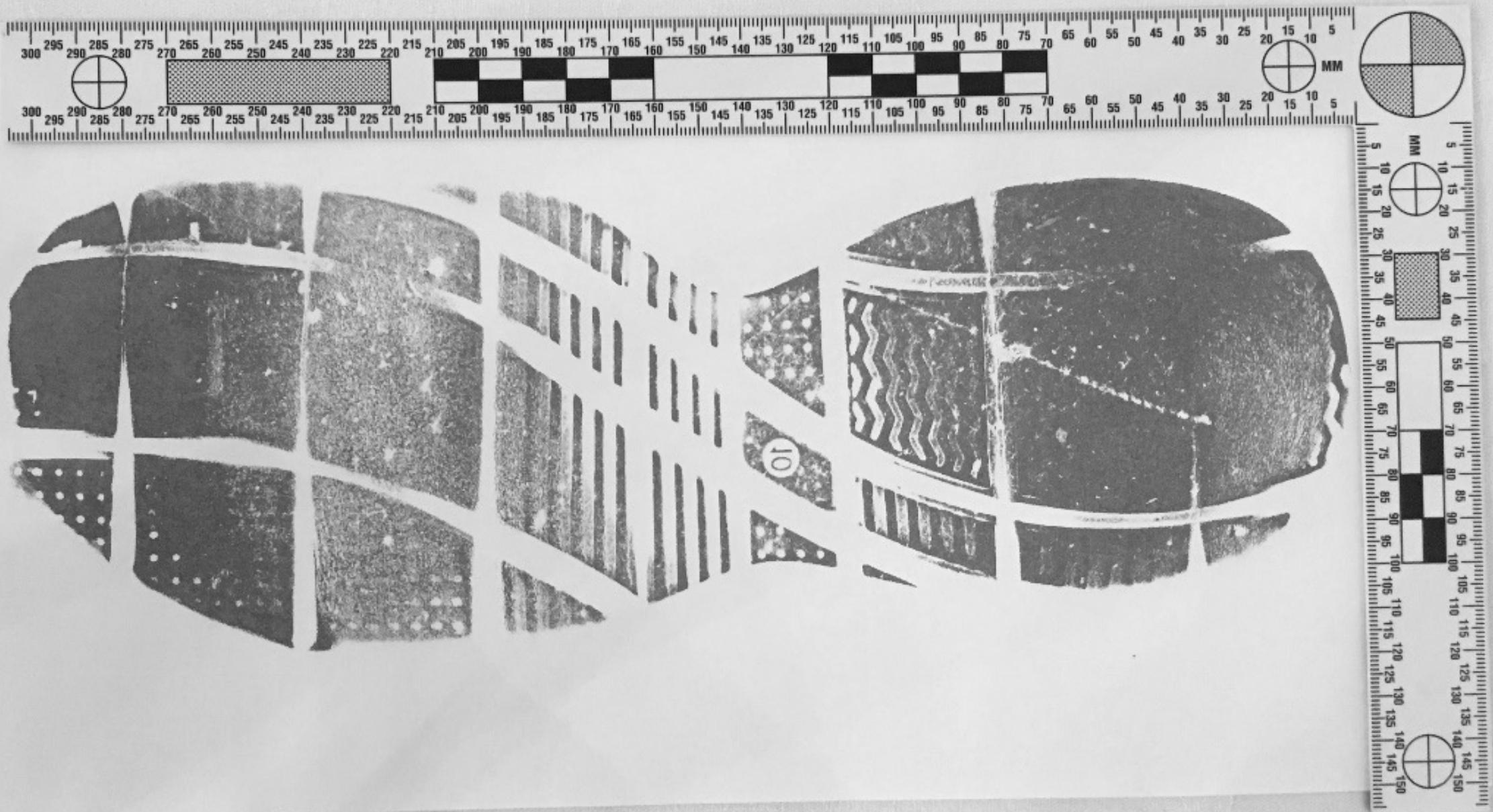
Footwear Marks Task

Junfan Huang



Footwear marks
can speak





What we can do

- Shoes classification
- Individual characteristics extraction
- Analyse the age of the shoes
- Estimate the height
- ...

Height estimation from foot and shoeprint length

Men (*metric system*):

$$\text{Height (cm)} = 3.447 \times \text{foot length (cm)} + 82.206$$

Sample size = 6682

Mean height (cm) = 174.516

Standard deviation of height (cm): 6.610

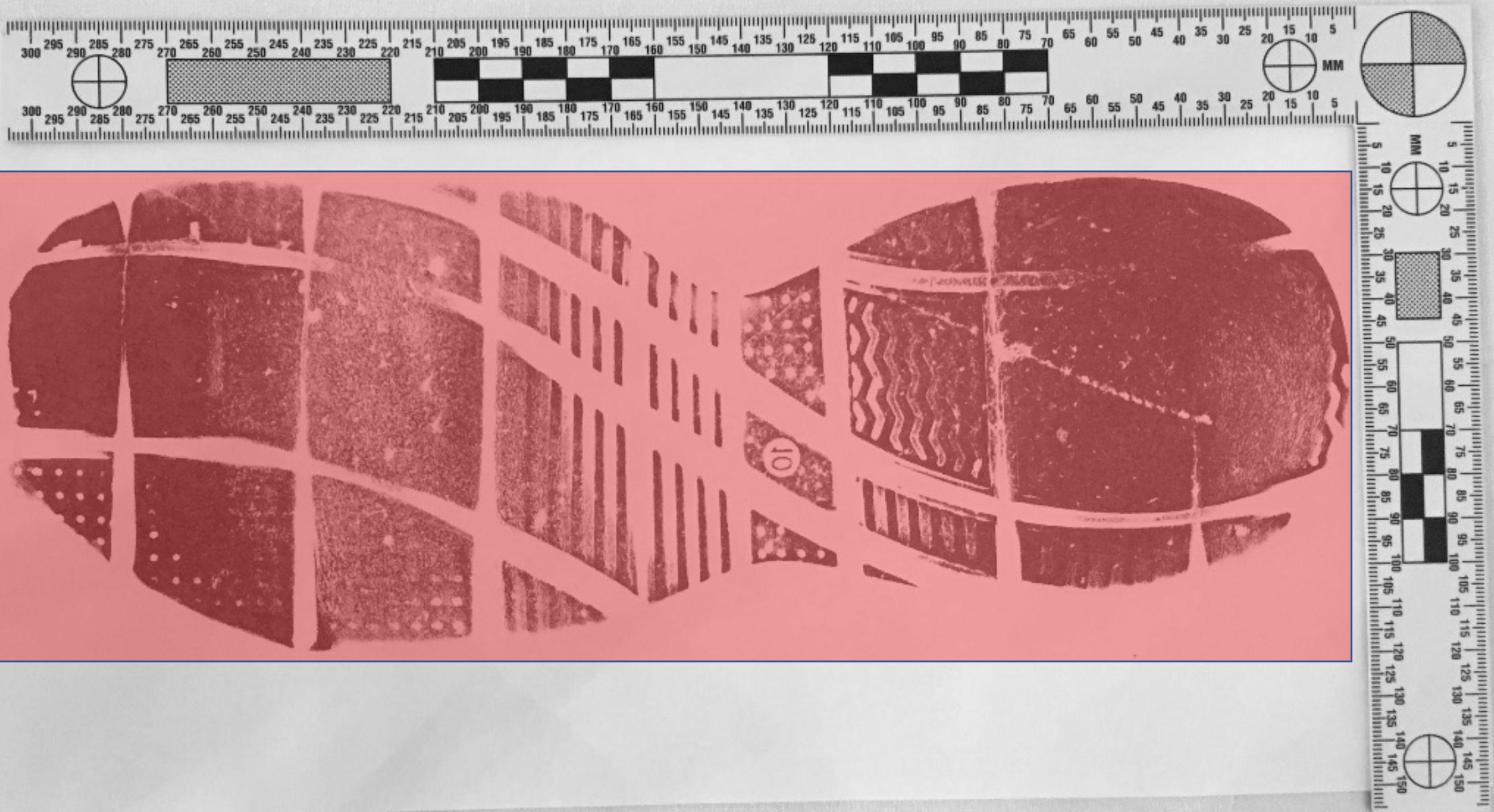
Women (*Metric system*):

$$\text{Height (cm)} = 3.614 \times \text{foot length (cm)} + 75.065$$

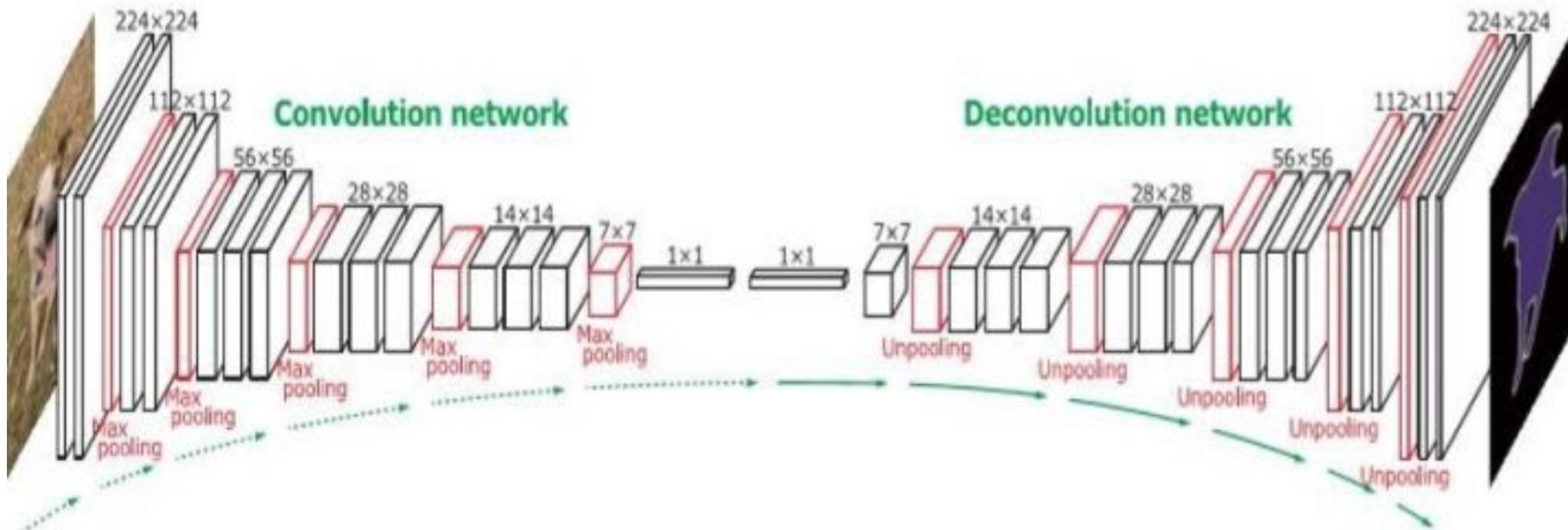
Sample size = 1330

Mean height (cm) = 162.951

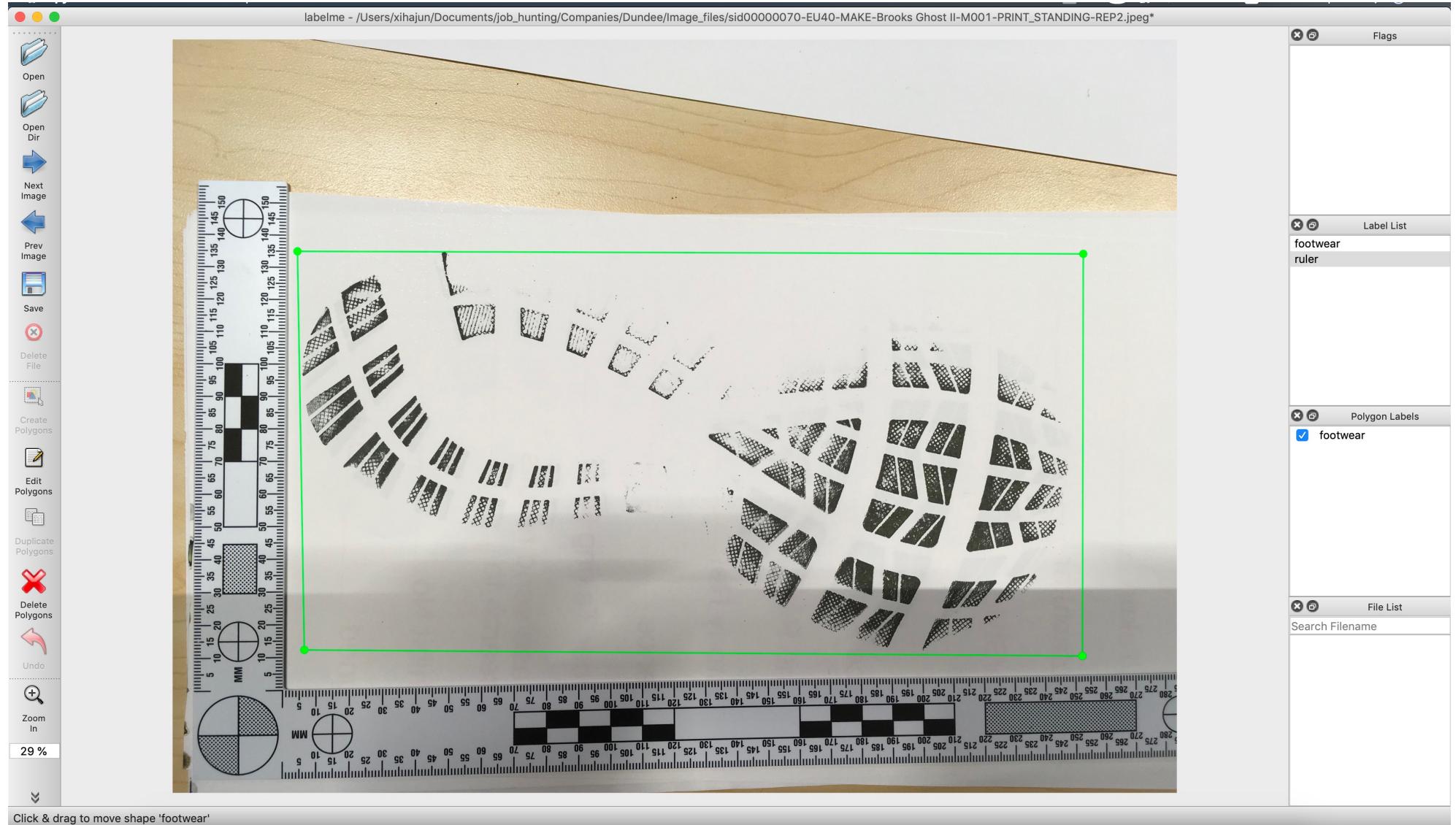
Standard deviation of height (cm): 6.520

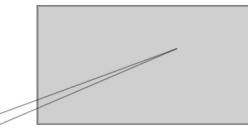
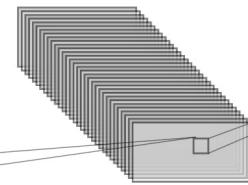
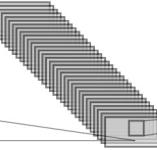
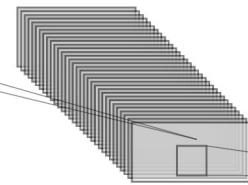
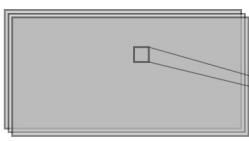
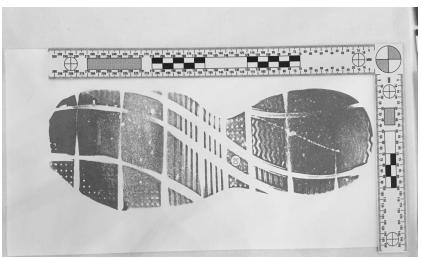


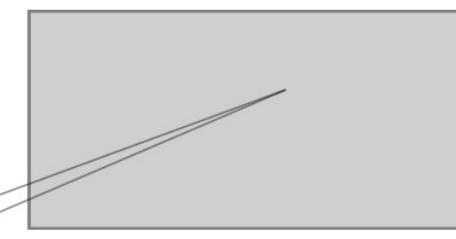
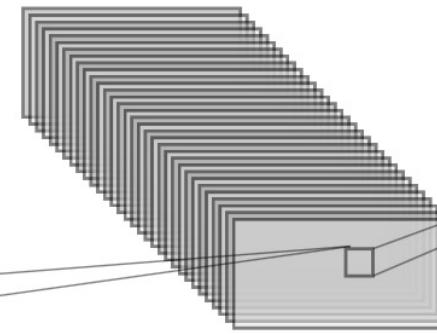
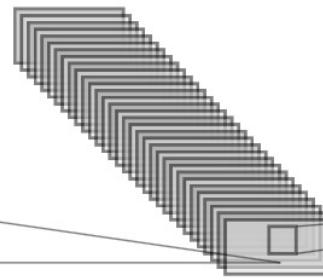
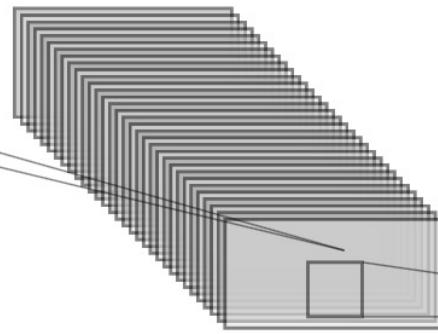
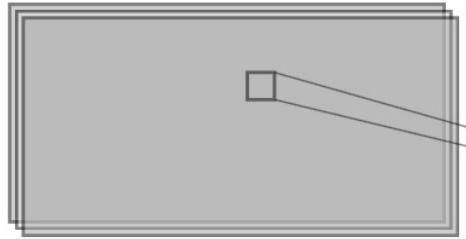
Autoencoder



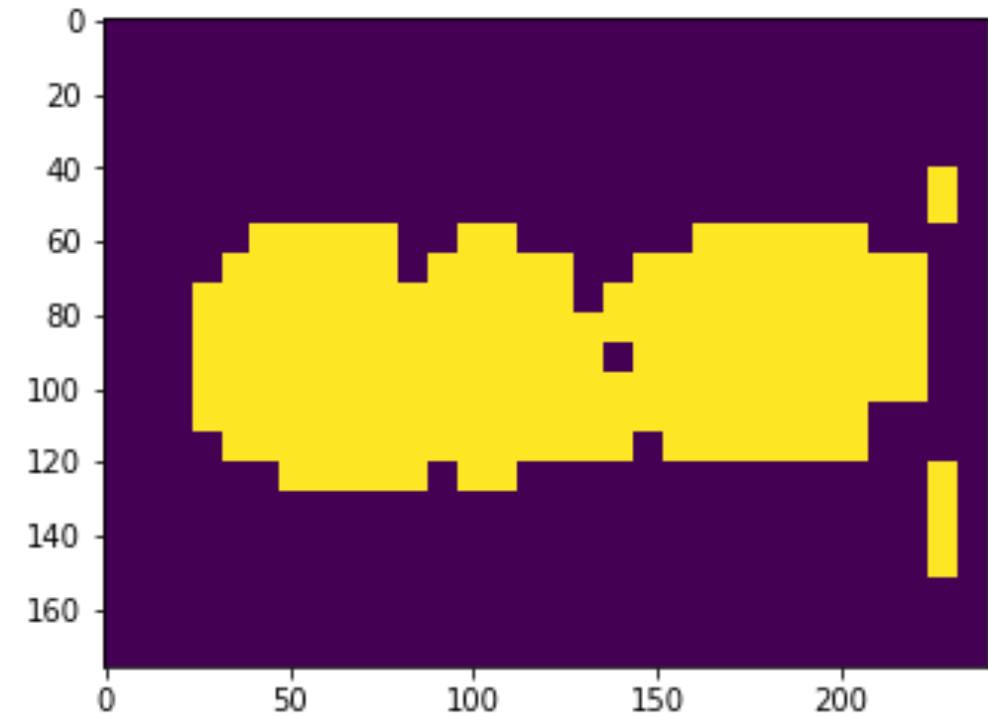
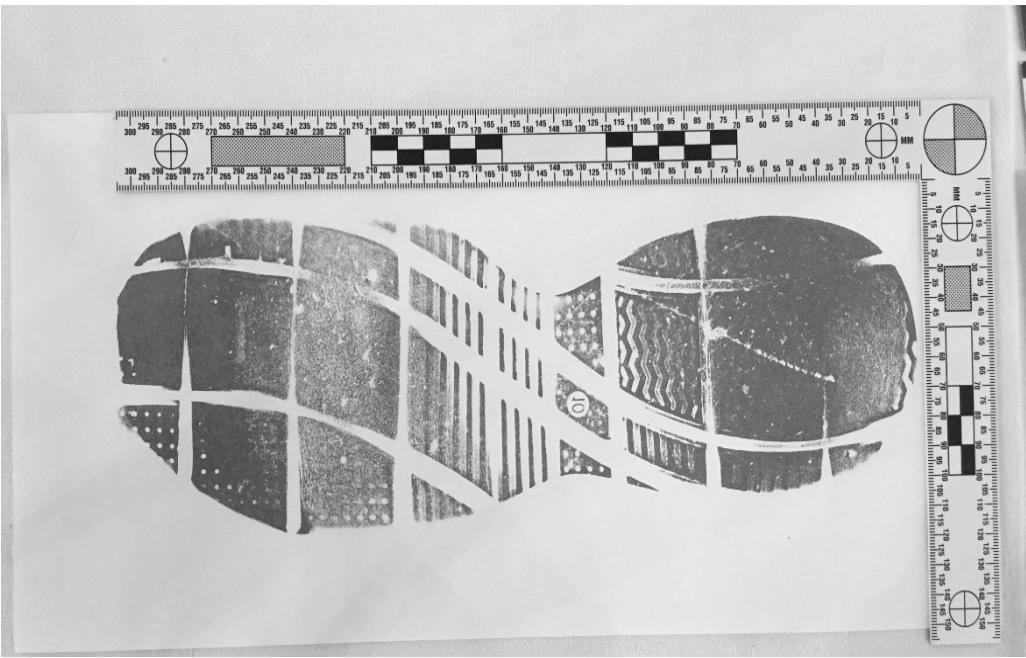
Labelme

