

# Algorithmes and images

## Using computer vision to analyse historical sources

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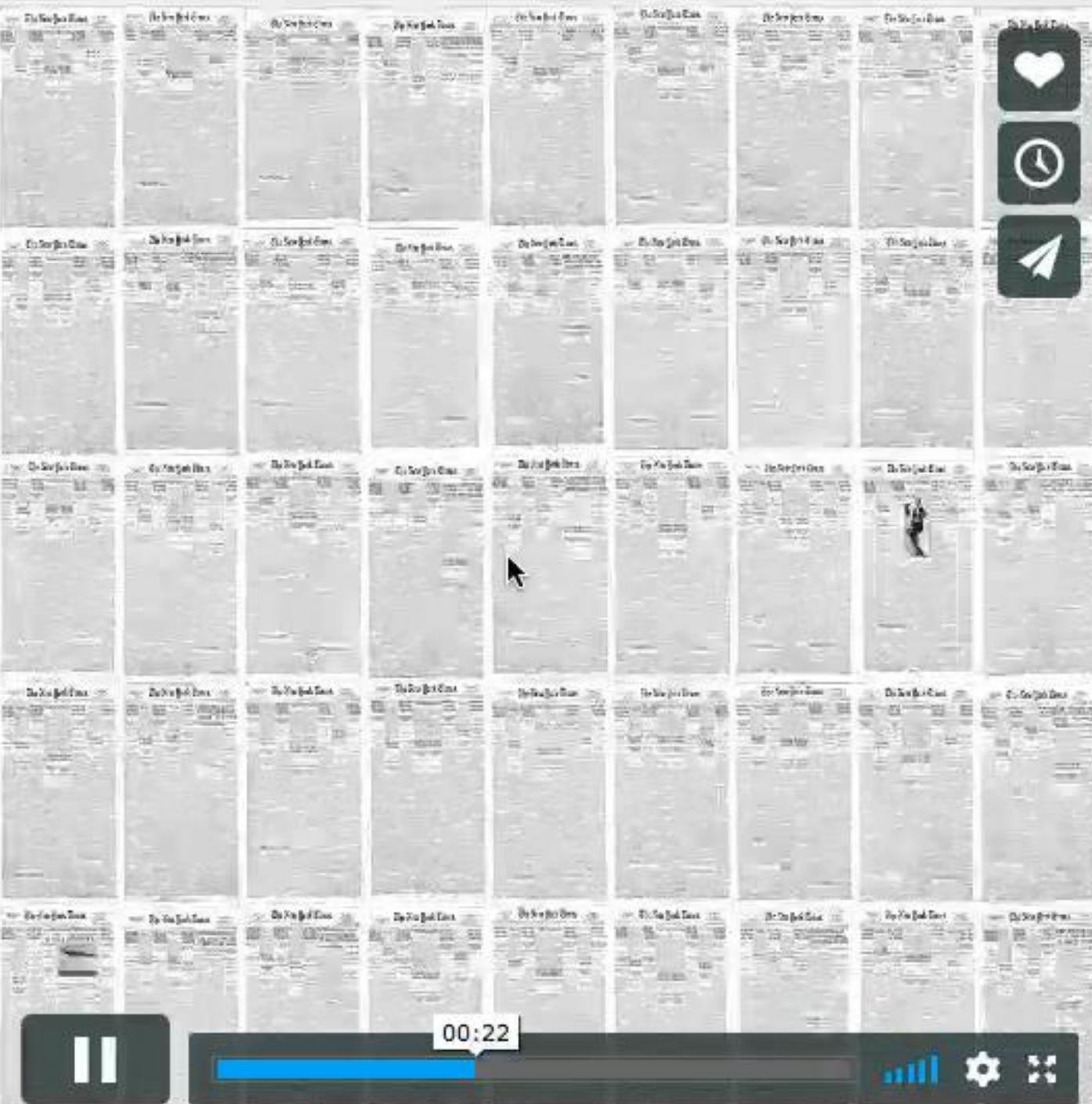
KB Koninklijke Bibliotheek  
National Library of the Netherlands

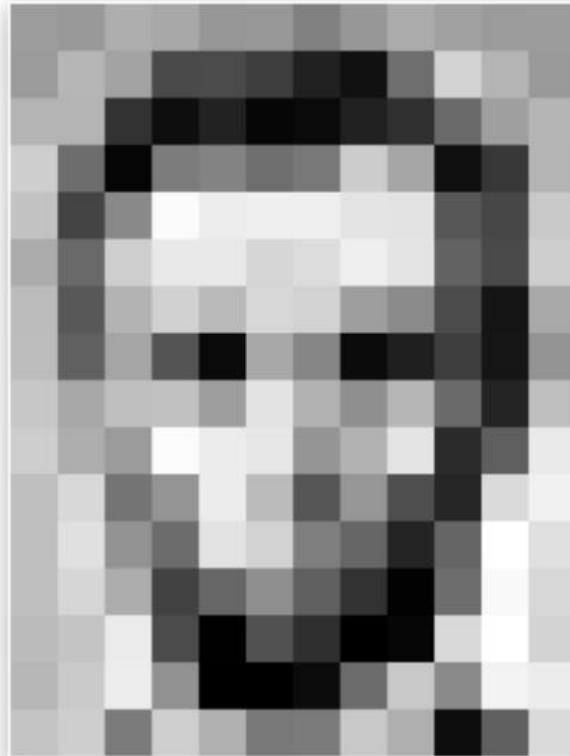


Willem Jan Faber  
[WillemJan.Faber@KB.nl](mailto:WillemJan.Faber@KB.nl)