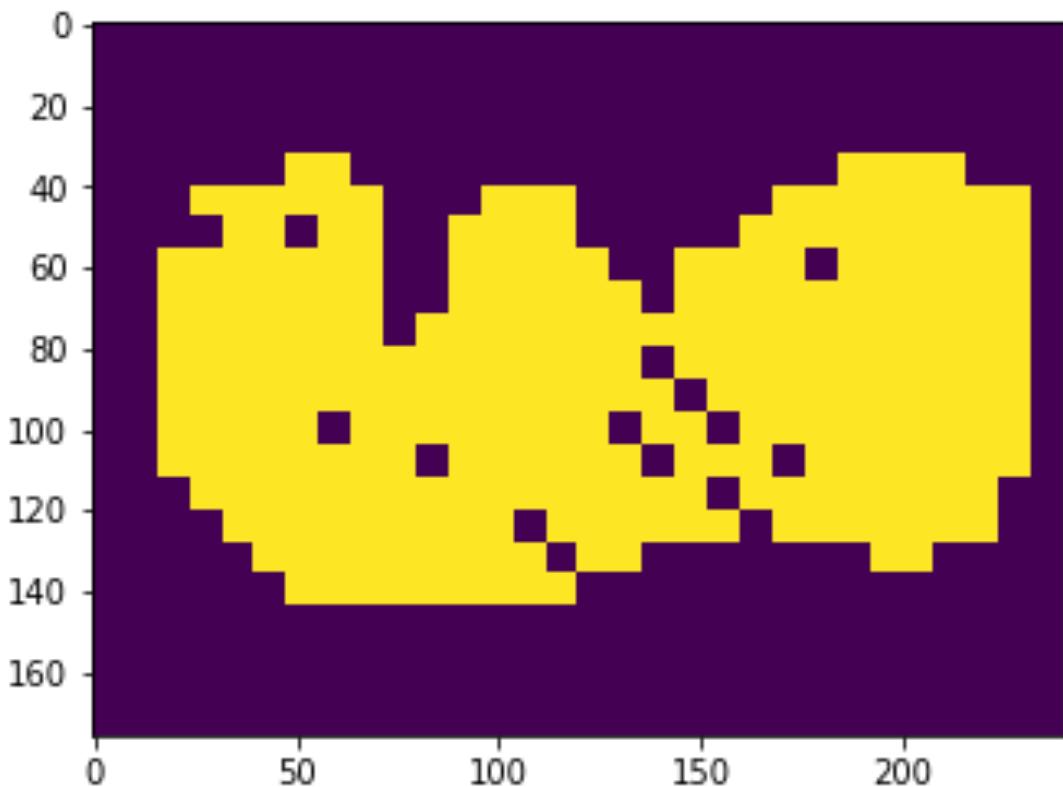
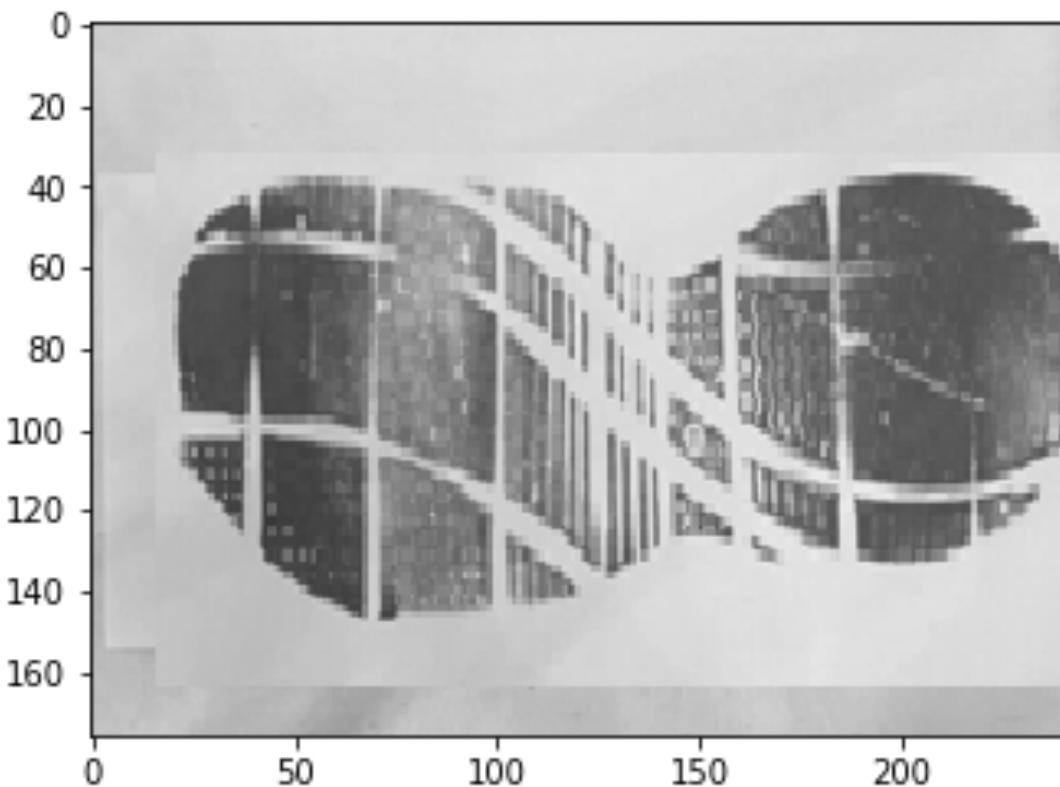






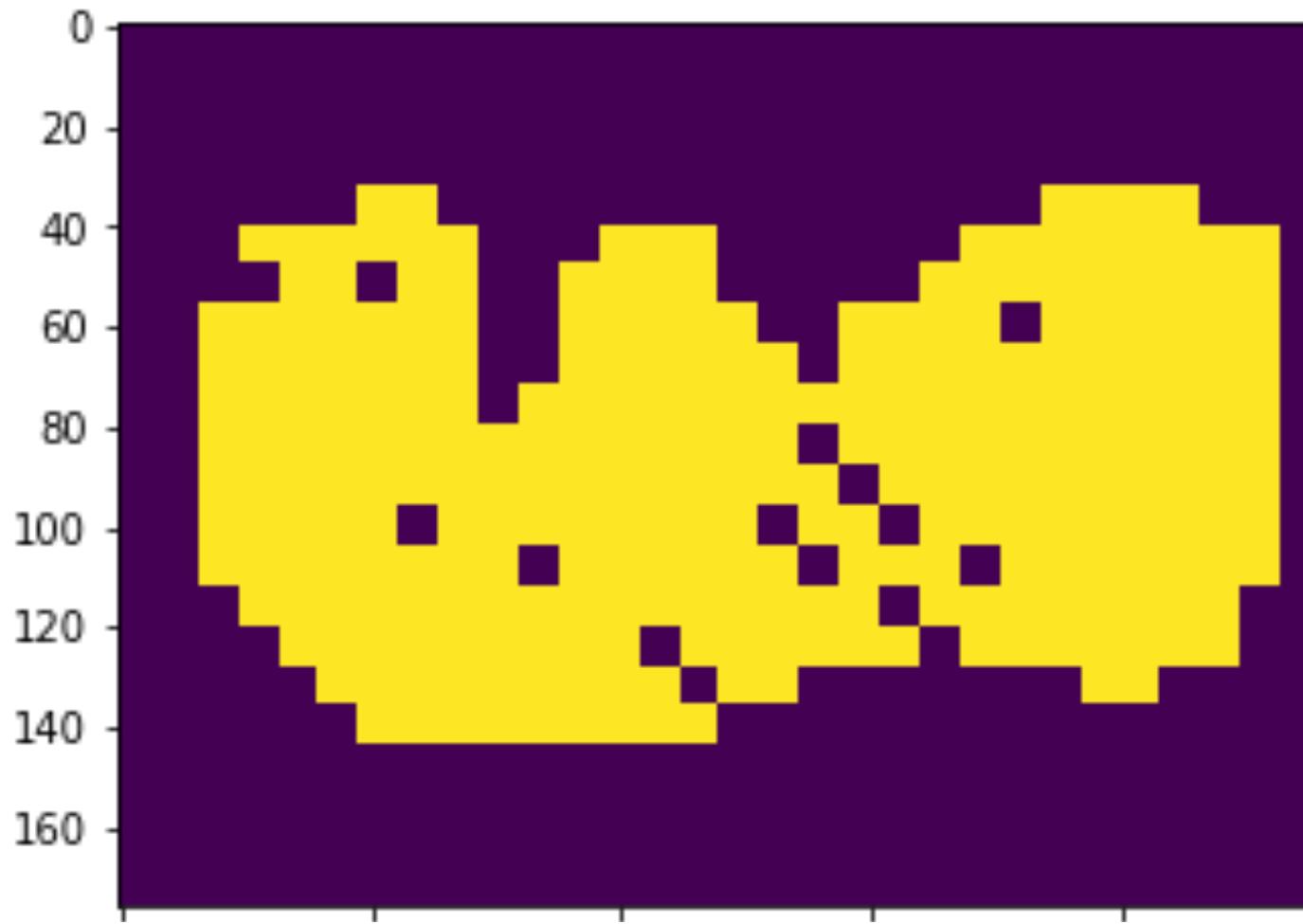
sigmoid



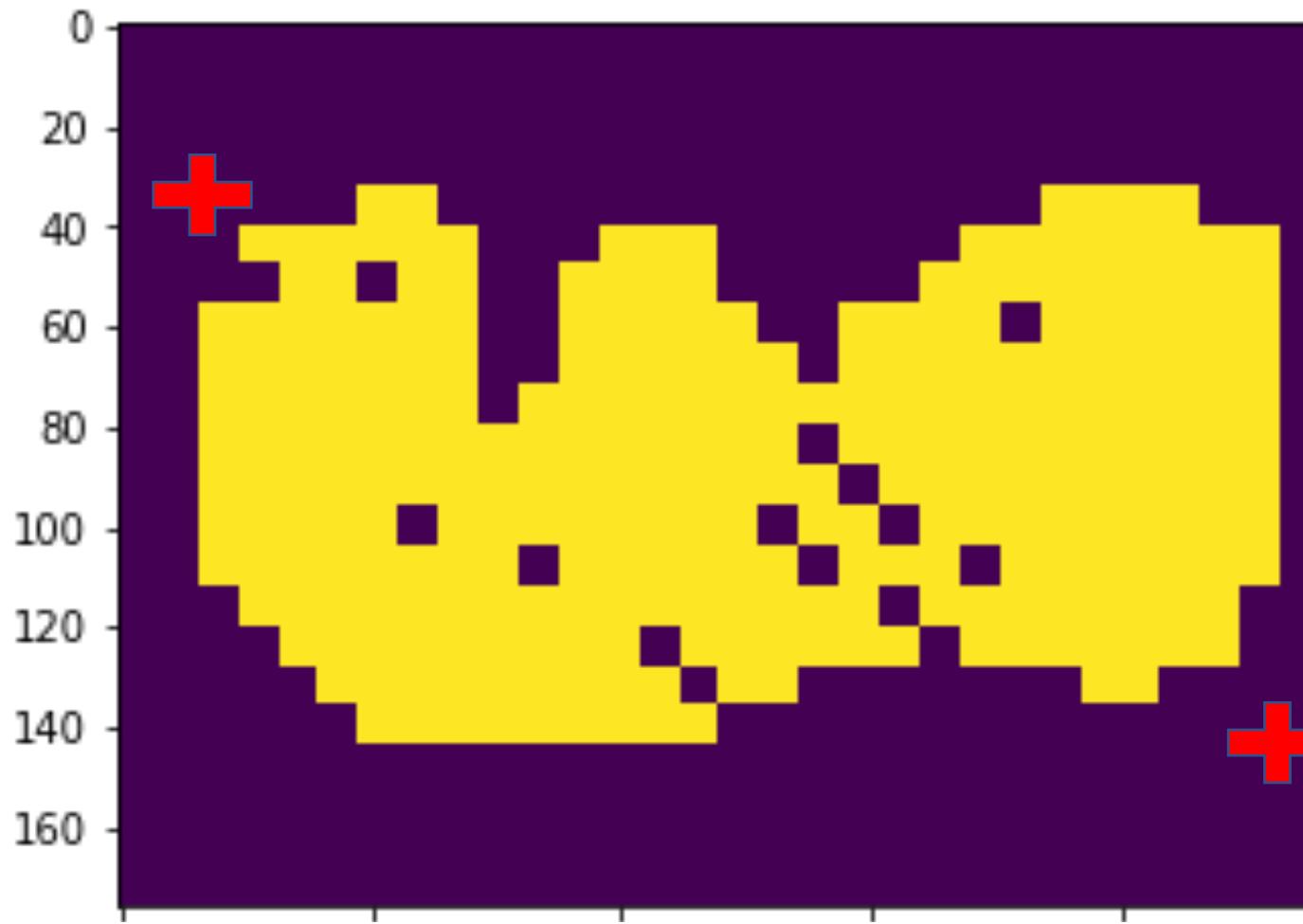




To get
the cropped image



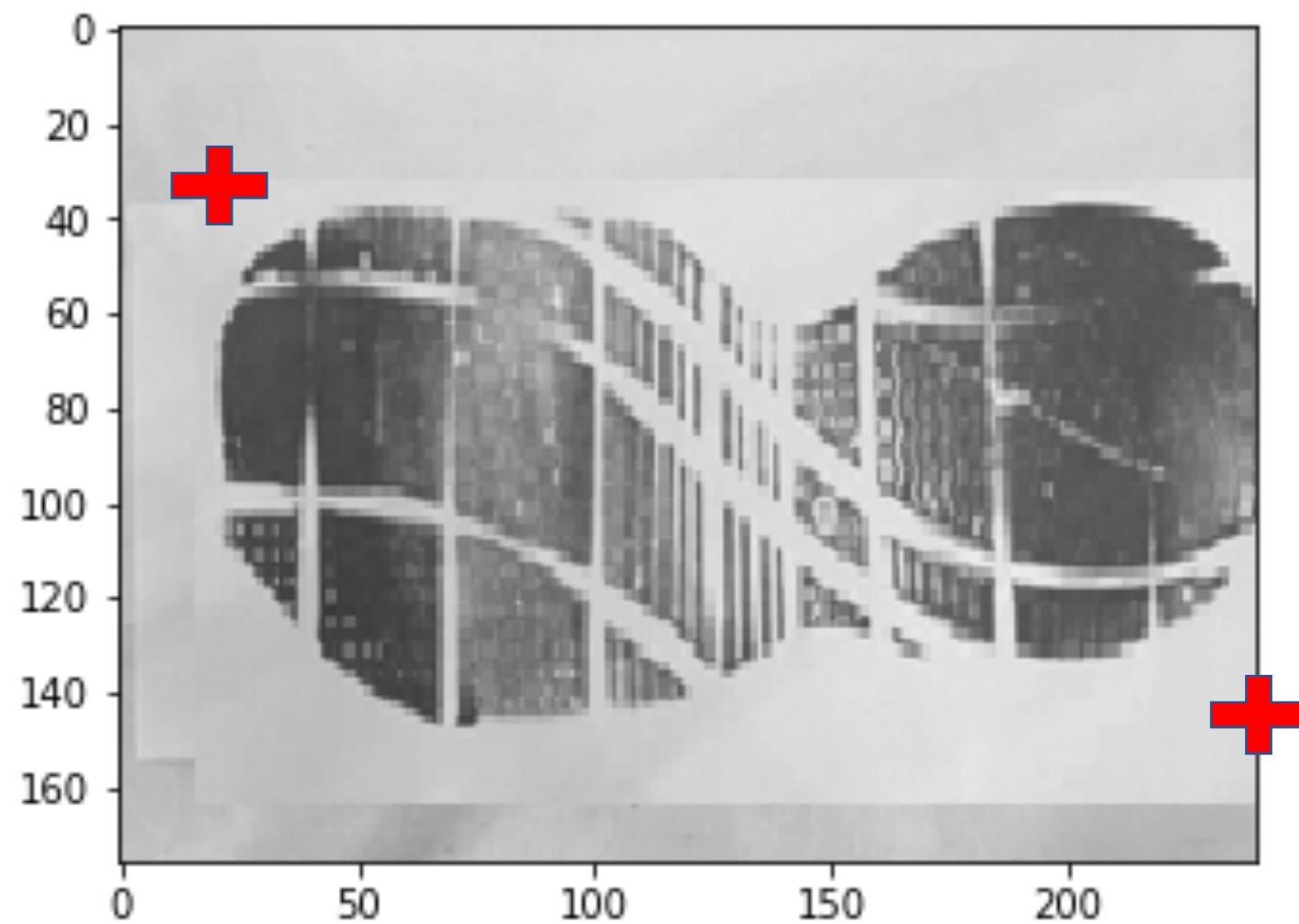
We Just Need



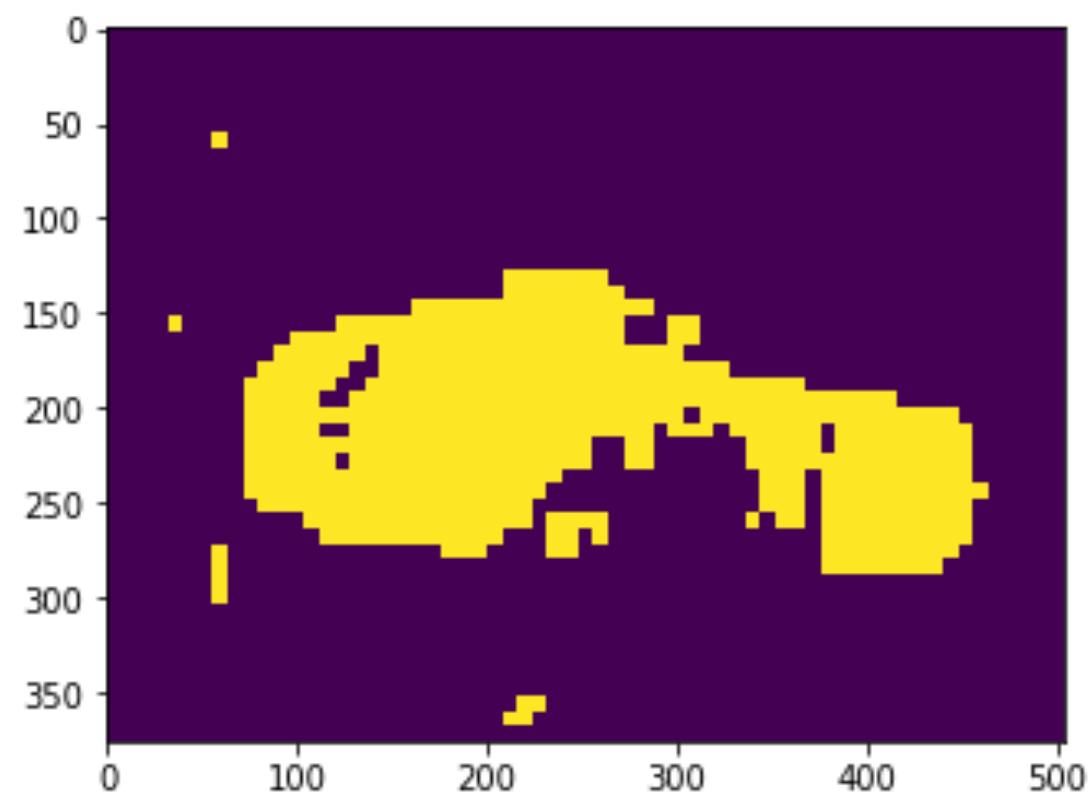
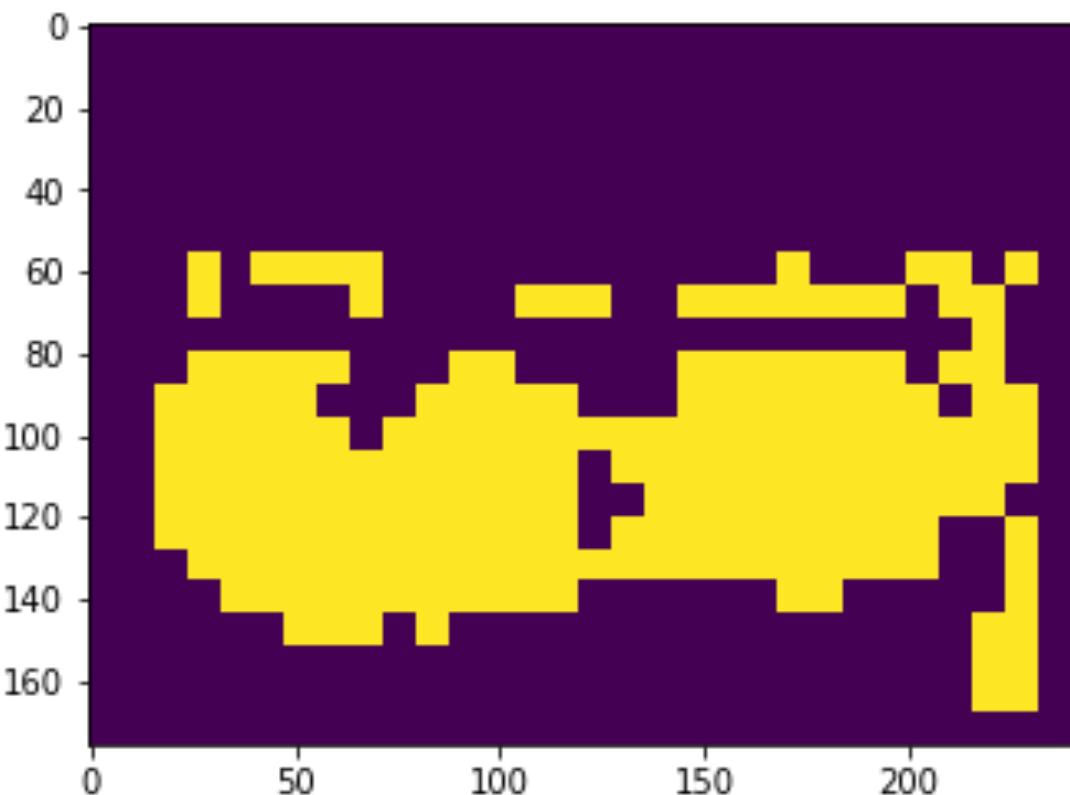
We Just Need
Find this two locations

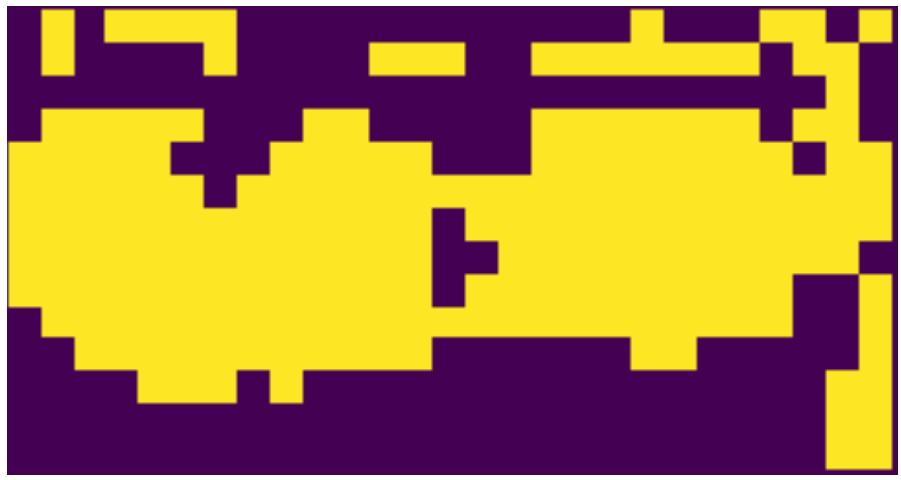


We Just Need
Find this two locations



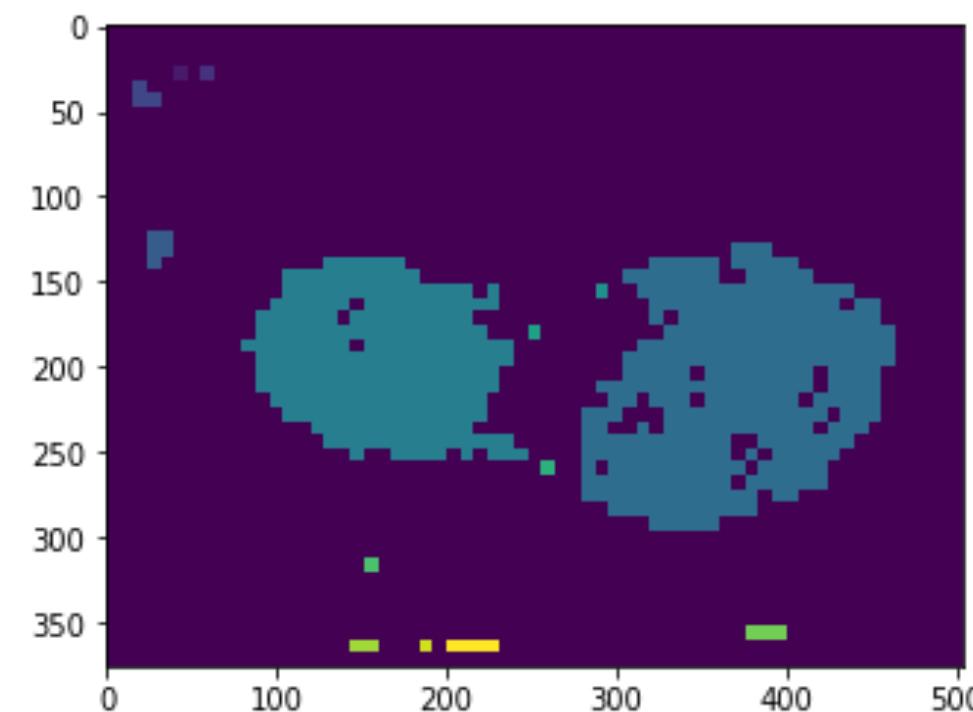
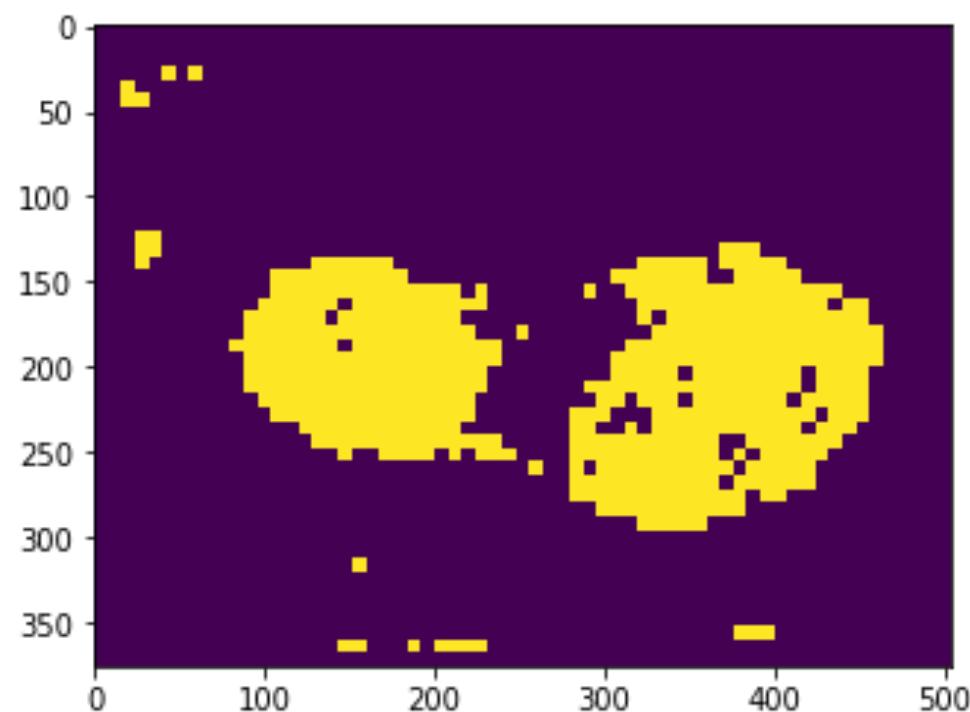