Erik Kessels, *24 Hours in Photos* (2011)



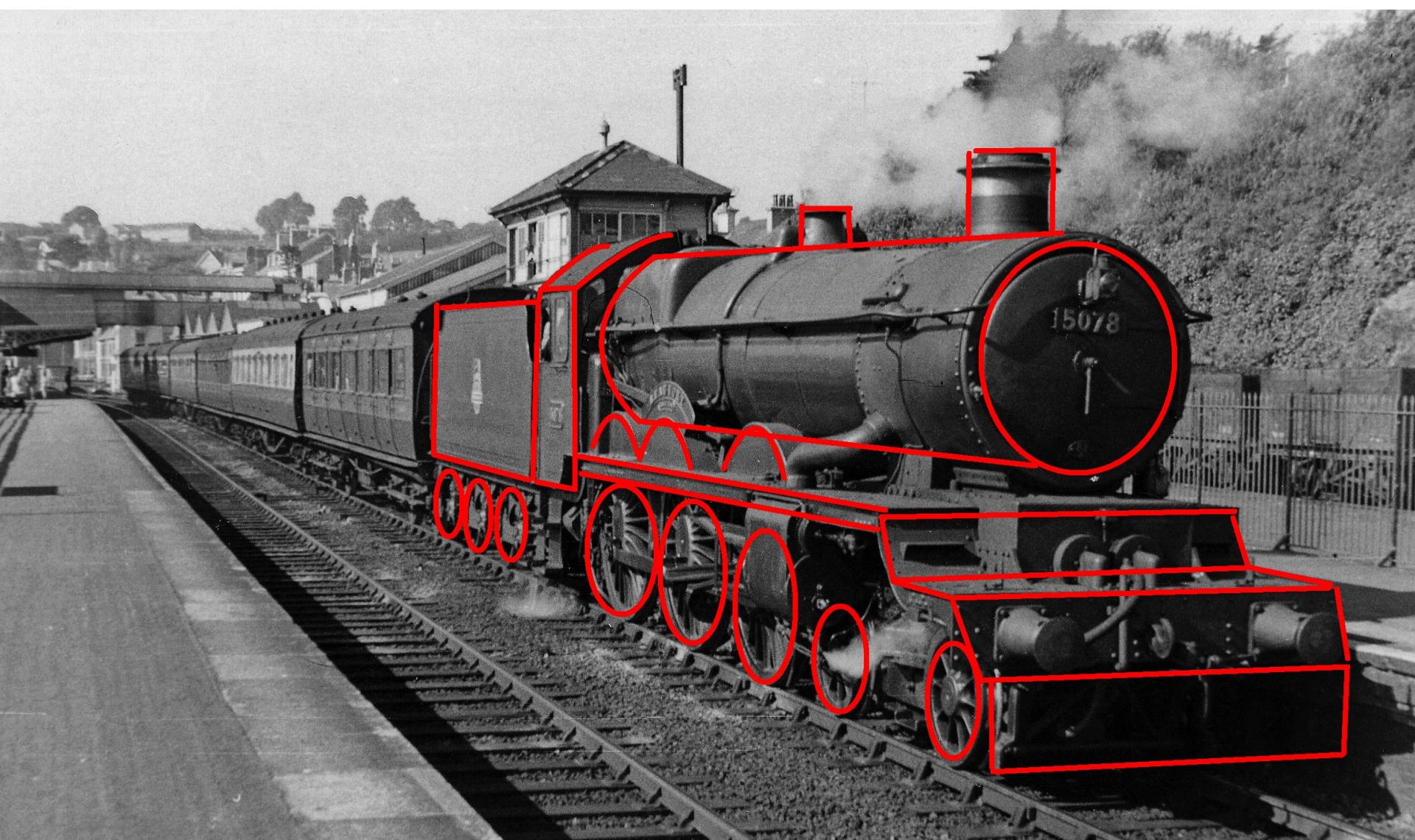


157	153	174	168	150	152	129	151	172	161	155	156
155	182	163	74	75	62	33	17	110	210	180	154
180	180	50	14	34	6	10	33	48	106	159	181
206	109	5	124	131	111	120	204	166	15	56	180
194	68	137	251	237	239	239	228	227	87	71	201
172	106	207	233	233	214	220	239	228	98	74	206
188	88	179	209	185	215	211	158	199	75	20	169
189	97	165	84	10	168	134	11	31	62	22	148
199	168	191	193	158	227	178	143	182	106	36	190
205	174	155	252	236	231	149	178	228	43	95	234
190	216	116	149	236	187	85	150	79	38	218	241
190	224	147	108	227	210	127	102	36	101	255	224
190	214	173	66	103	143	96	50	2	109	249	215
187	196	235	75	1	81	47	0	6	217	255	211
183	202	237	145	0	0	12	108	200	138	243	236
195	206	123	207	177	121	123	200	175	13	96	218

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206	109	5	124	131	111	120	204	166	15	56	180
194	68	137	251	237	239	239	228	227	87	71	201
172	106	207	233	233	214	220	239	228	98	74	206
188	88	179	209	185	215	211	158	199	75	20	169
189	97	165	84	10	168	134	11	31	62	22	148
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195	206	123	207	177	121	123	200	175	13	96	218

*Pixel data diagram. At left, our image of Lincoln; at center, the pixels labeled with numbers from 0-255, representing their brightness; and at right, these numbers by themselves.*