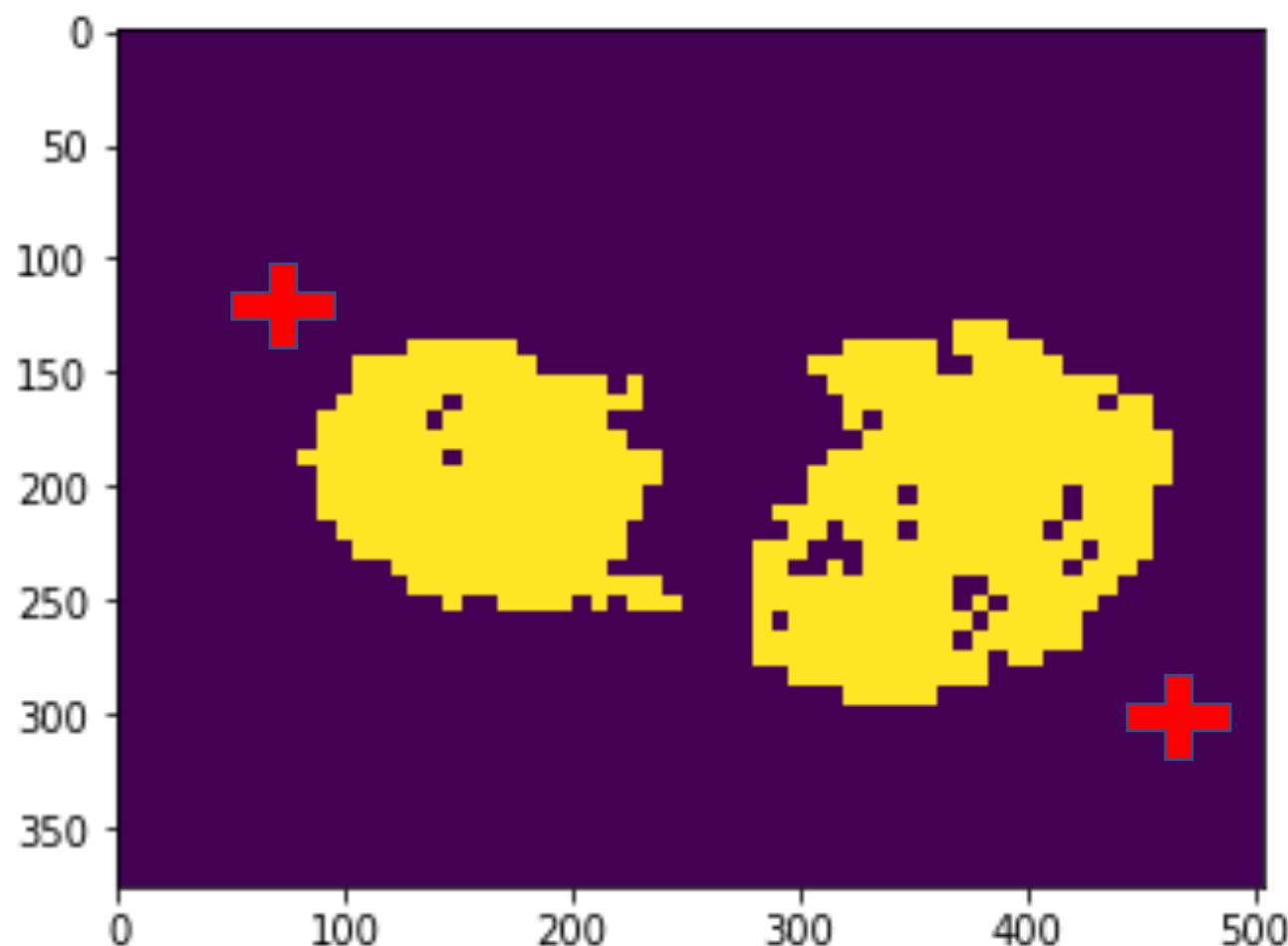


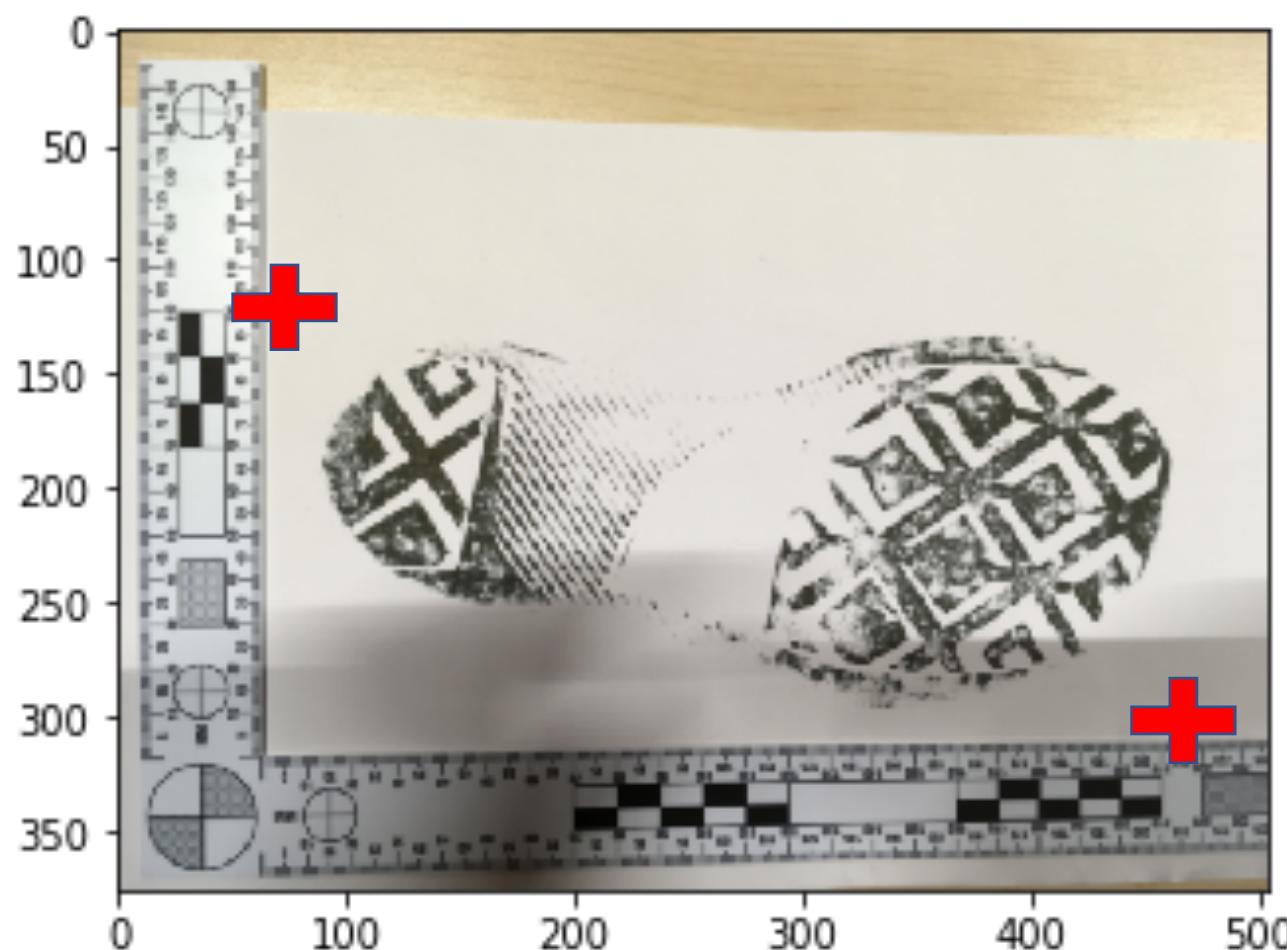


I DON'T WANT

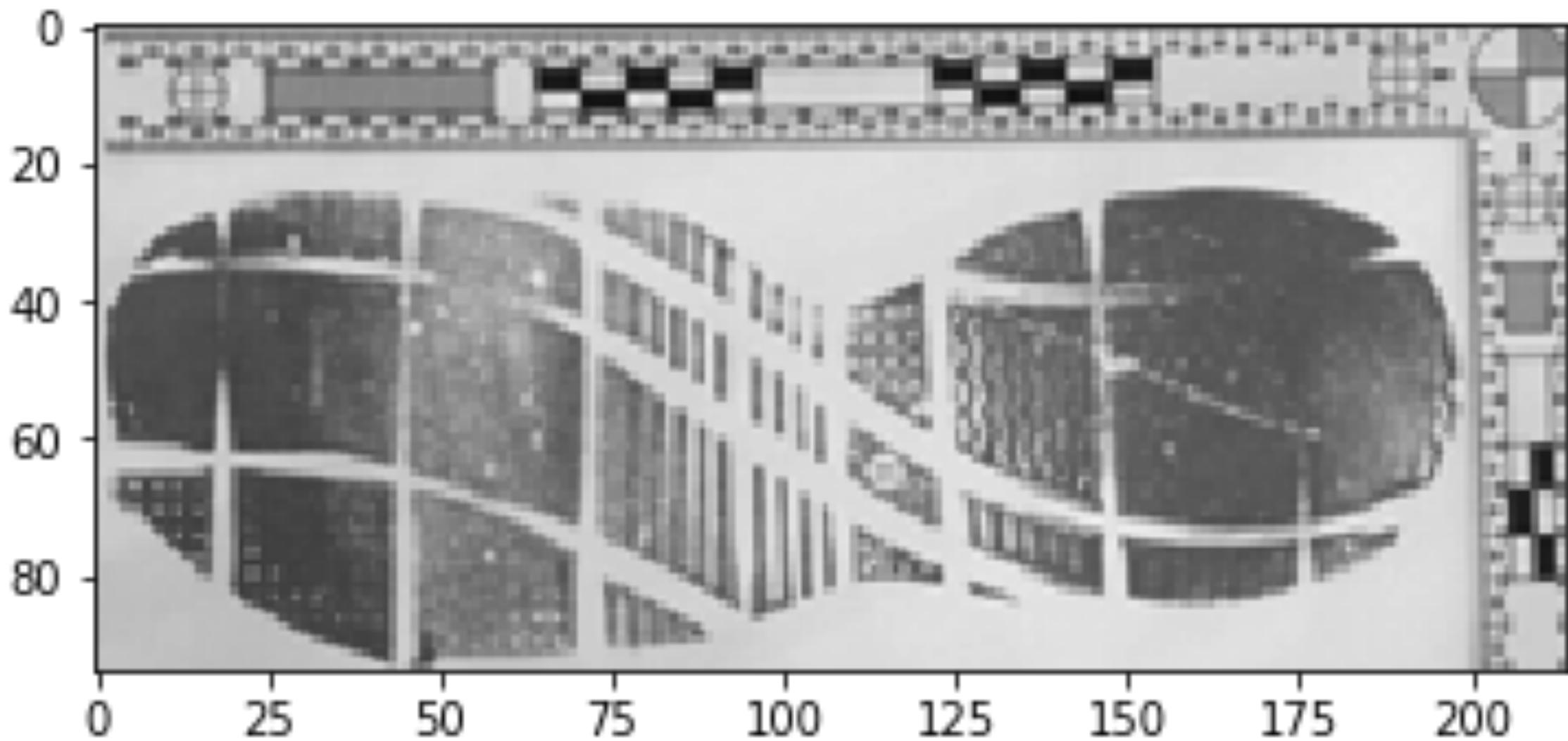


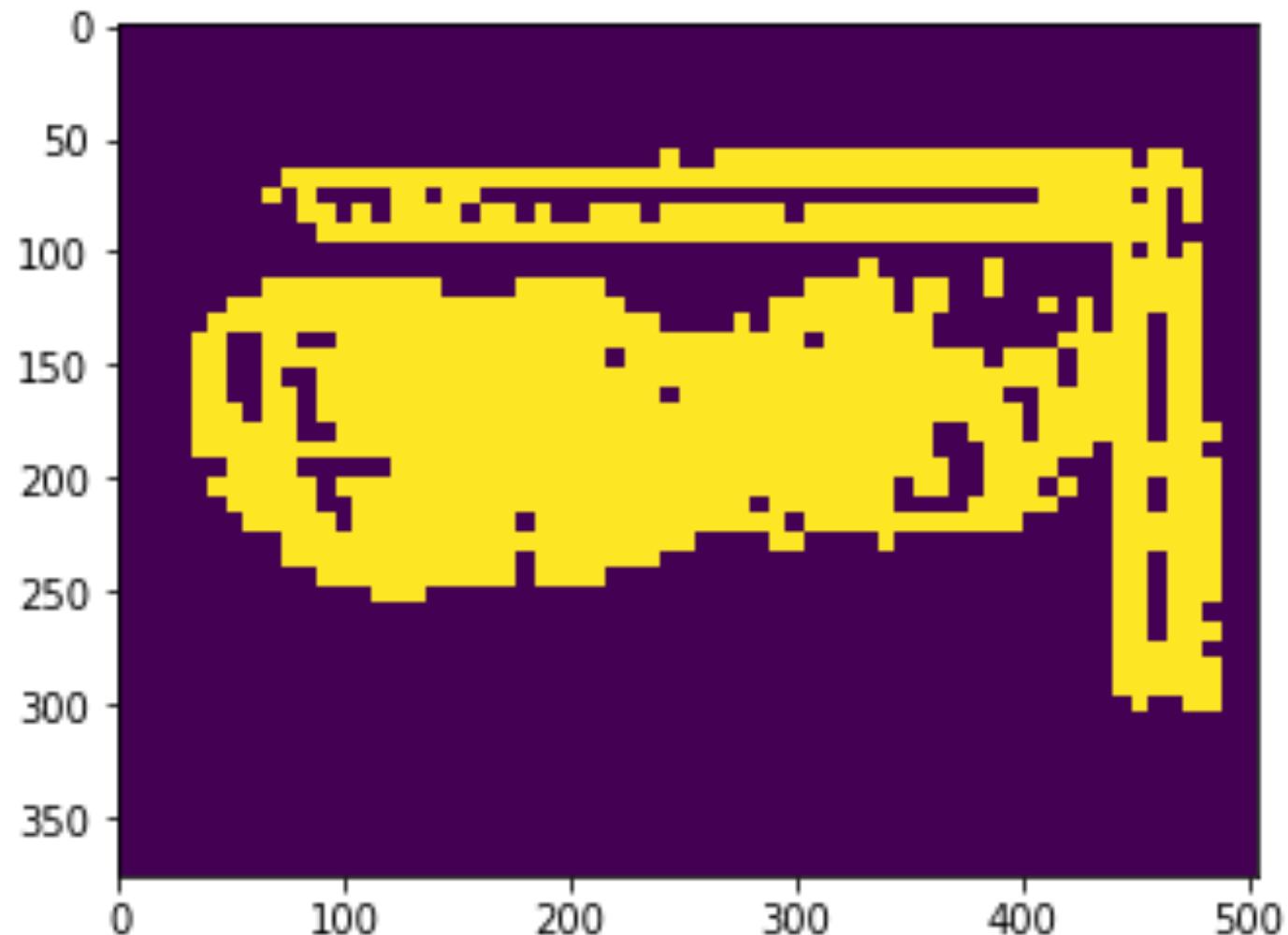


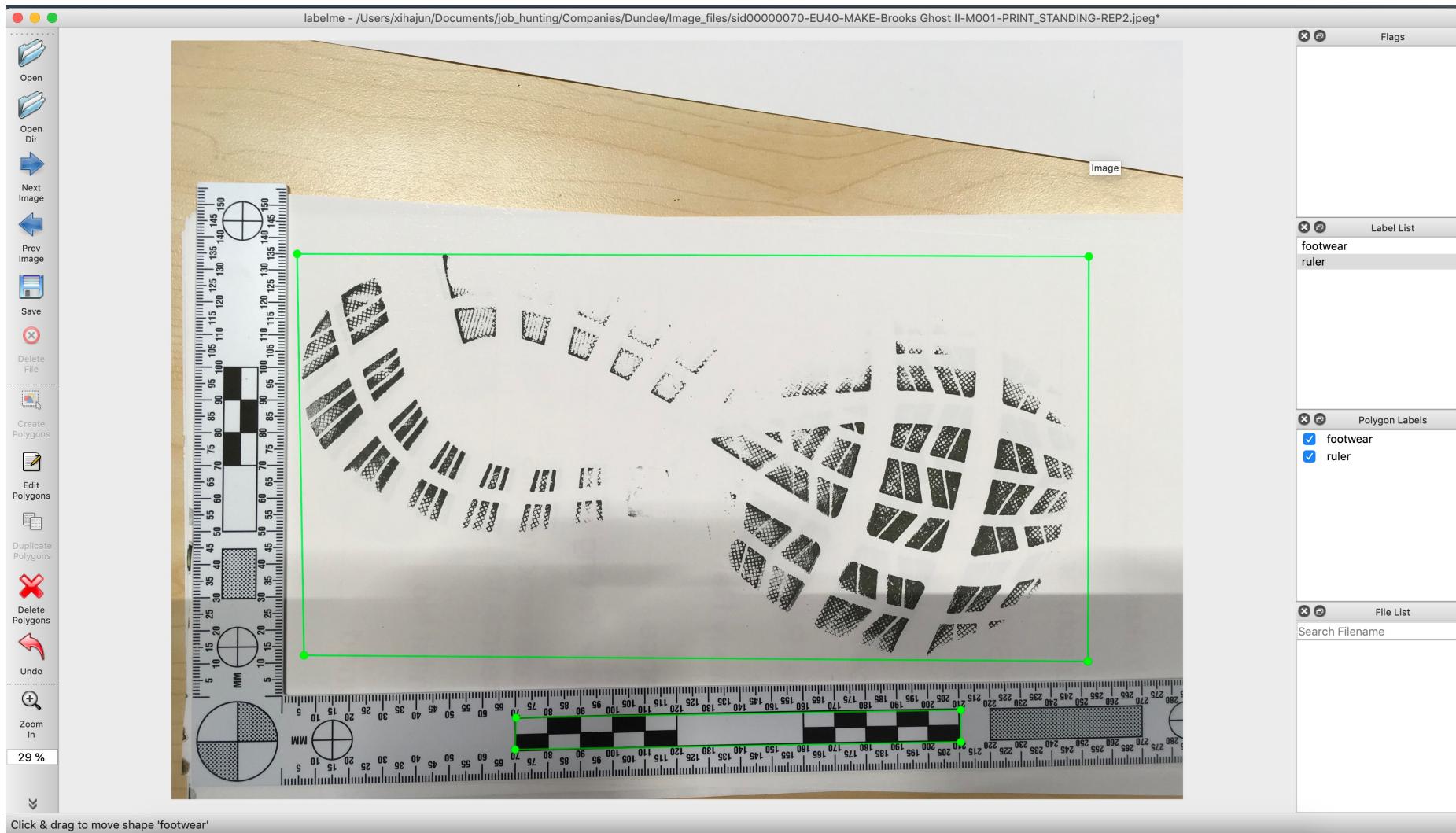


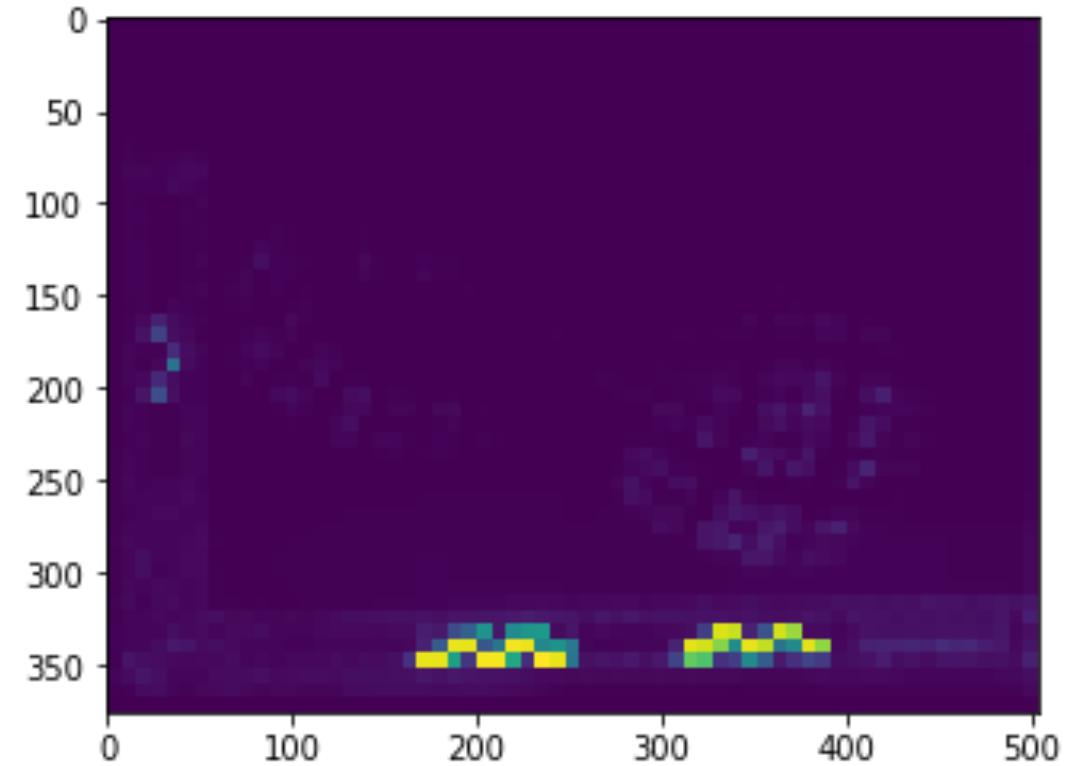
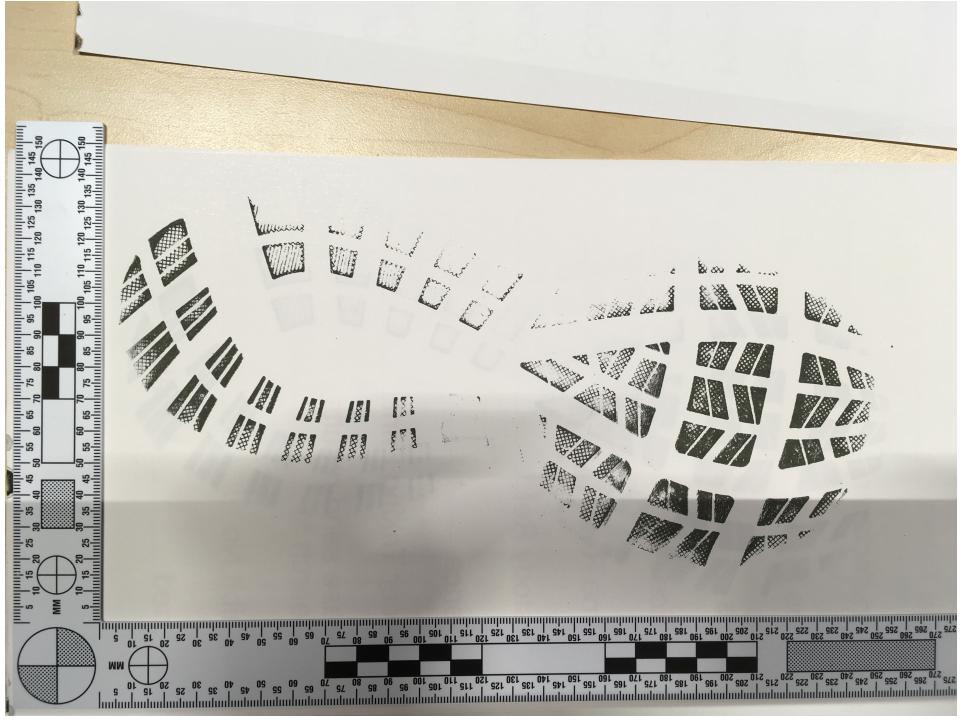


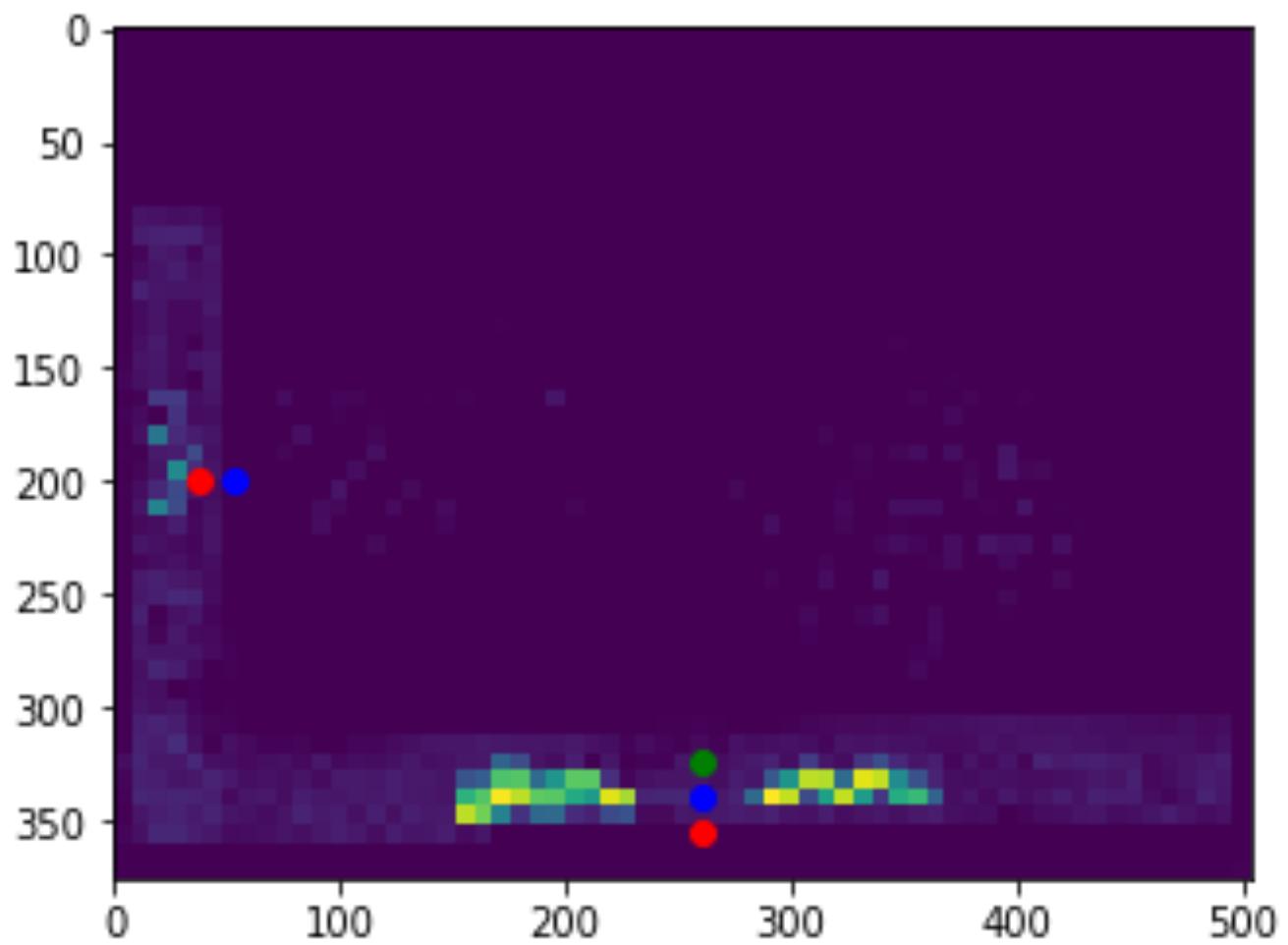


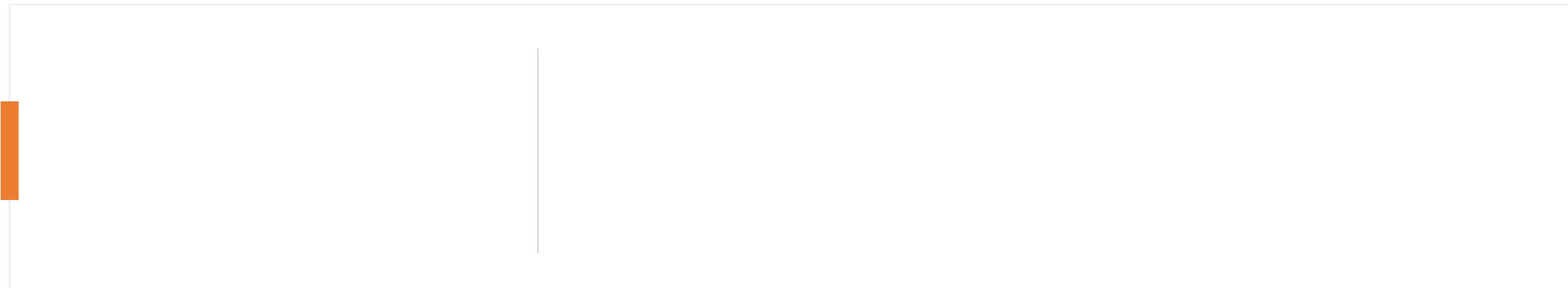
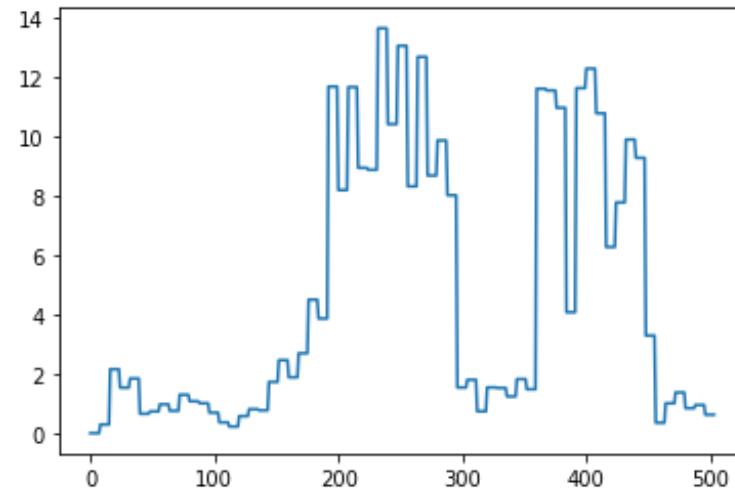
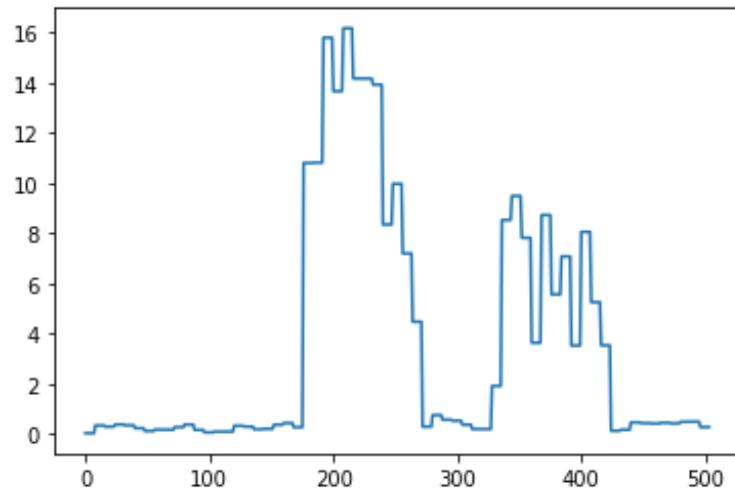
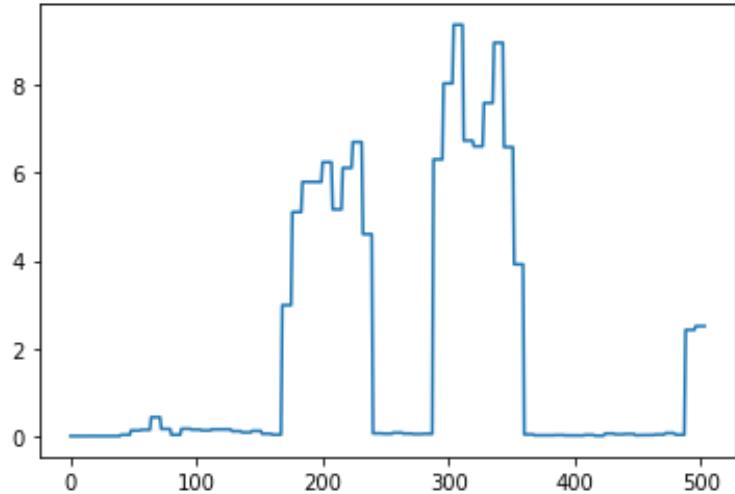


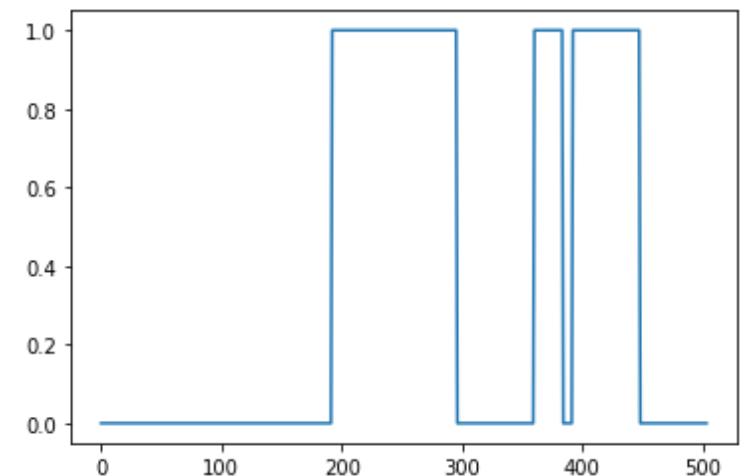
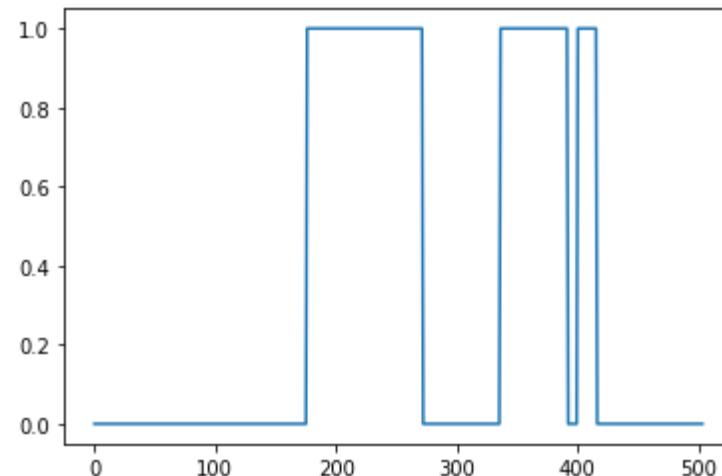
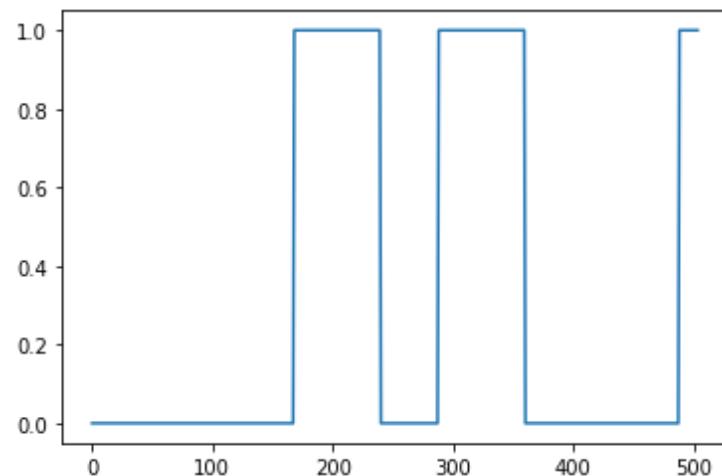


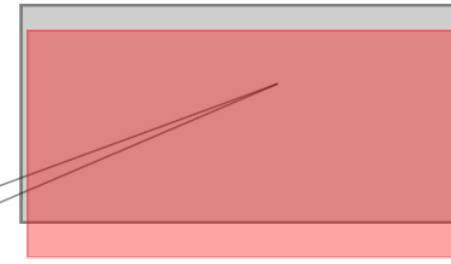
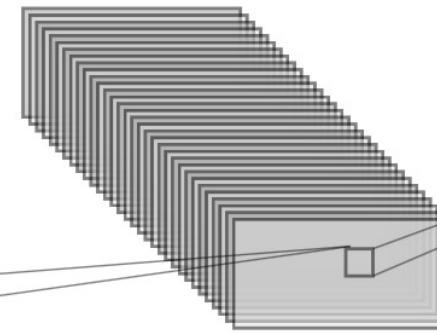
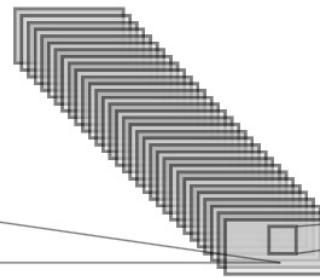
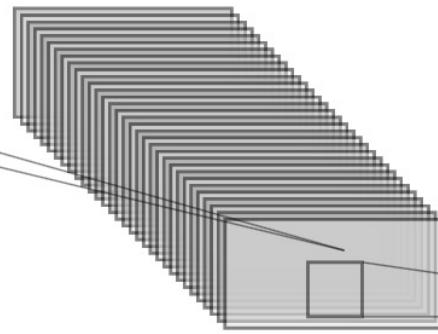
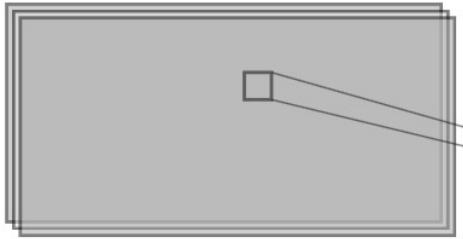


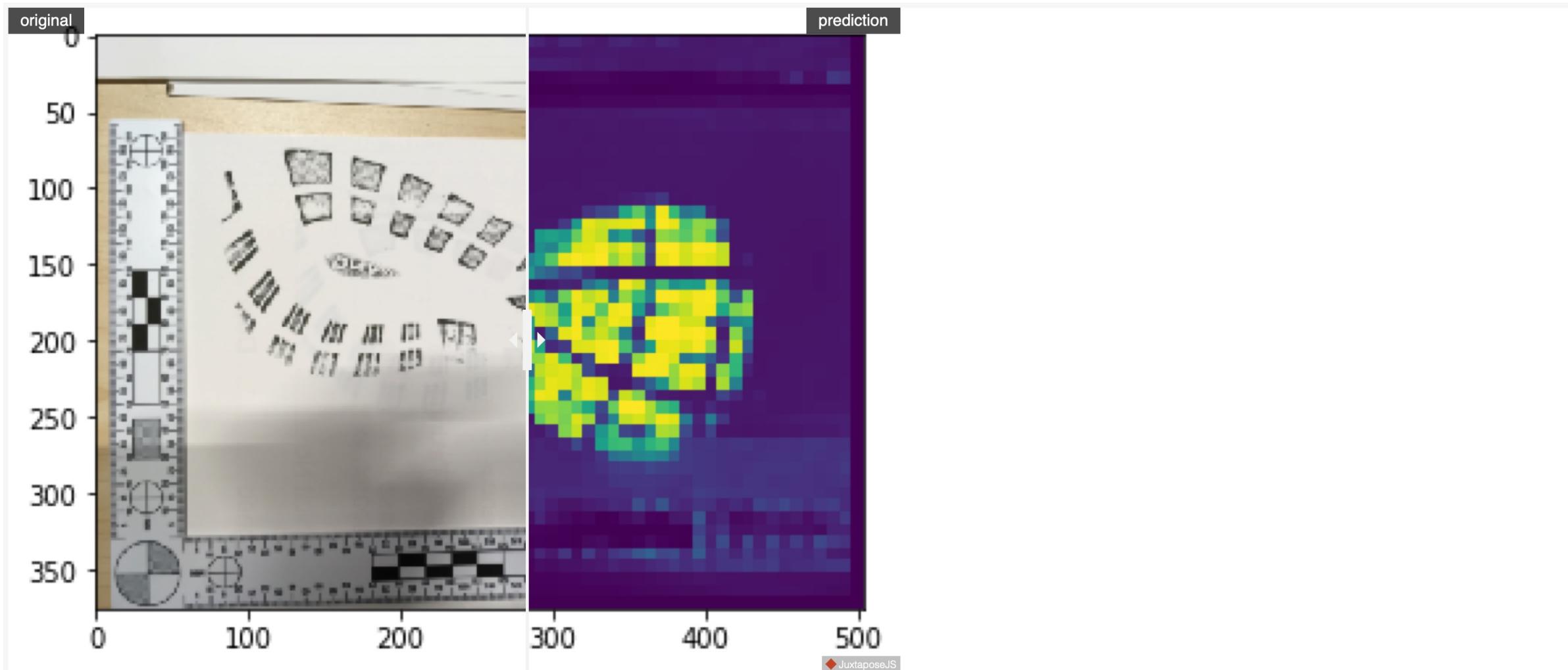








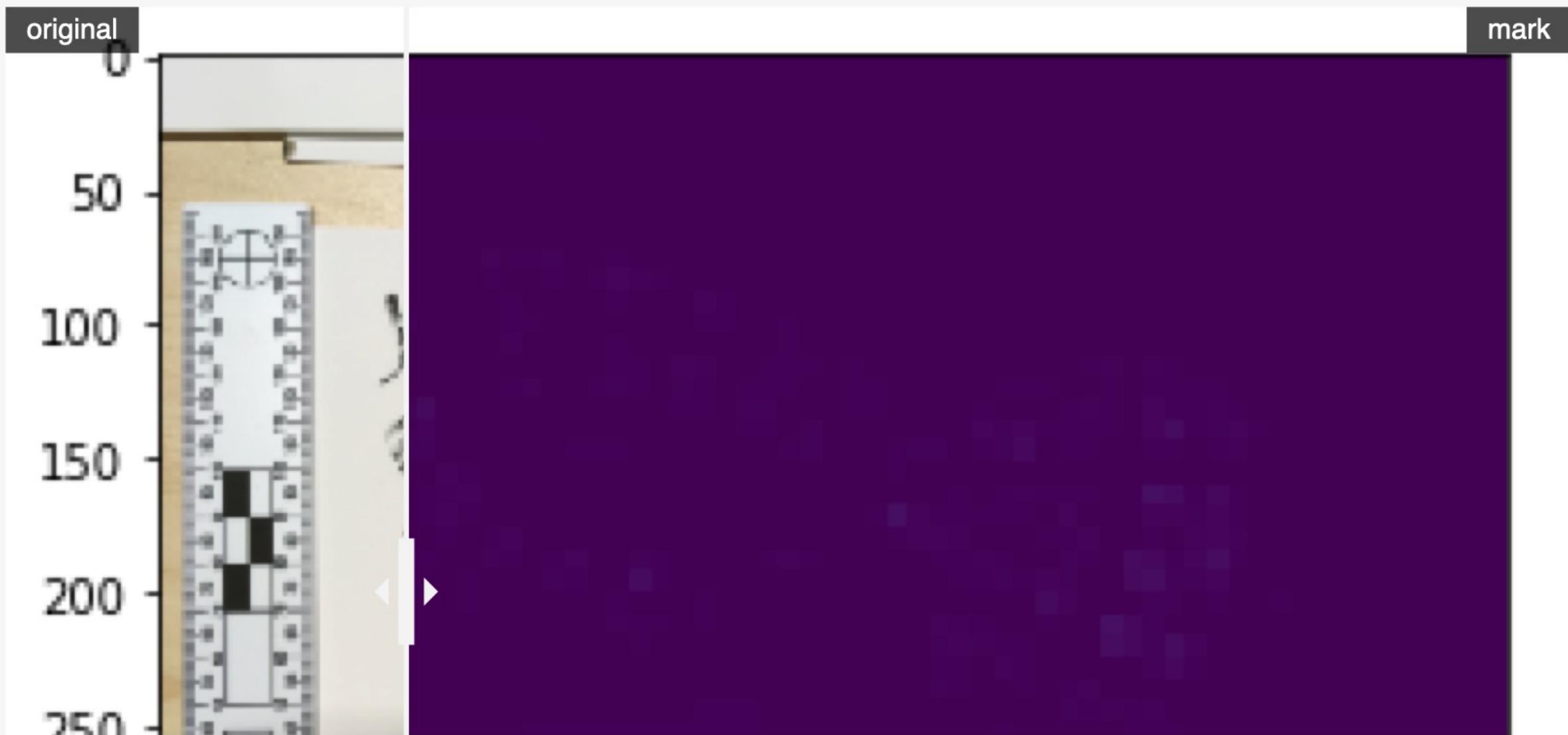




Source: <https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?uid=be4b576e-19ee-11ea-b9b8-0edaf8f81e27>

Web Viewer [Terms](#) | [Privacy & Cookies](#)

In case: <https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?uid=be4b576e-19ee-11ea-b9b8-0edaf8f81e27>



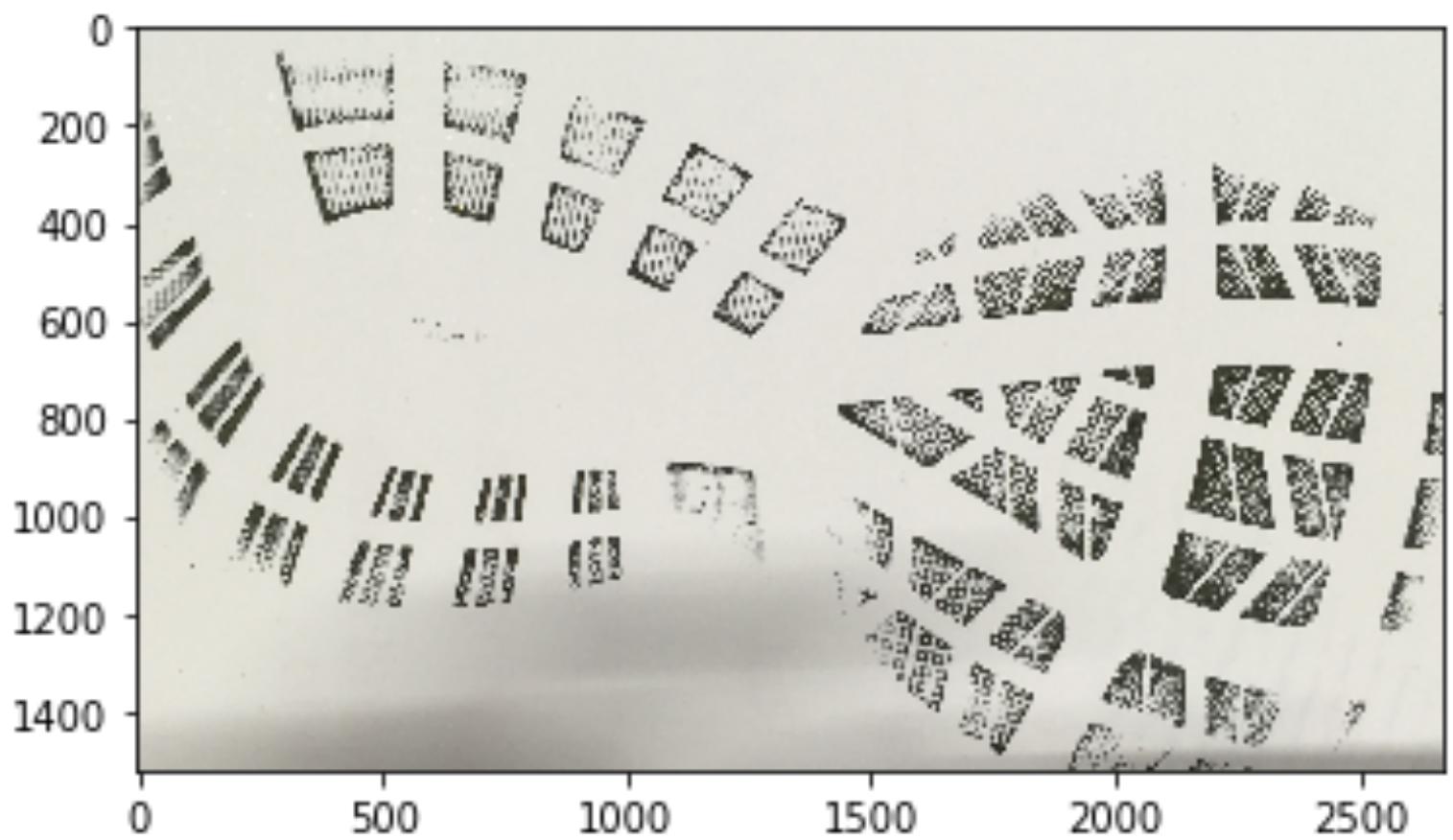
Source:

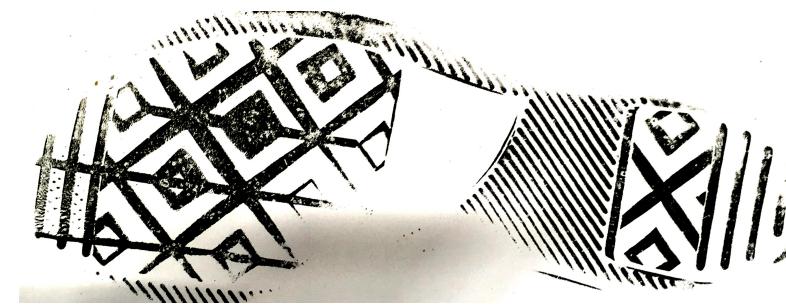
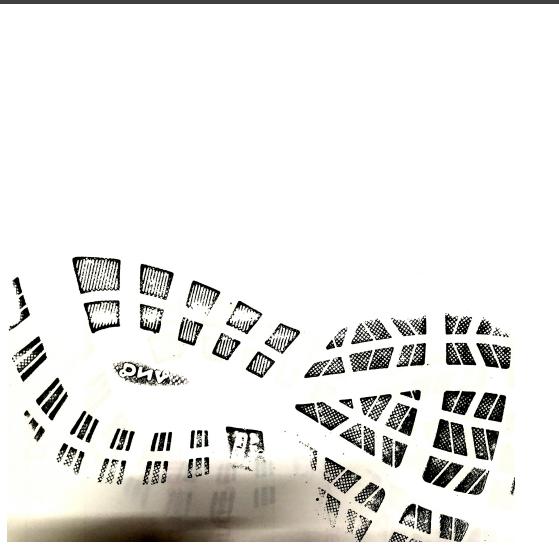
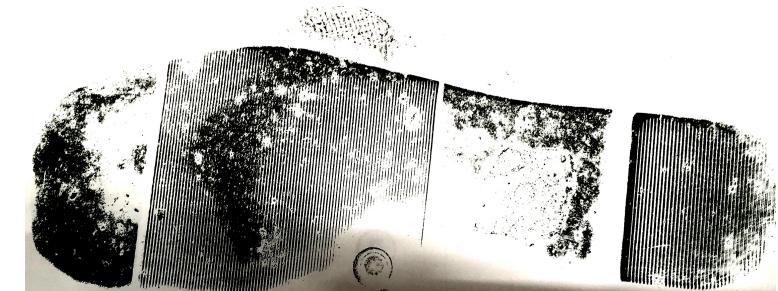
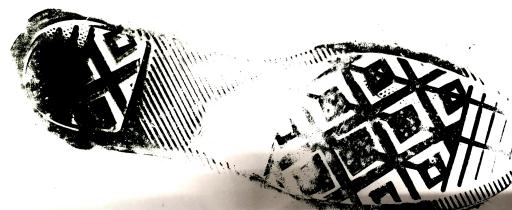
<https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?>