[http://openframeworks.cc/ofBook/chapters/image\\_processing\\_computer\\_vision.html](http://openframeworks.cc/ofBook/chapters/image_processing_computer_vision.html)



[https://commons.wikimedia.org/wiki/File:Dawlish\\_railway\\_station\\_geograph-2444513-by-Ben-Brooksbank.jpg](https://commons.wikimedia.org/wiki/File:Dawlish_railway_station_geograph-2444513-by-Ben-Brooksbank.jpg)





input image

$$\begin{aligned} & ( \begin{array}{ccc} 118 & + & 11 \\ \times 0 & & \times -1 \\ \hline \end{array} + \begin{array}{ccc} 27 \\ \times 0 \\ \hline \end{array} \\ & + \begin{array}{ccc} 56 & + & 41 \\ \times -1 & & \times 5 \\ \hline \end{array} + \begin{array}{ccc} 81 \\ \times -1 \\ \hline \end{array} \\ & + \begin{array}{ccc} 32 & + & 65 \\ \times 0 & & \times -1 \\ \hline \end{array} + \begin{array}{ccc} 110 \\ \times 0 \\ \hline \end{array} ) \\ & = \begin{array}{c} -8 \end{array} \end{aligned}$$

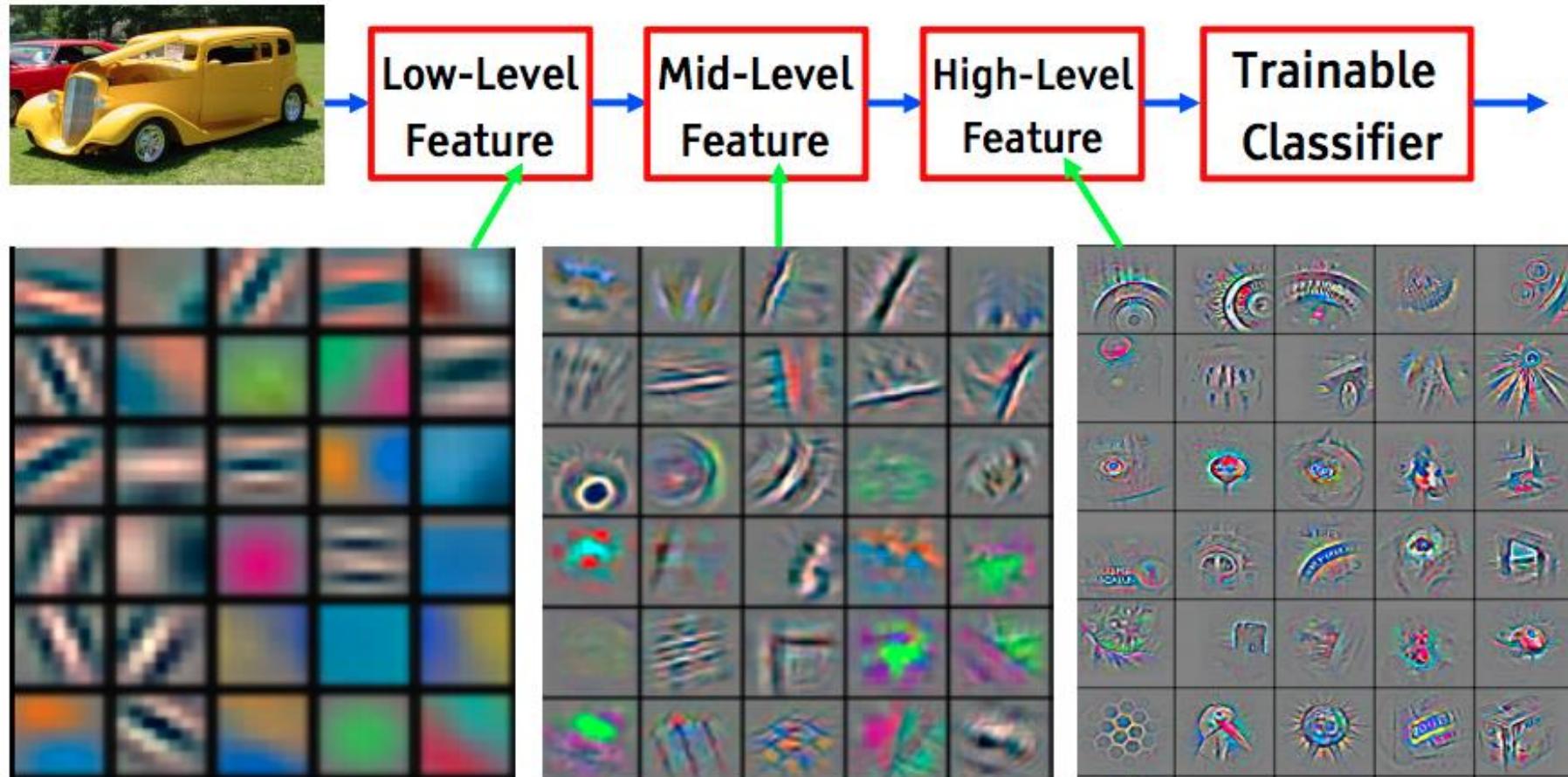
kernel:

sharpen



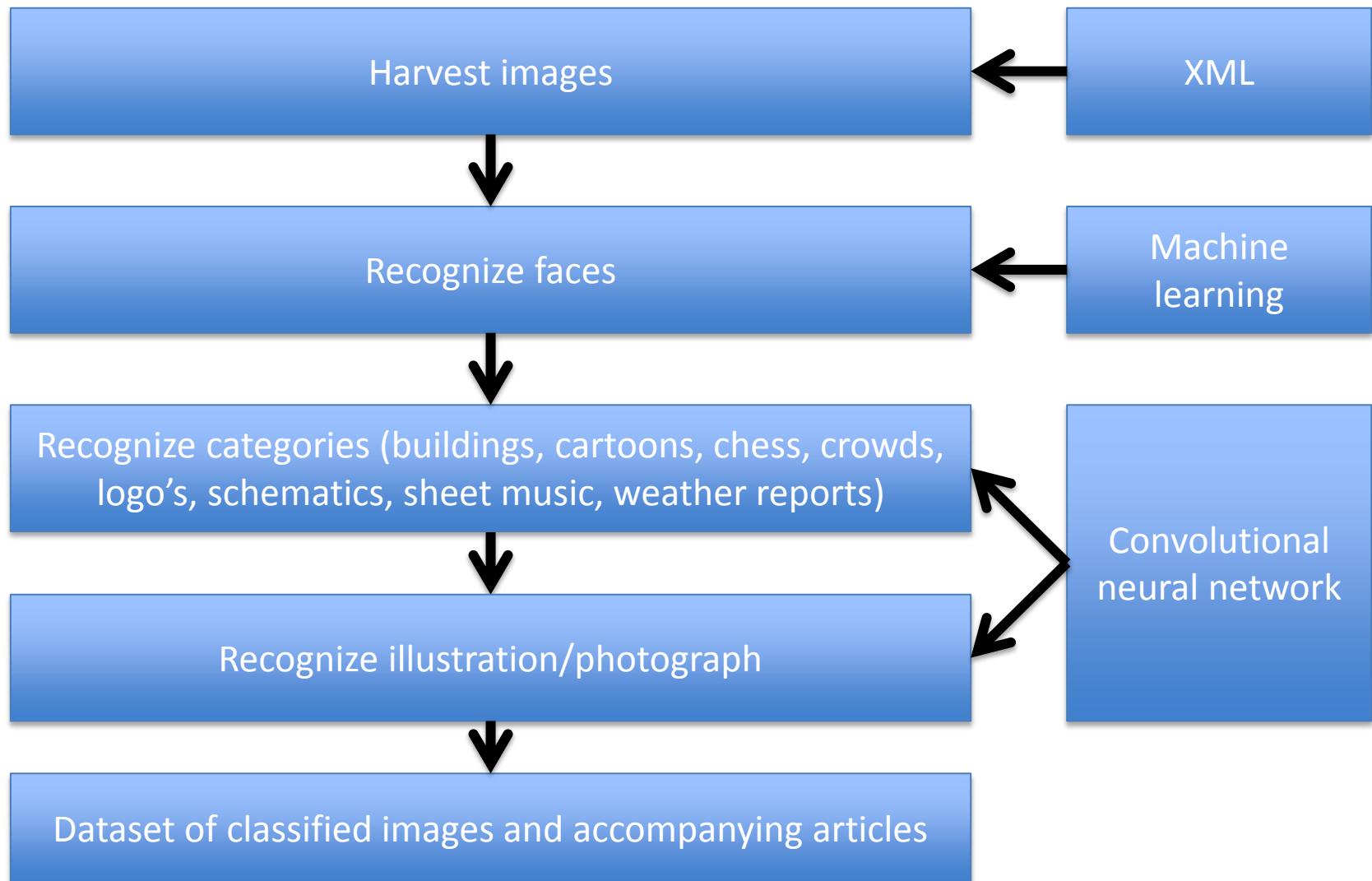
output image

<http://setosa.io/ev/image-kernels/>



<http://www.iro.umontreal.ca/~bengioy/talks/DL-Tutorial-NIPS2015.pdf>

# Pipeline





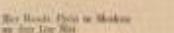
WE ARE BLESSED BY GOD—Blessed Creation is an Answer to the Question: Who is God?



200



DE STUDEMAKS: Studies on the Indian name  
the Project concerning the Lakota language



Her Heart Felt so Shaken  
by her Love Not



погибших под землей. — 2 940 из них — гражданские лица, 1 007 из них — военнослужащие и 1 033 — члены их семей.



A small, rectangular portrait of a man with dark hair and a prominent mustache, looking slightly to the right.