Web Viewer [Terms](#) | [Privacy & Cookies](#)

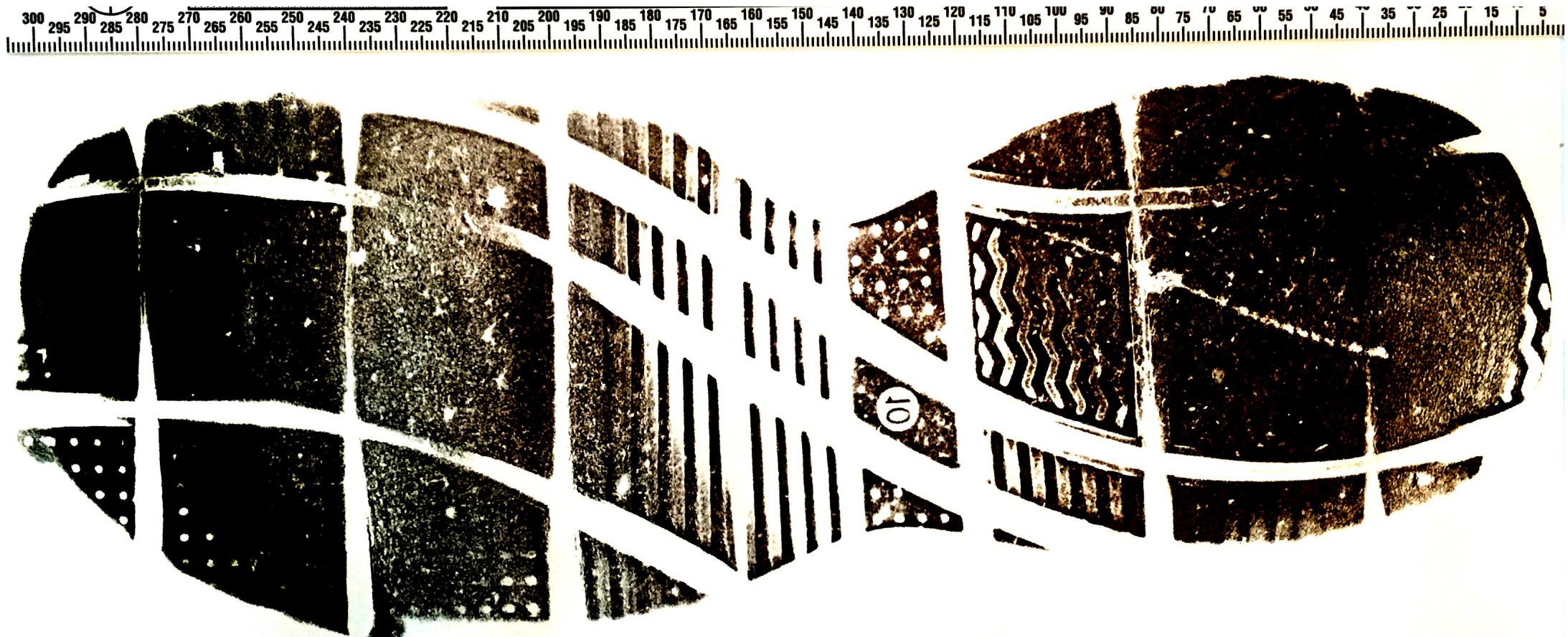
<https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?uid=7e82d6d4-19ee-11ea-b9b8-0edaf8f81e27>

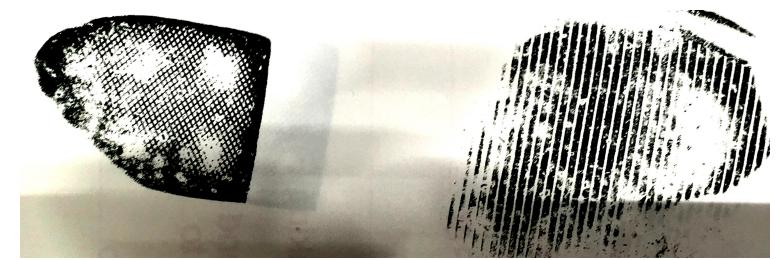
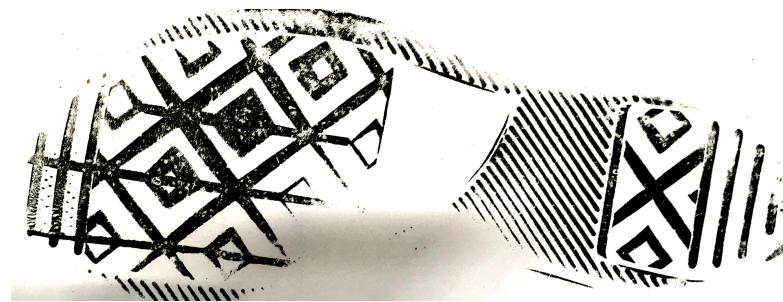
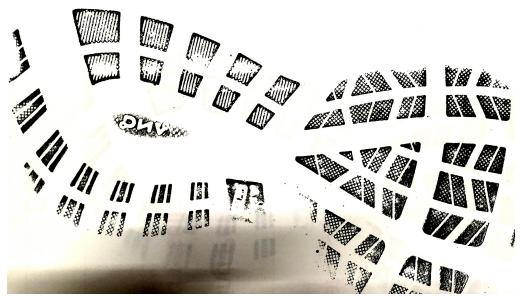
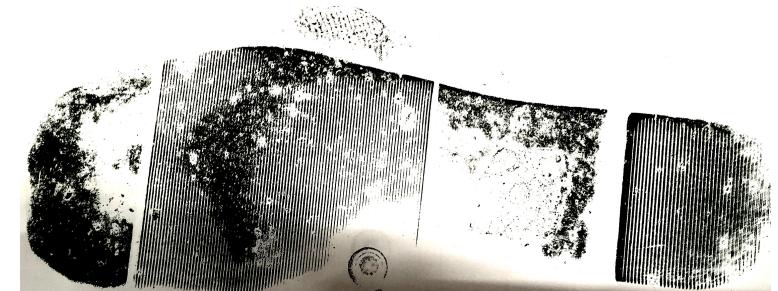
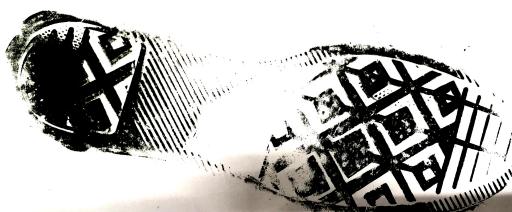
might_wrong	marker_length	length	width	length_cm	width_cm	age	type	old
0	231	2672	880	20.242424	6.666667	12	Primark	True
0	215	2992	1136	24.353488	9.246512	2	Yours clothing	False
0	239	2608	1520	19.096234	11.129707	1	Brooks Ghost II	False
0	231	2800	1200	21.212121	9.090909	7	Converse	False
0	215	2800	1072	22.790698	8.725581	7	Converse	False
0	191	3296	1640	30.198953	15.026178	6	ASDA	False



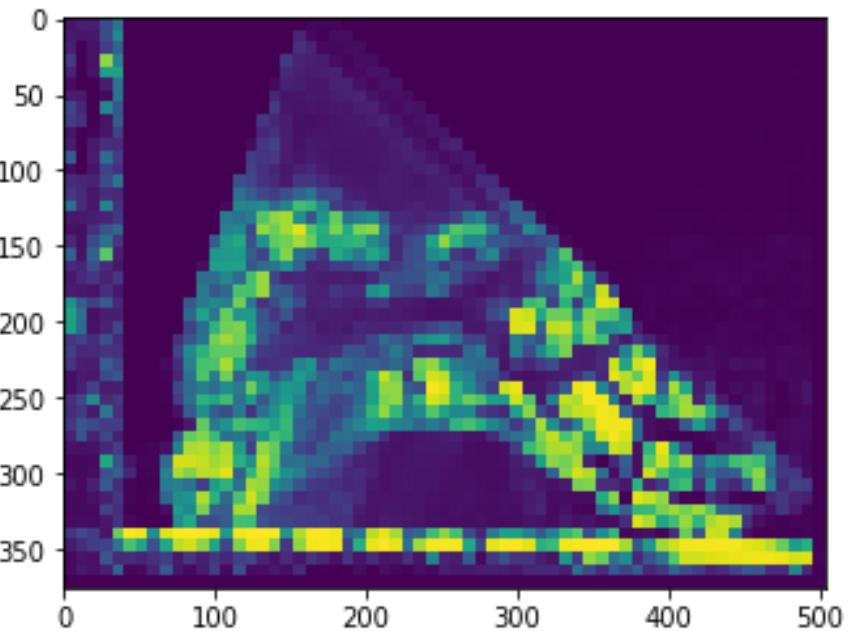
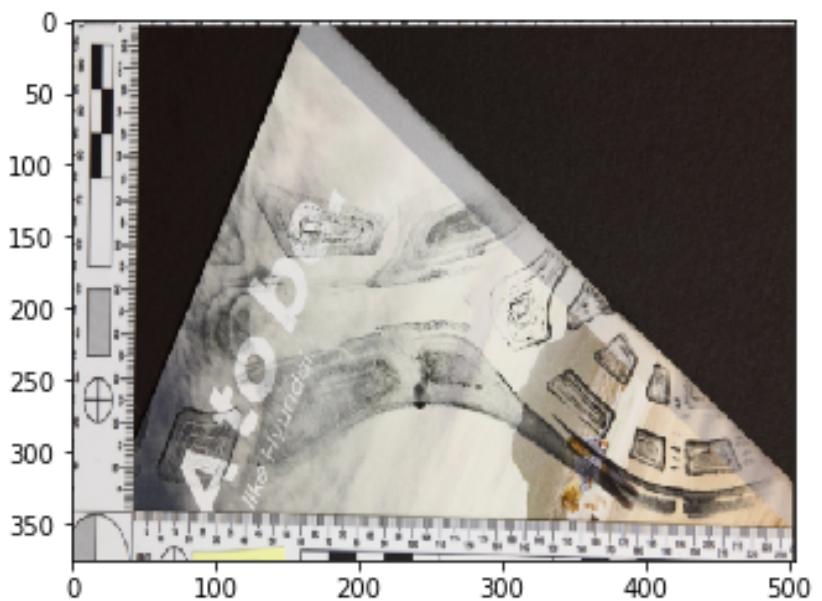


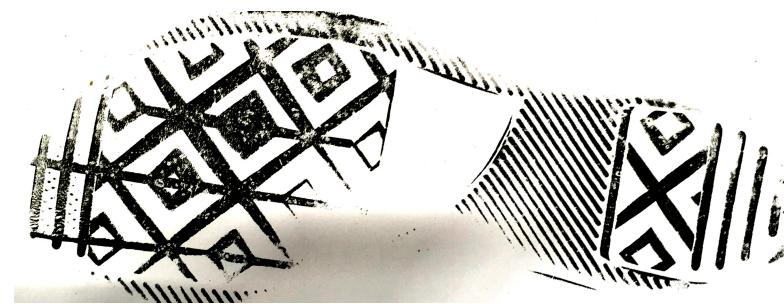
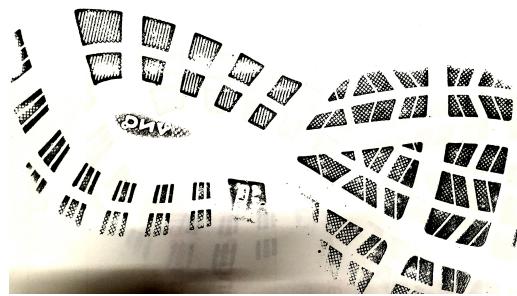
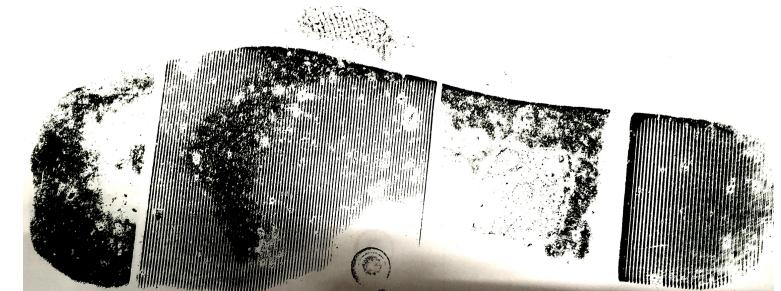
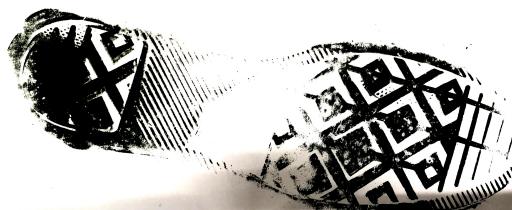
Bad example

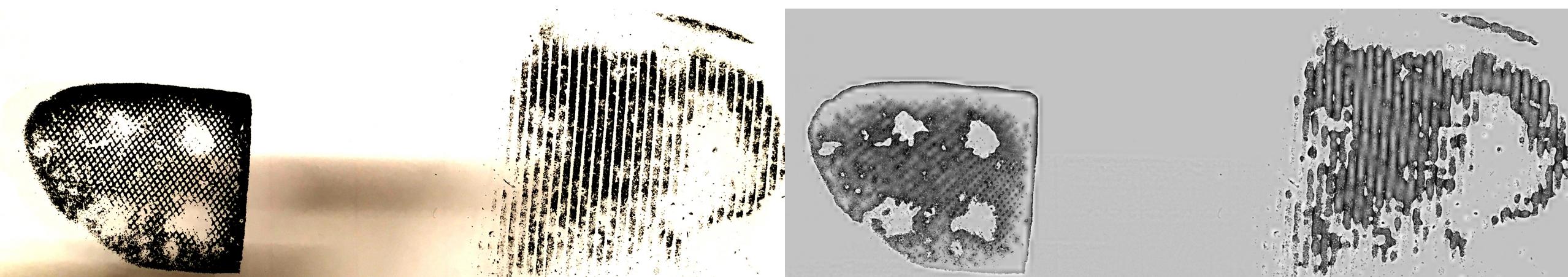
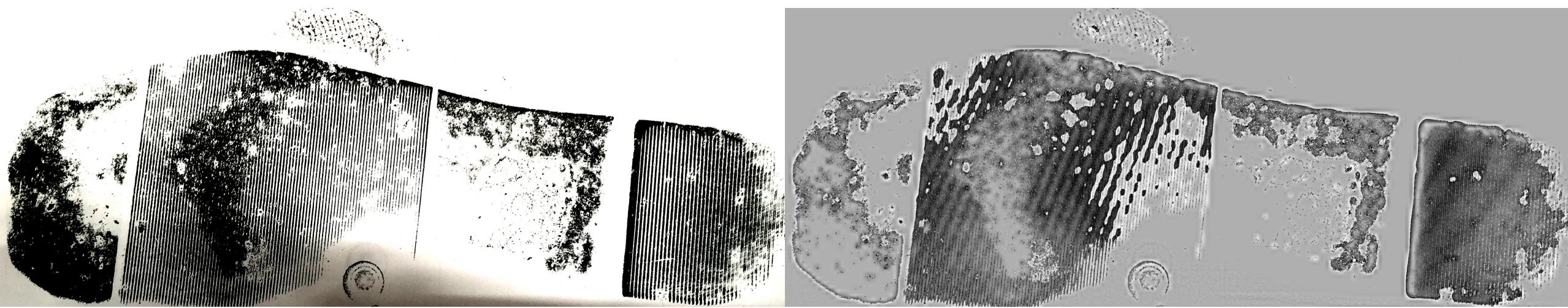


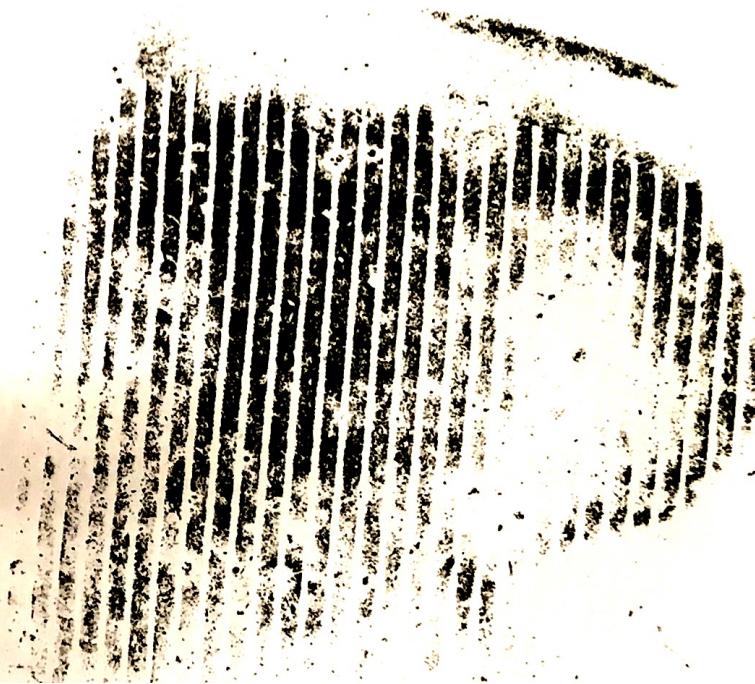
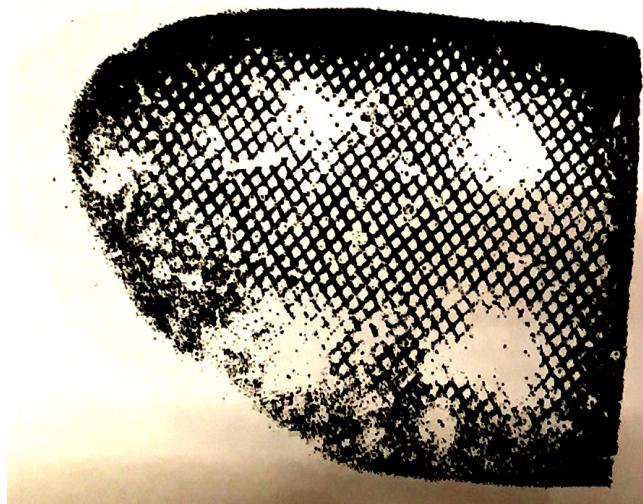


Out of Sample: Fingerprint powder



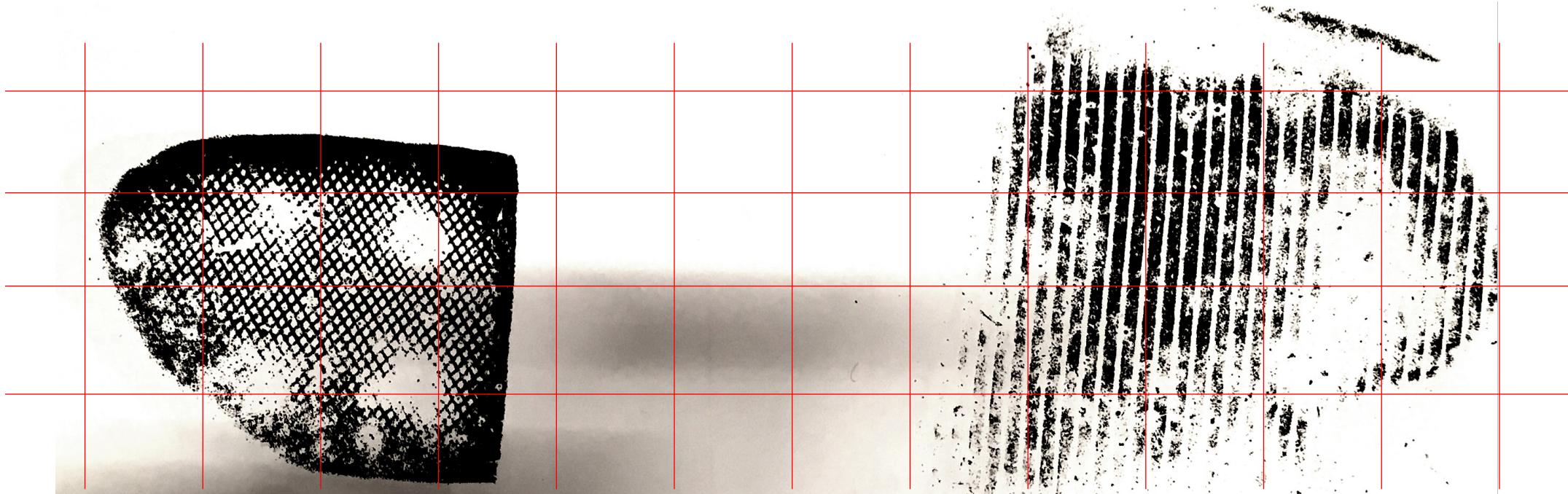






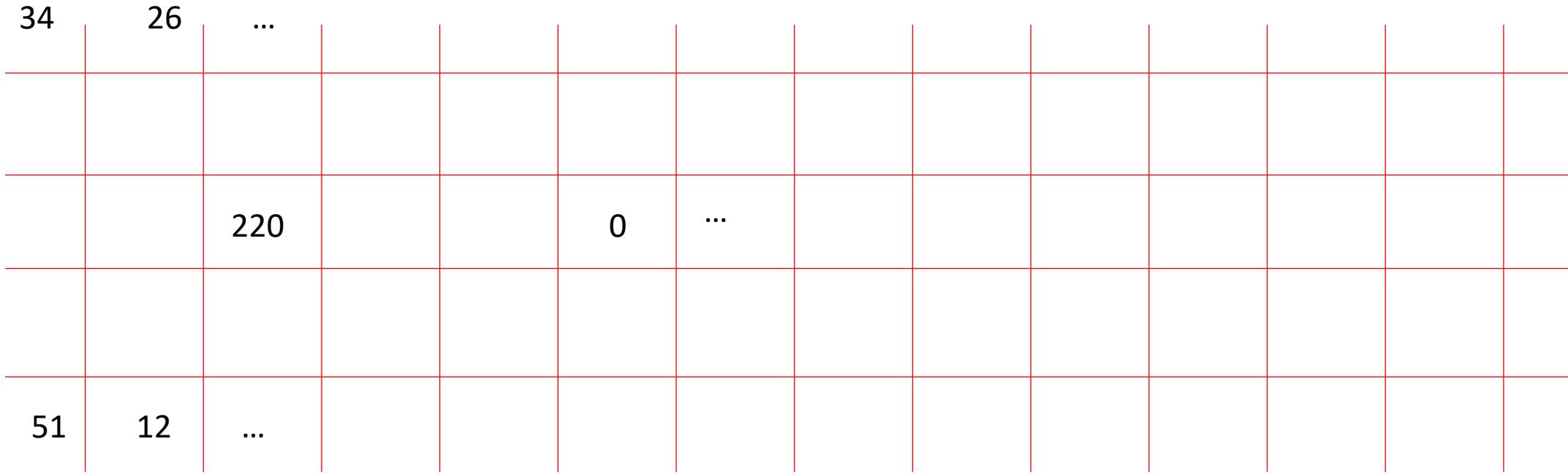


Get the mean gray value



Get the gray values of every small section

mean = 25



Get the gray values of every small section

9	1	...
195	-25	...
26	-13	...

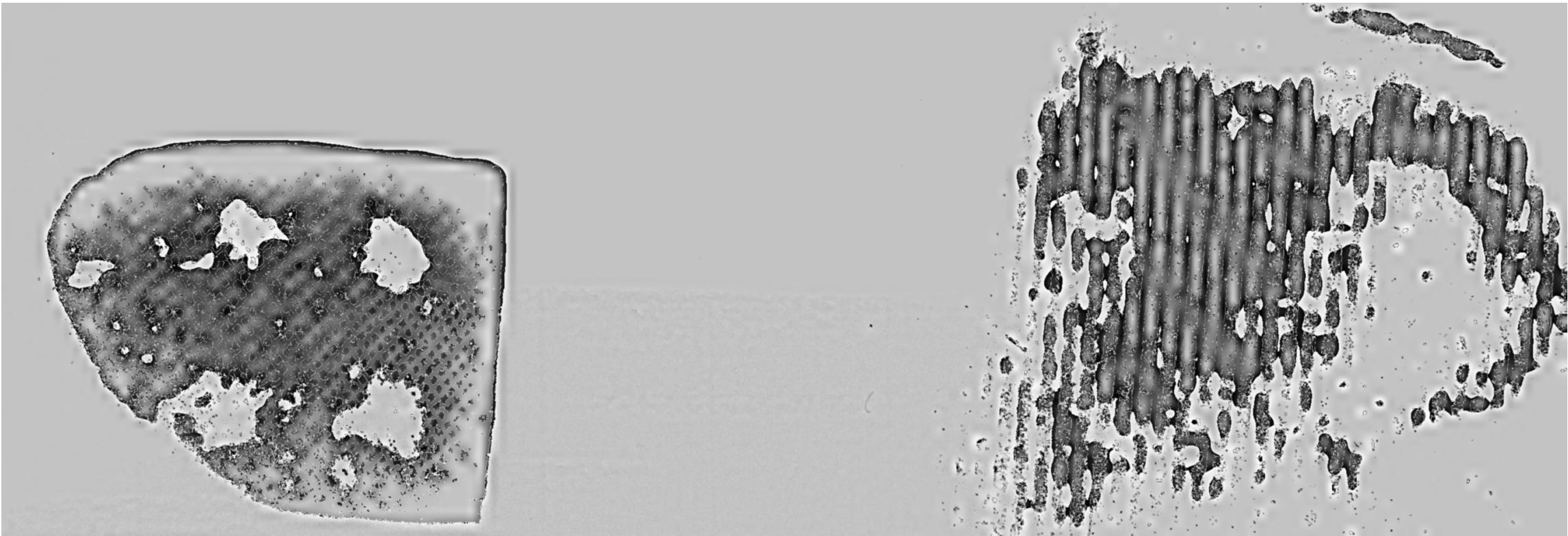
This matrix – mean gray value

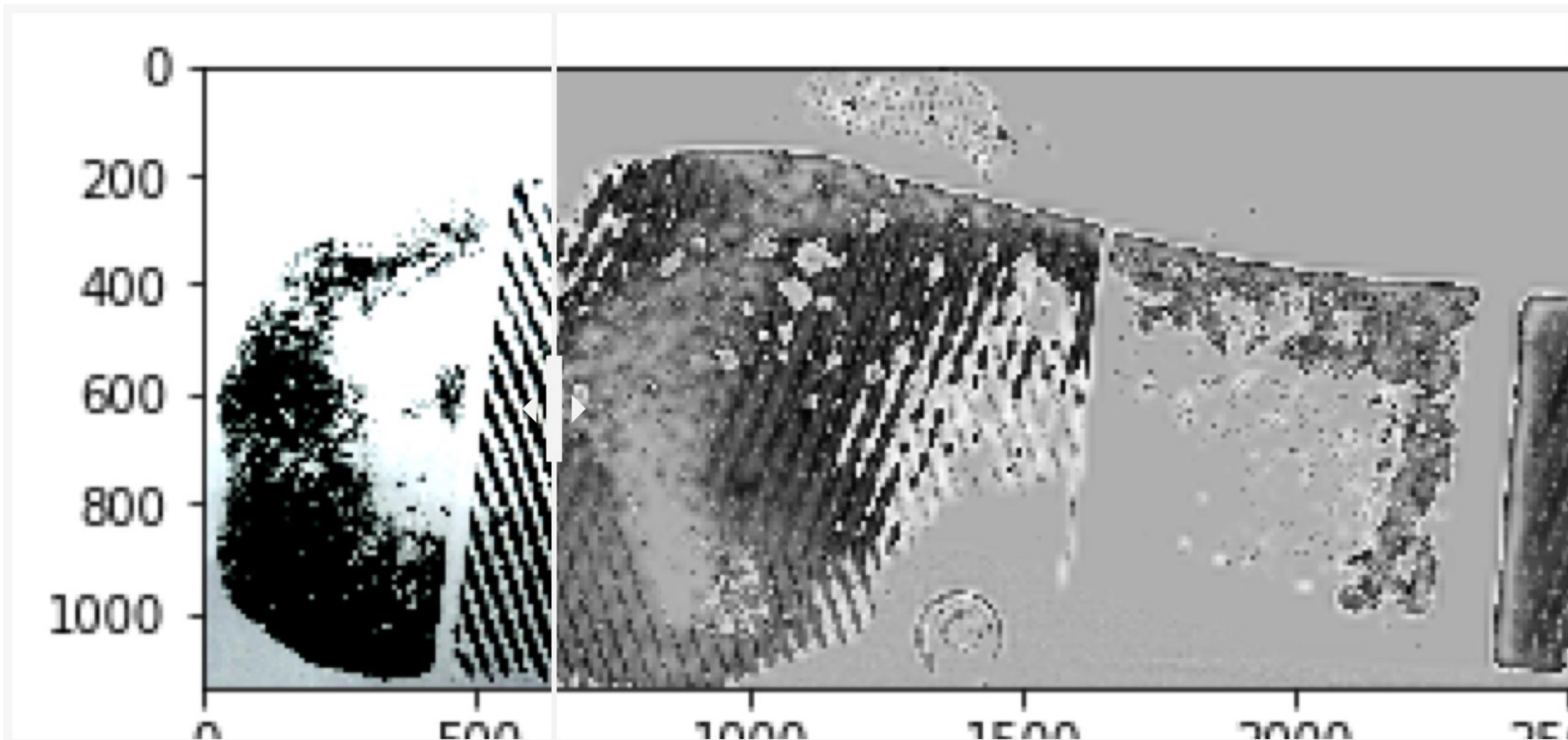
9	1	...
195	-25	...
26	-13	...

Resize it to original dimension



A grid diagram with red lines forming a 10x10 pattern. The top row contains labels 9, 1, ..., -25, ... from left to right. The bottom row contains labels 26, -13, ... from left to right.





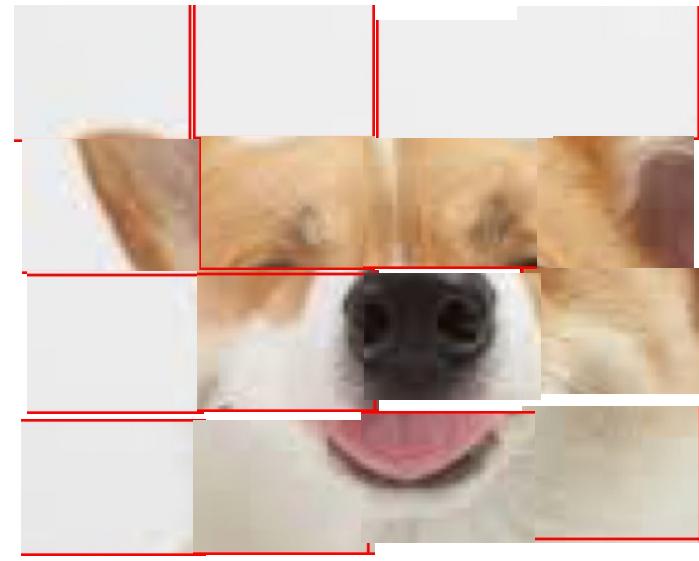
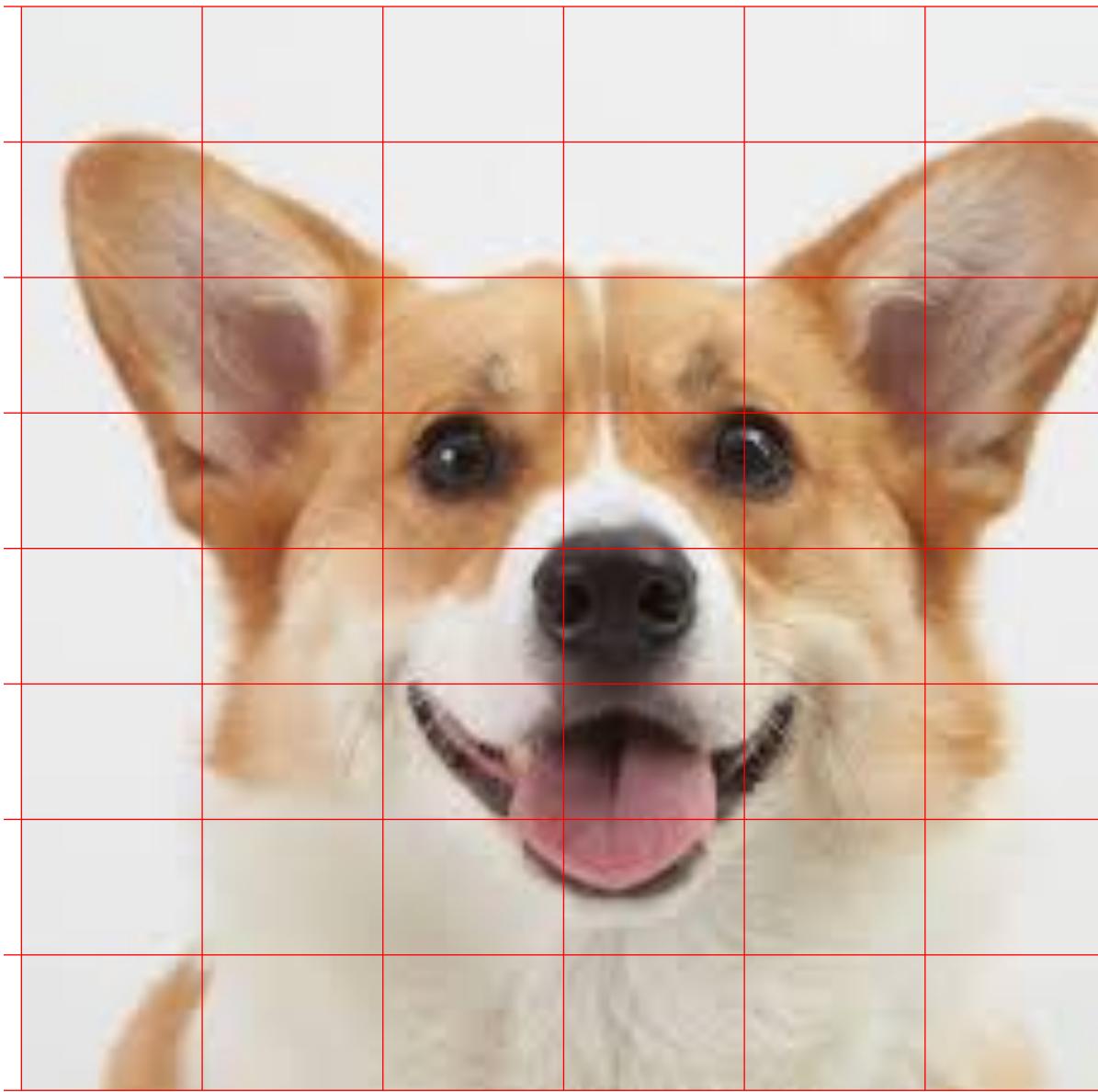
Source:

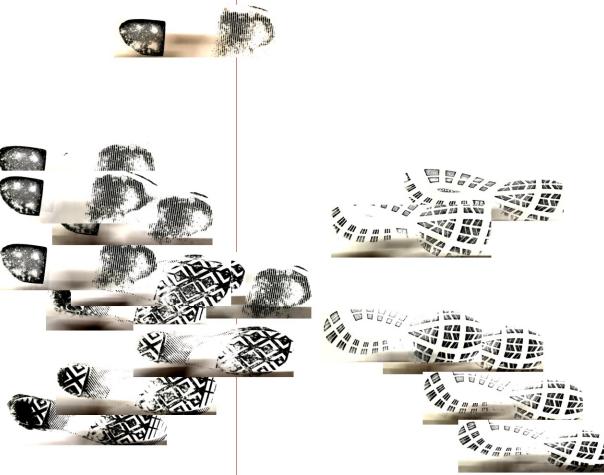
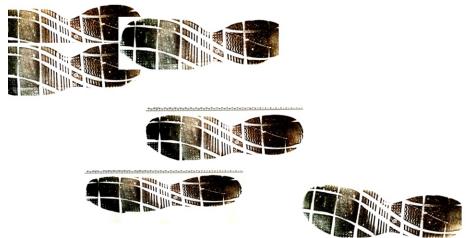
<https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?>

Web Viewer [Terms](#) | [Privacy & Cookies](#)