• 47 •



The standard type of construction

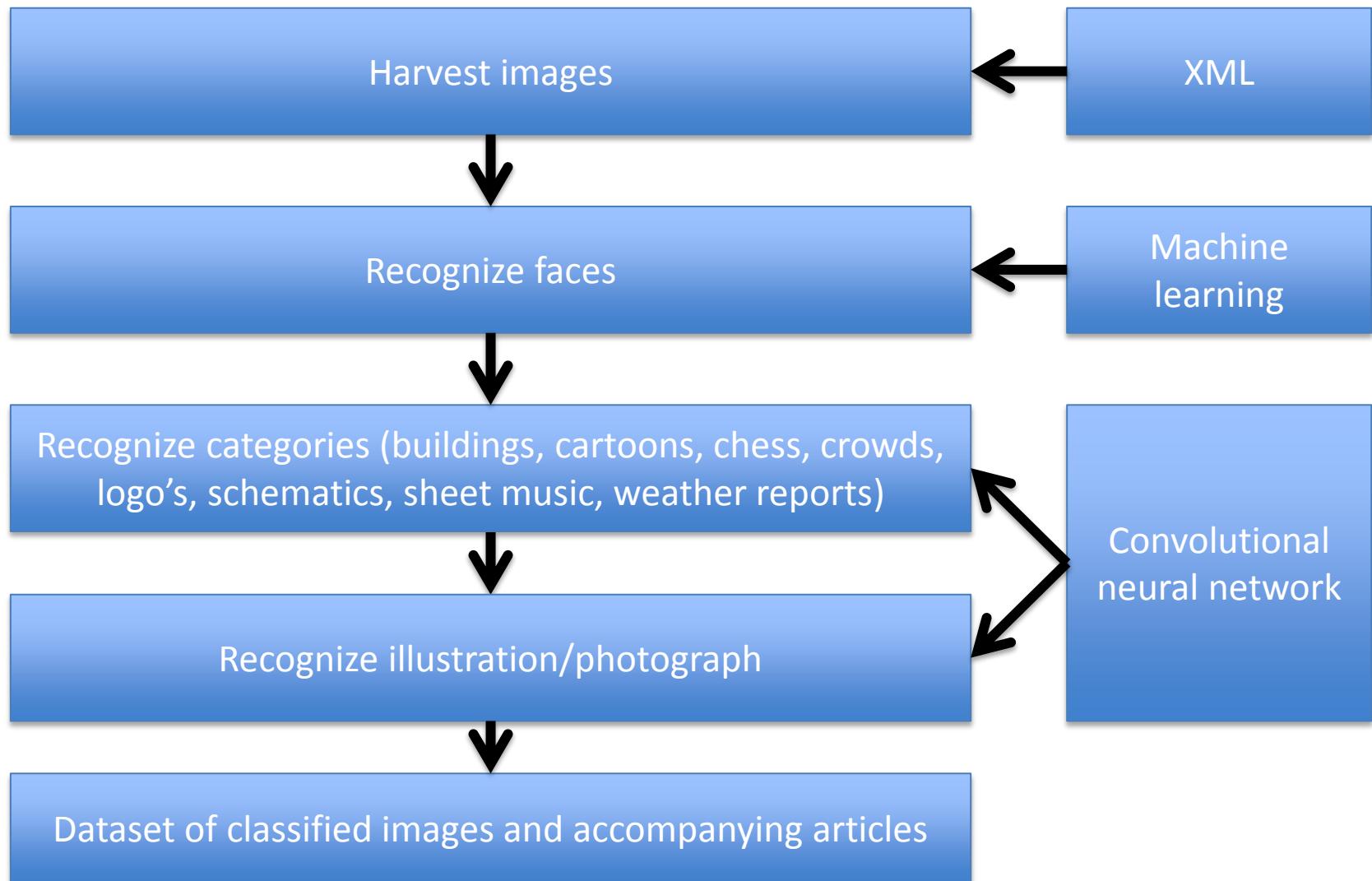


卷之三



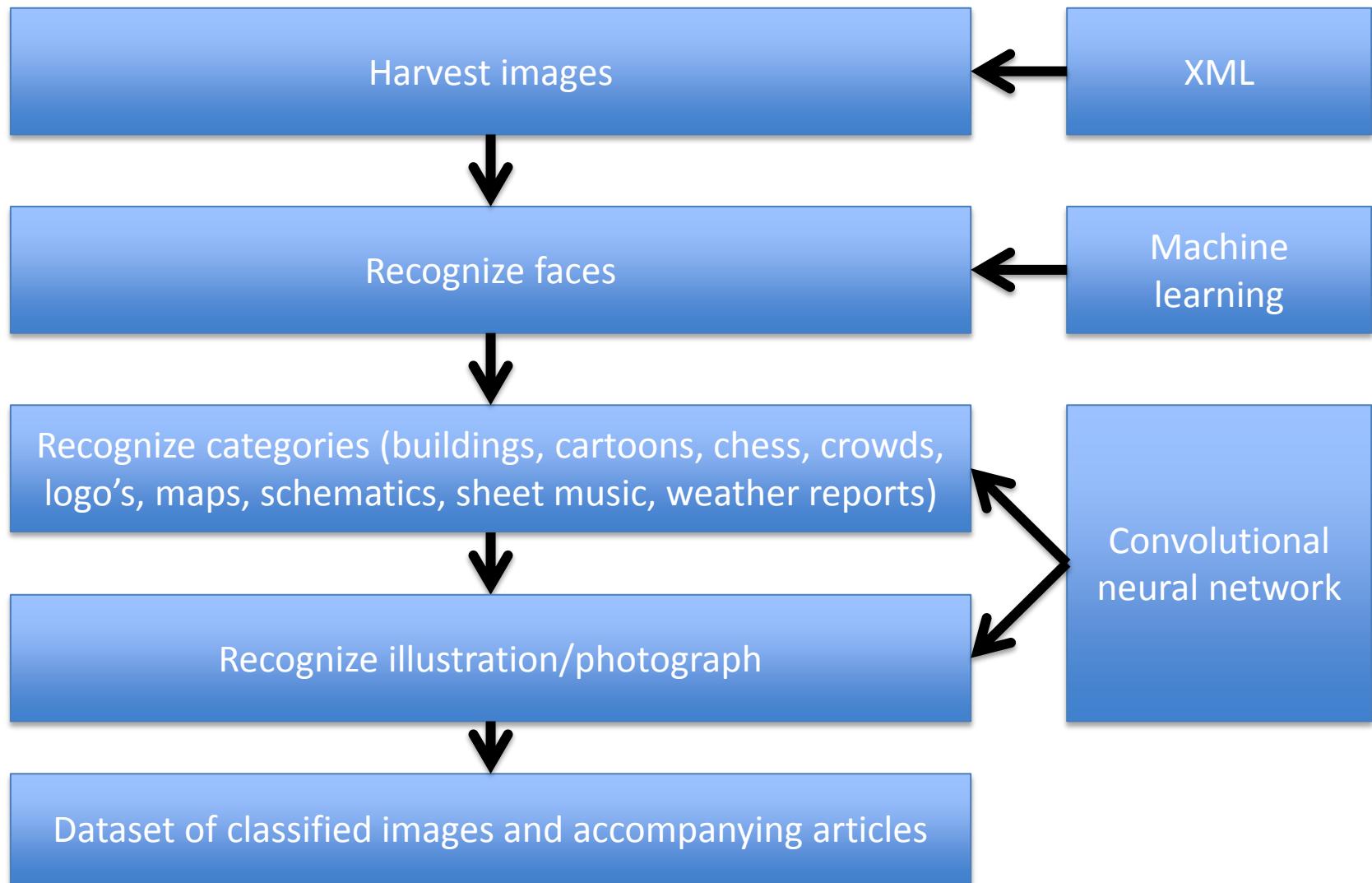
CRM to support the commercial activities of the institution by modernizing

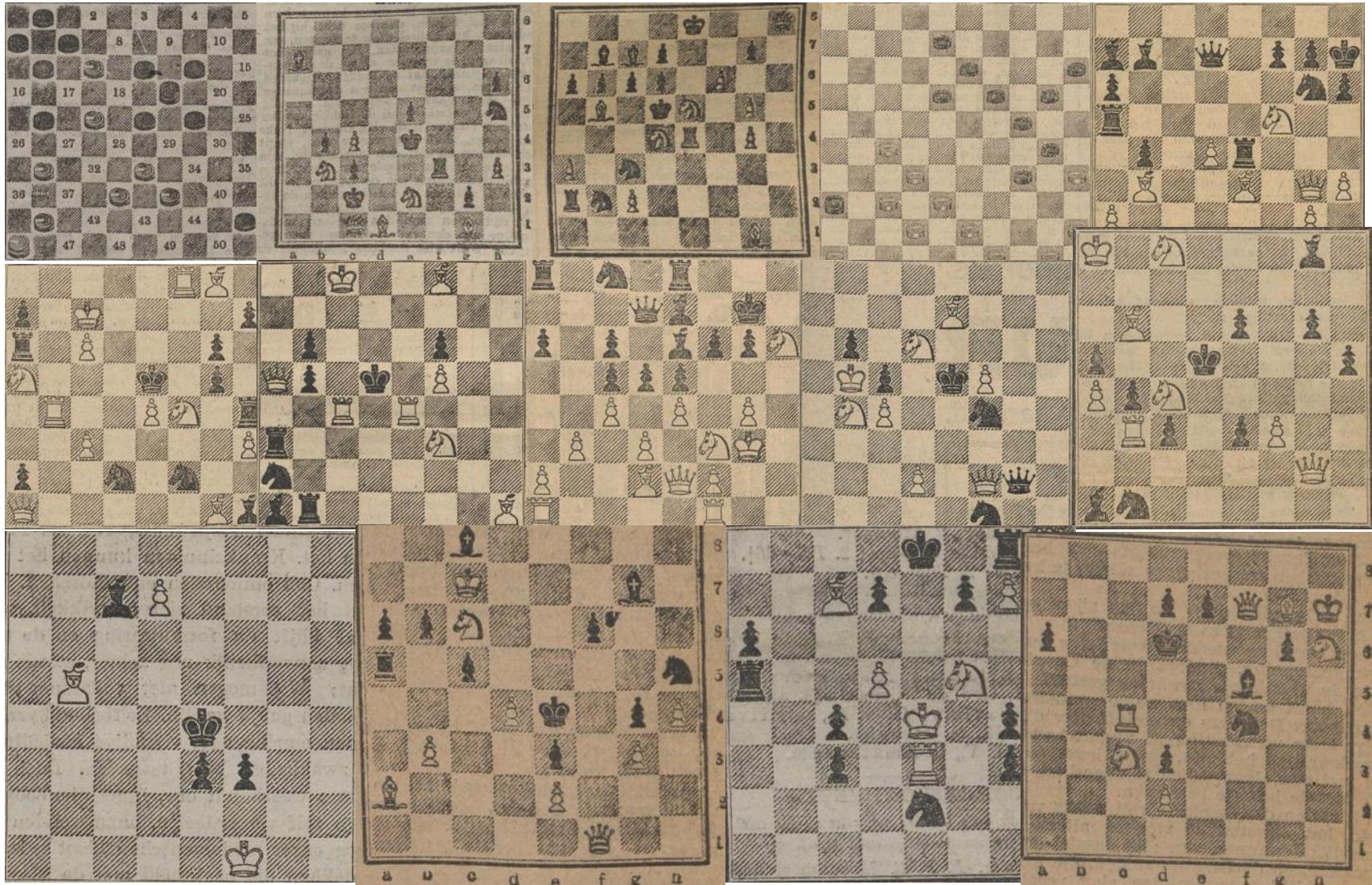
# Pipeline

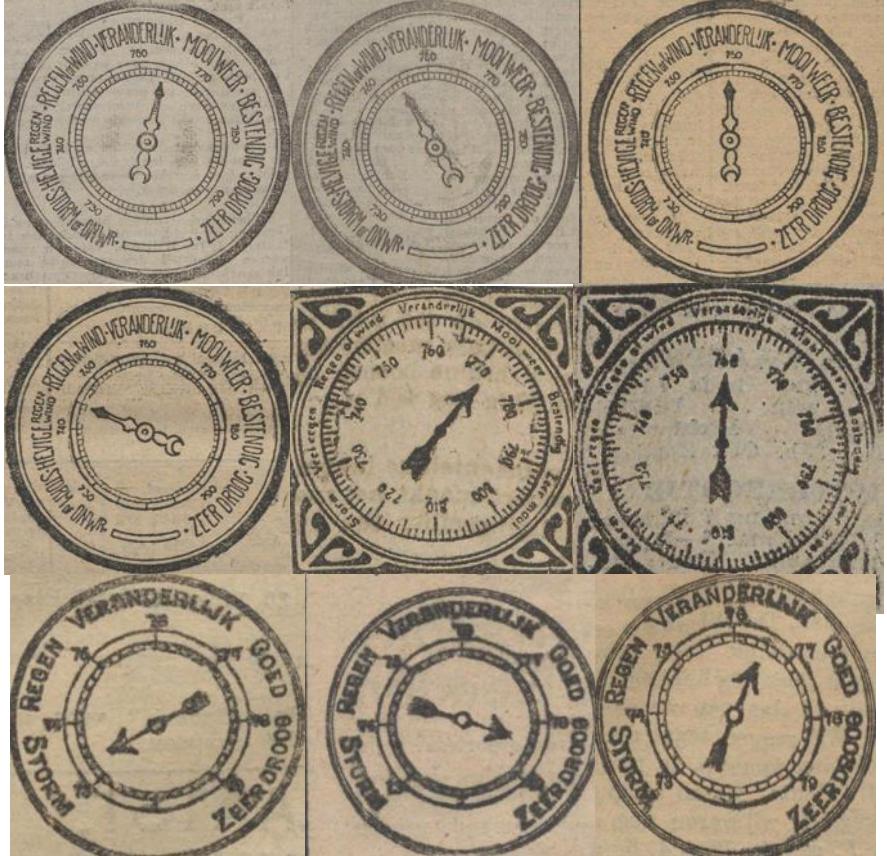




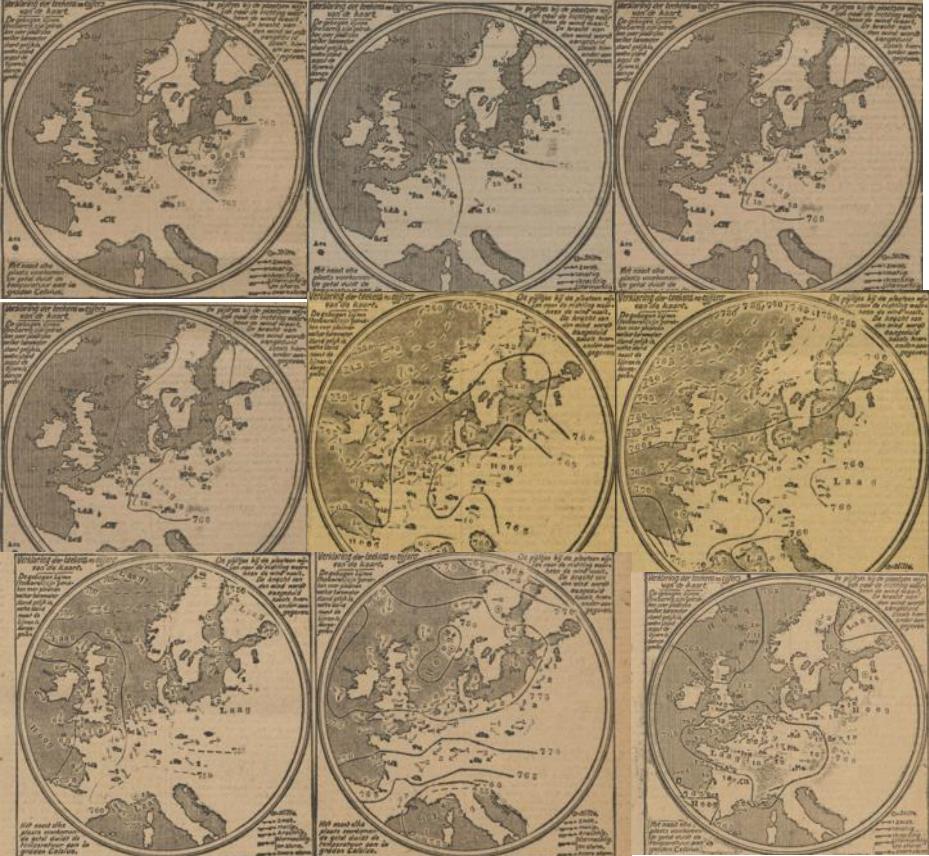
# Pipeline







1900-1910



1915-1920



Een nabetrachting op de Oud Batavia-maskerade.



De staking bij „Vrachtaart”.

Tekening van JORDAN.



DE DIRECTIE: Cleve schipper, haal mij over, naar dat gindsche  
dorpje heet . . . ?

Een aanwinst voor het Kolonial Museum.



Zoo ging het tot dusver!....



In gesprekkenstaat van D.D. trouw dat  
ontnemende, noch niet ziet van de Eerste  
reisje vredigst!