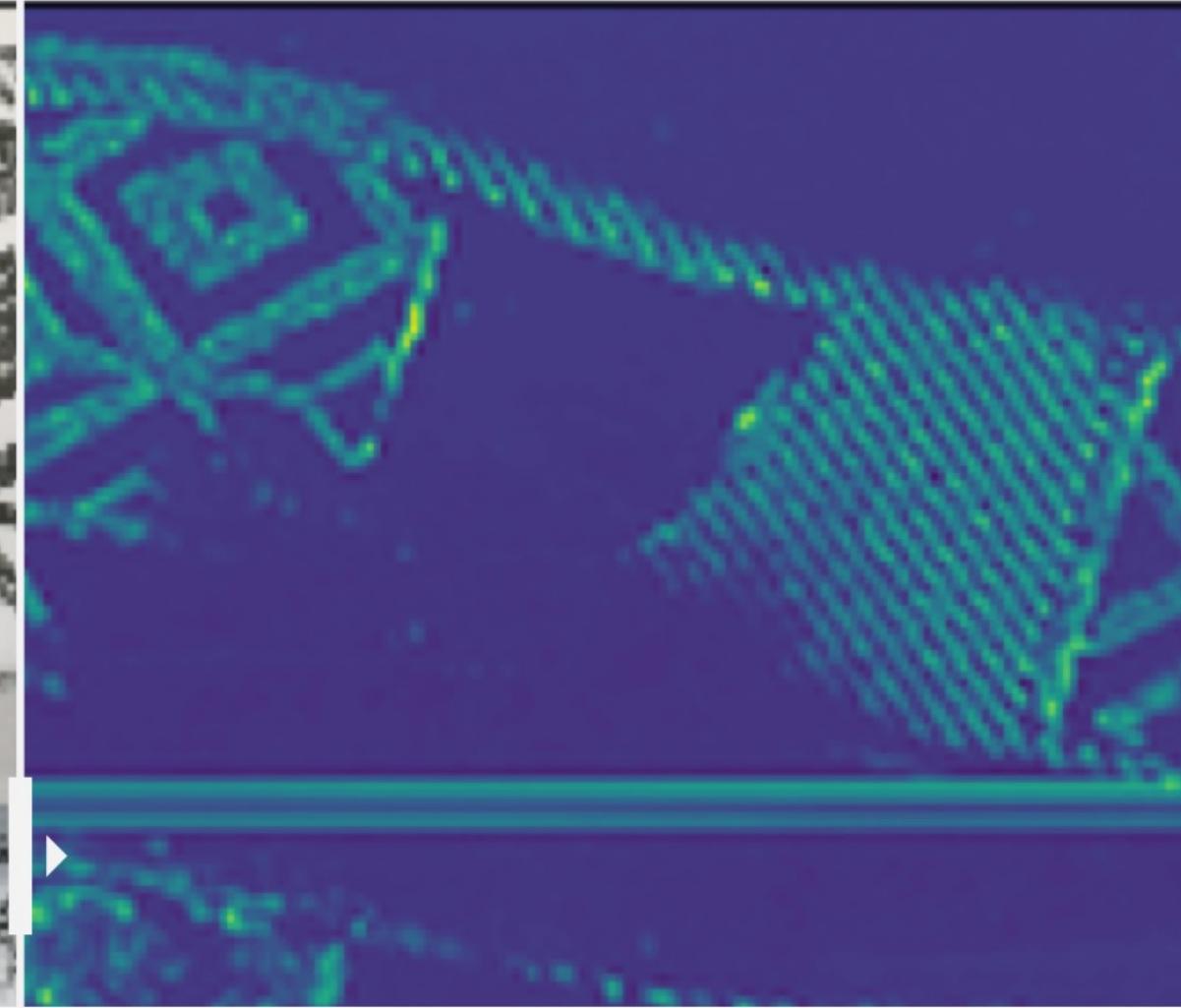
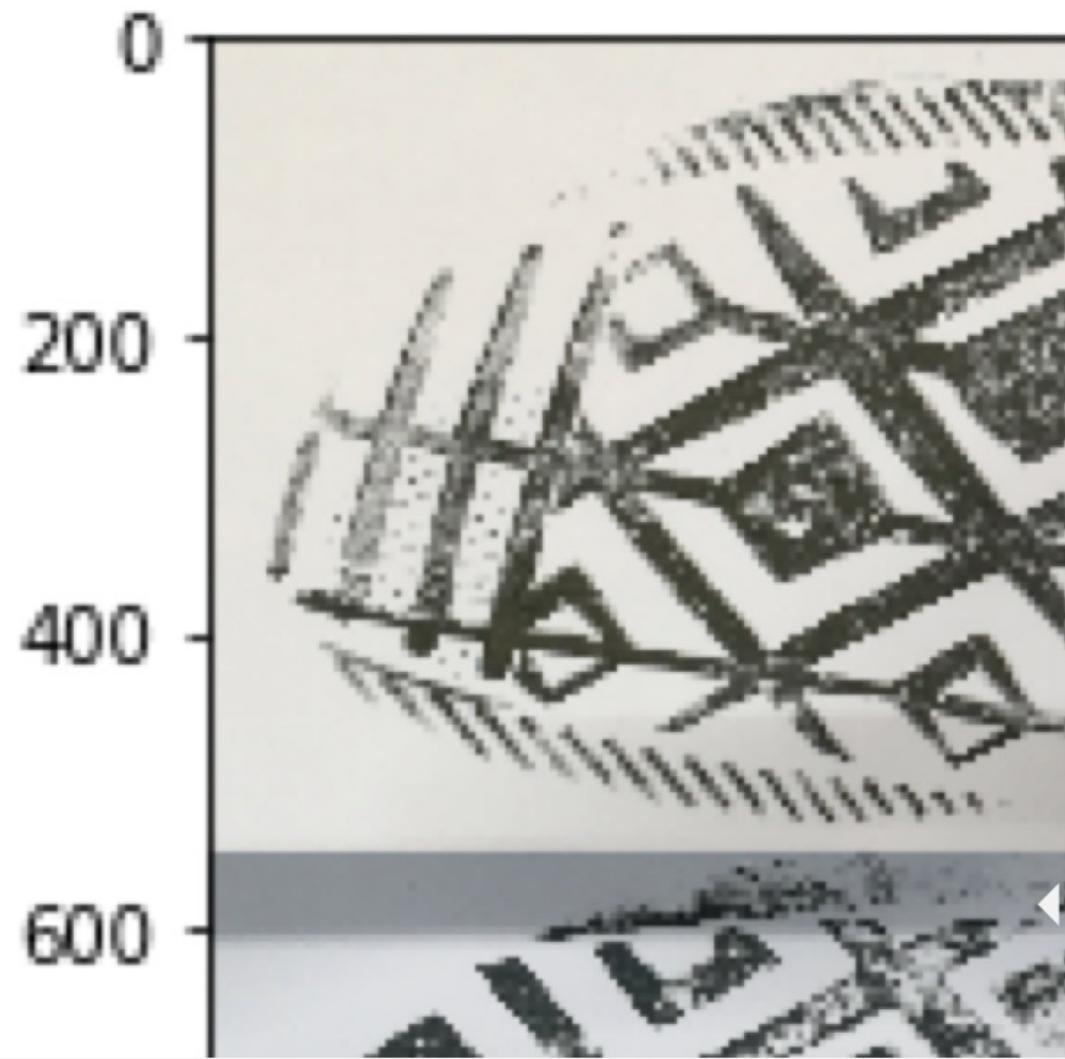
Edit

<https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?uid=2cc3d12c-1cd2-11ea-b9b8-0edaf8f81e27>





	sid00000077-EU38-MAKE-Converse-M019-PRINT_STANDING-REP6.jpeg	2 Apr 20
	sid00000077-EU38-MAKE-Converse-M019-PRINT_STANDING-REP4.jpeg	2 Apr 20
	sid00000077-EU38-MAKE-Converse-M019-PRINT_STANDING-REP5.jpeg	2 Apr 20
	sid00000077-EU38-MAKE-Converse-M019-PRINT_STANDING-REP1.jpeg	2 Apr 20
	sid00000077-EU38-MAKE-Converse-M019-PRINT_STANDING-REP2.jpeg	2 Apr 20
	sid00000077-EU38-MAKE-Converse-M019-PRINT_STANDING-REP3.jpeg	2 Apr 20
	sid00000072-EU37-MAKE-Converse-M007-PRINT_STANDING-REP6.jpeg	2 Apr 20
	sid00000072-EU37-MAKE-Converse-M007-PRINT_STANDING-REP1.jpeg	2 Apr 20
	sid00000072-EU37-MAKE-Converse-M007-PRINT_STANDING-REP2.jpeg	2 Apr 20
	sid00000072-EU37-MAKE-Converse-M007-PRINT_STANDING-REP3.jpeg	2 Apr 20



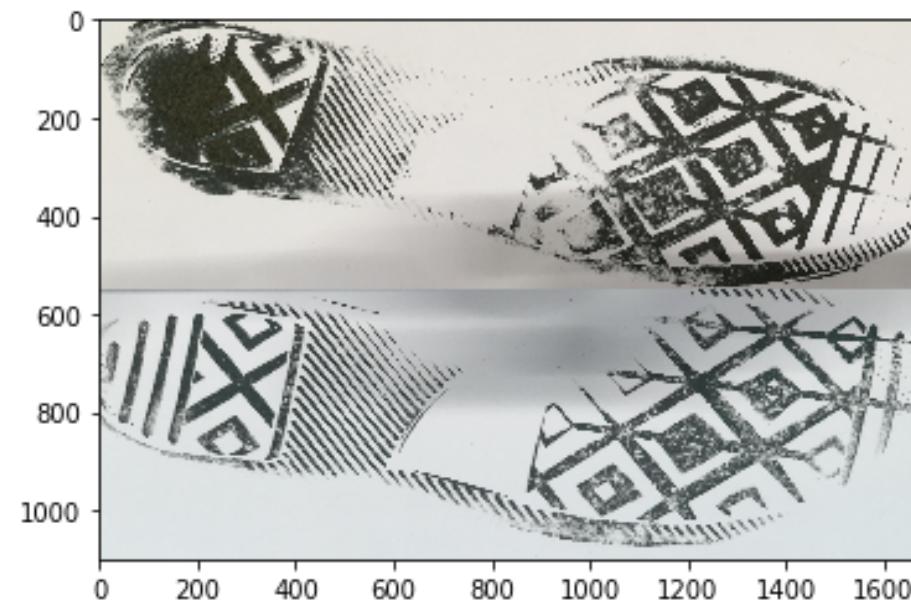
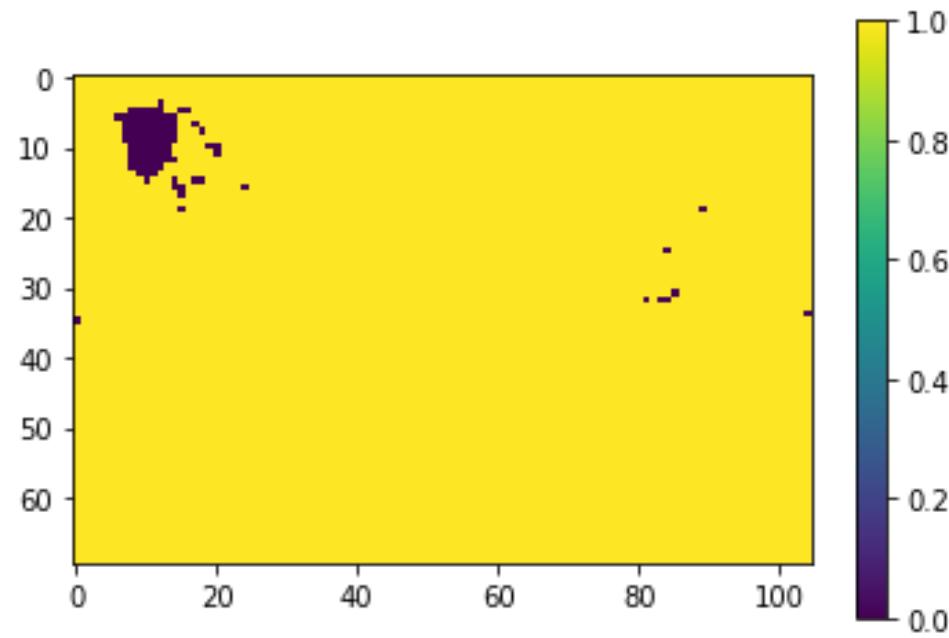
Source:

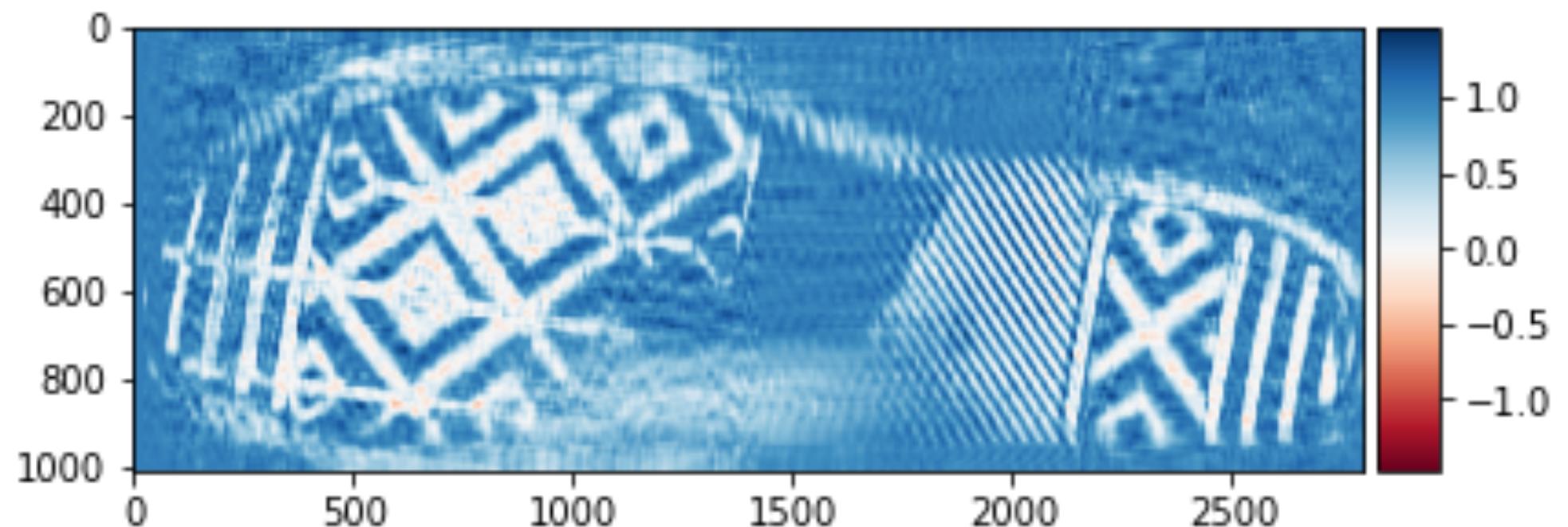
<https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?>

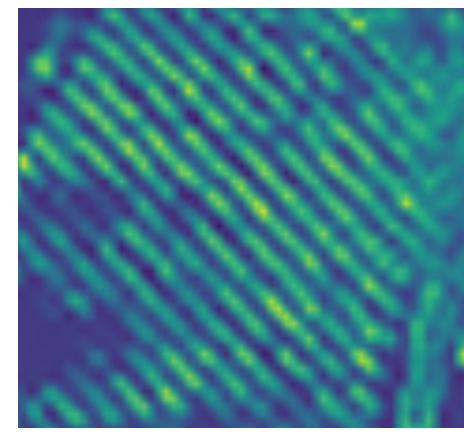
Web Viewer [Terms](#) | [Privacy & Cookies](#)

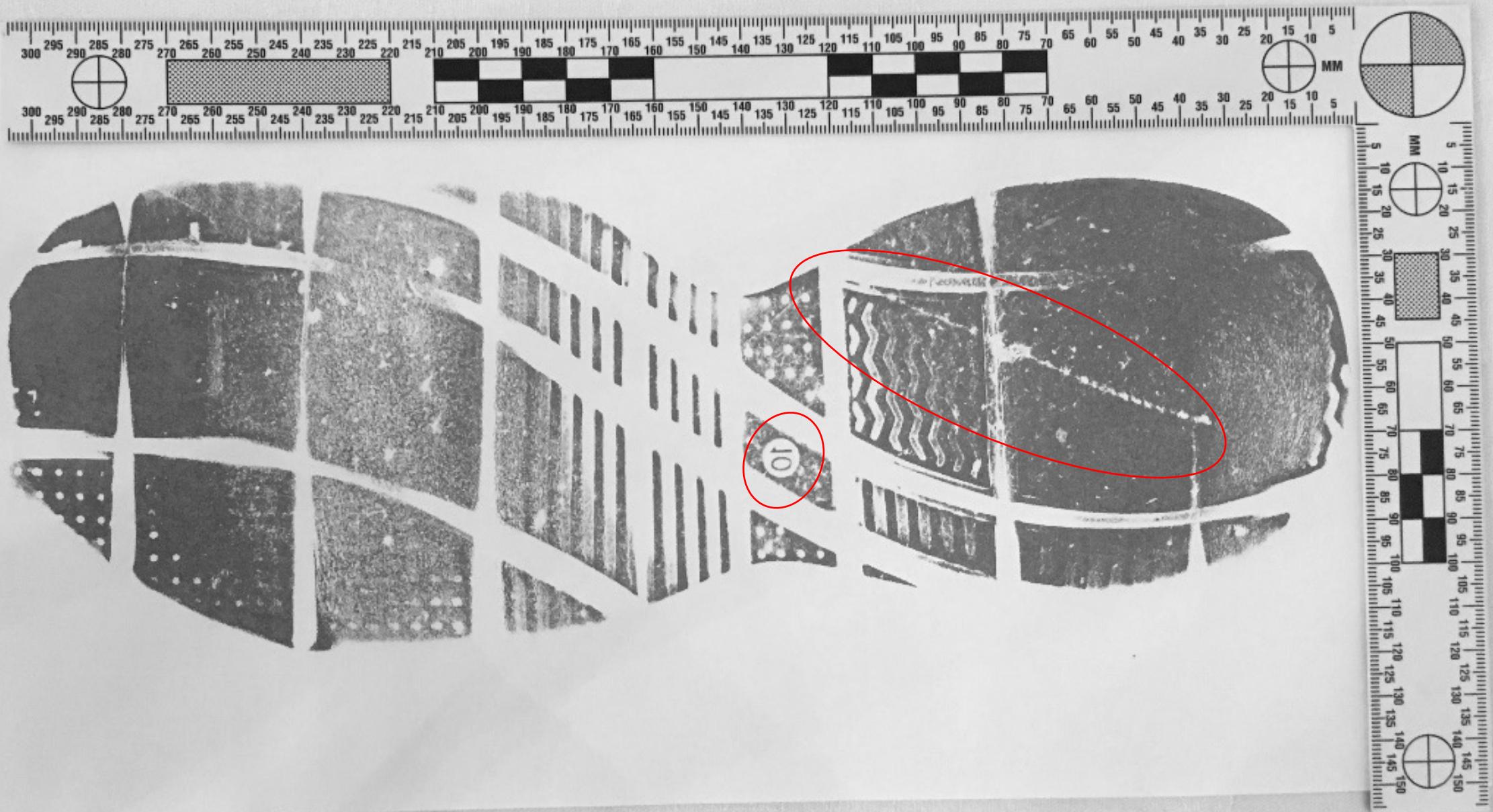
Edit

<https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?uid=53e3042c-1e93-11ea-b9b8-0edaf8f81e27>

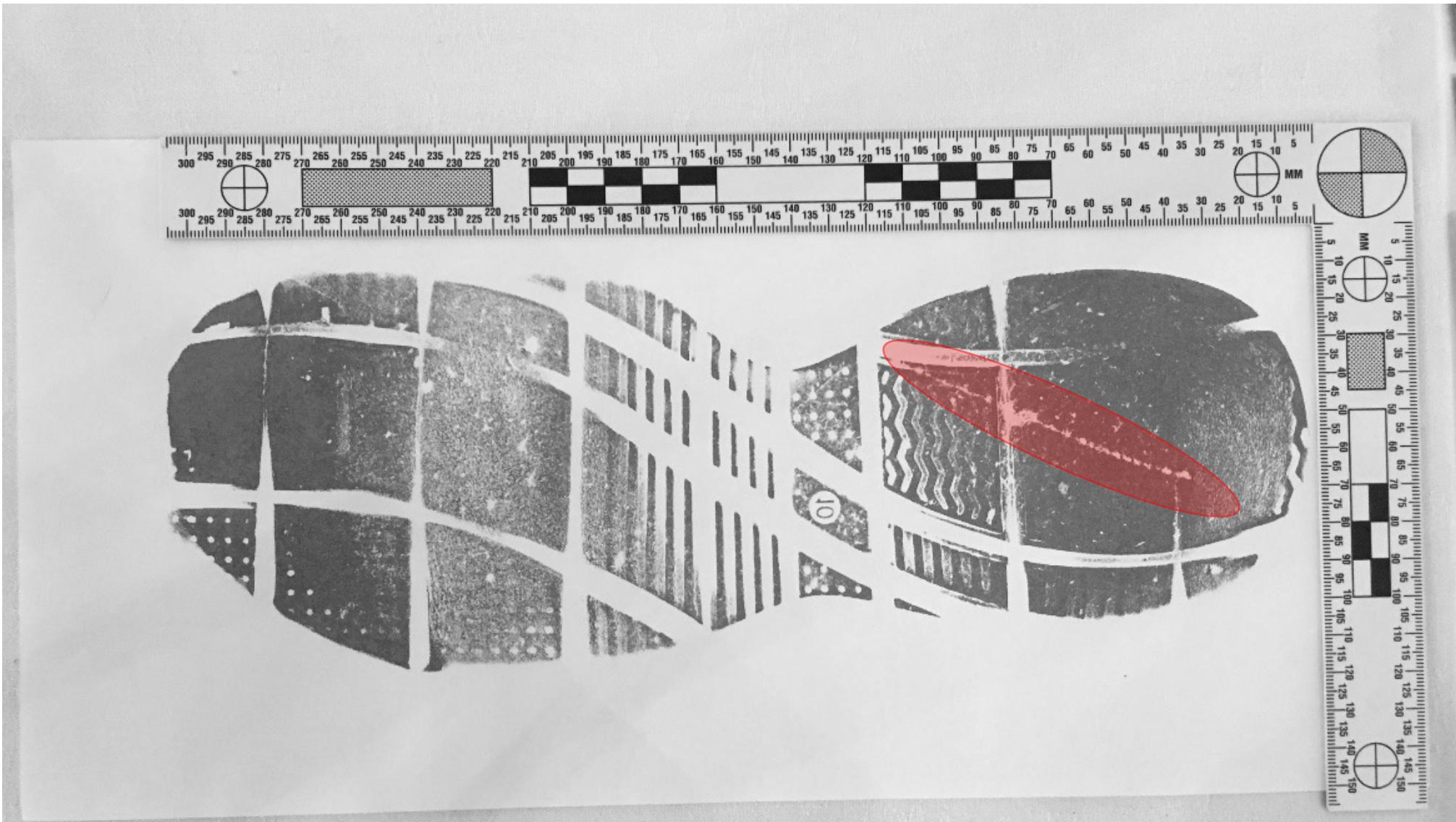








There is a damage to the shoe sole



Thank you