Hooge Belangstelling!



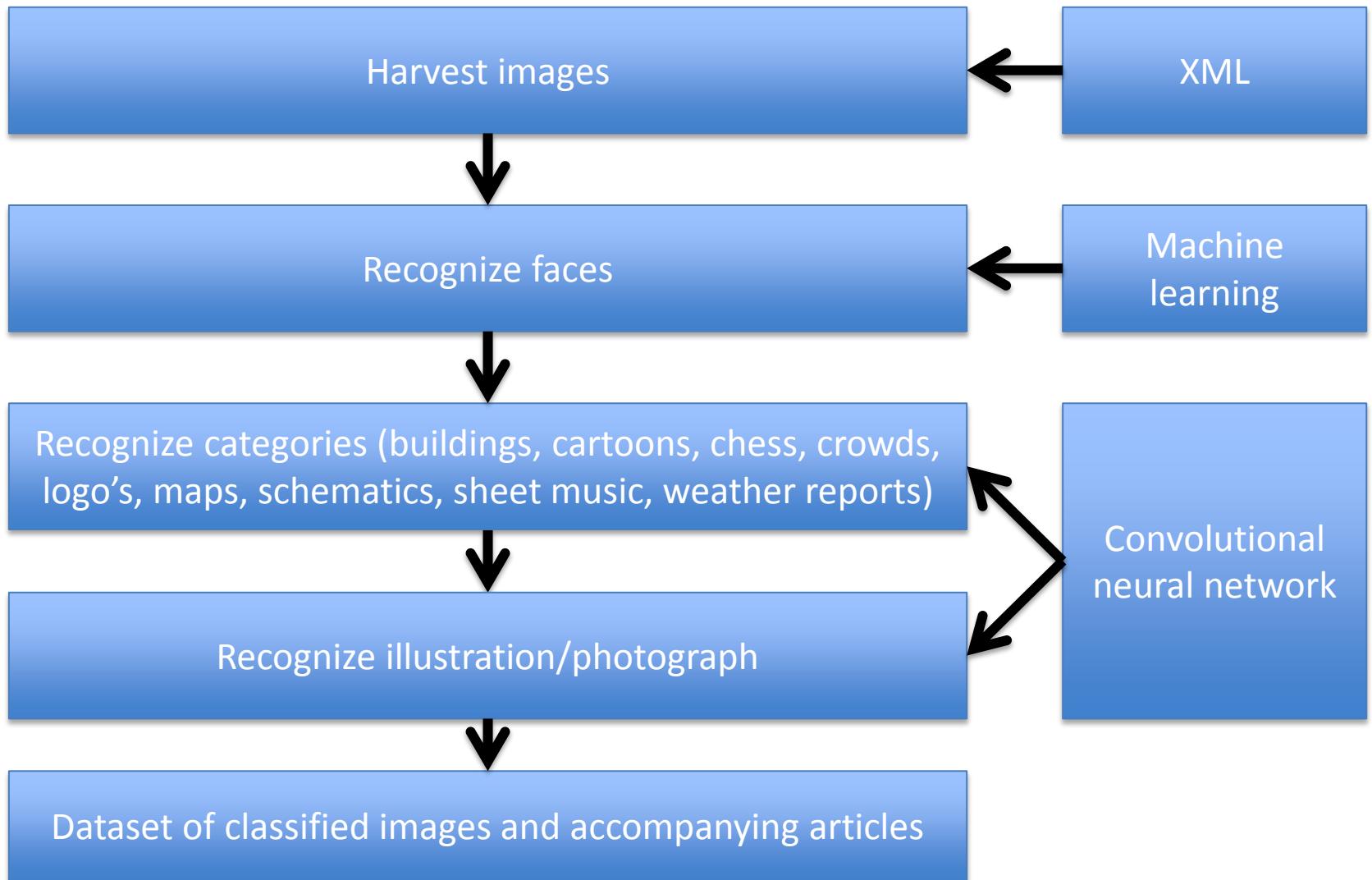
Burger!  
(In Den Haag.)



Aan boord!  
(Rode Zee.)

Weer burger!  
(In Soerabaja)

# Pipeline

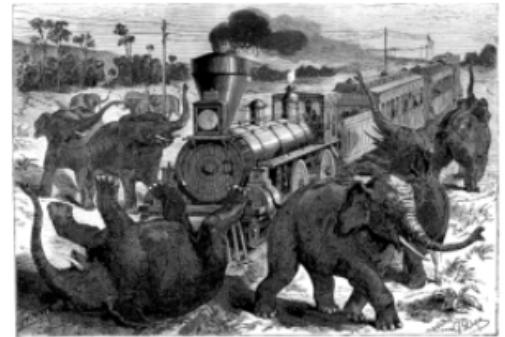




## Image search query builder

Select date-range:

1860-01-01                    1937-01-31



Select image type:

- Photo  Drawing  Photo or drawing

Select image category:

Image with face:

- No  Yes  Yes or no

Text in article:

[http://www.kbresearch.nl/xportal?image\\_type=photo&image\\_type=building&date\\_within=1860-01-01T00:00:00Z%201937-31-01T00:00:00Z](http://www.kbresearch.nl/xportal?image_type=photo&image_type=building&date_within=1860-01-01T00:00:00Z%201937-31-01T00:00:00Z)

go



# Thank you!

- Digital research at the National Library of the Netherlands → <http://lab.kb.nl/>
- My website → [illustratednewspictures.tumblr.com](http://illustratednewspictures.tumblr.com)

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