

Intelligent Form Scanner

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Motivation & Goal

- Information age
 - Computers & Smartphones
 - **Handwritten** documents
- **Optical character recognition (OCR)**
 - Reading **text** from the **paper** and translating the **images** into a **format** that the **computer** can **manipulate**
- **Intelligent Form Scanner (Simplified OCR)**
 - Convert the **form** with **numbers** inside from **image** format to **electronic** version
 - Enable users to harness the **power of computer** and smartphone to **access** documents with lots of **handwritten digits**
 - Paper -> Image -> CSV File

Approach

Extract the form from the image

Edge detection

Perspective warp

Detect the **gridlines** of the form by Hough transform

Extract the handwritten **digits** and do some **processing**

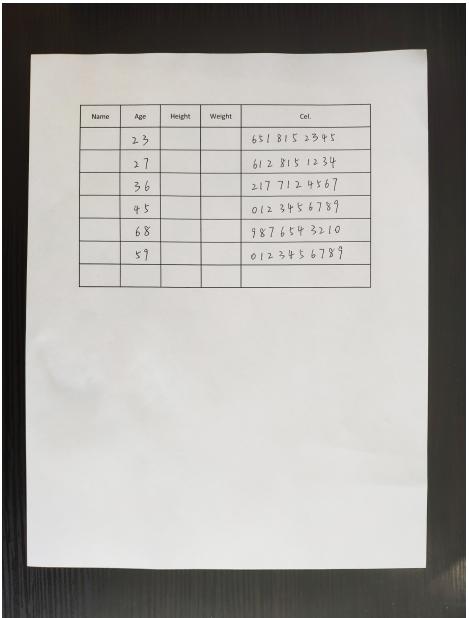
“Rect” out the handwritten digits

“Beautify” the images that contain digits

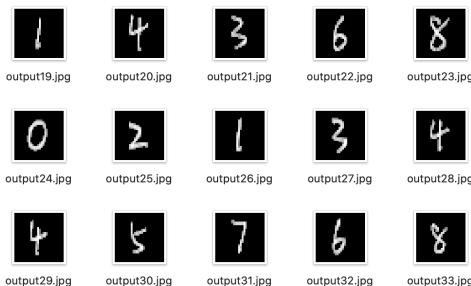
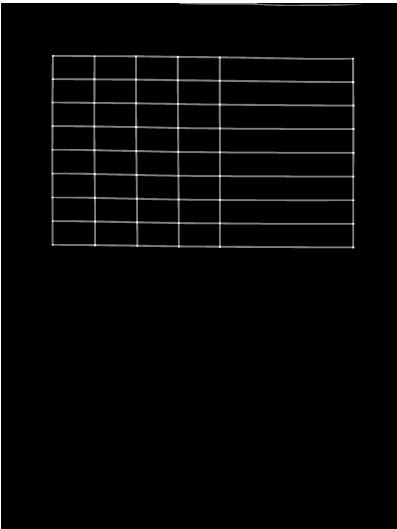
Recognize the handwritten **digits** with deep learning (**CNN**)

Use a **csv** file to **record** the digits in the form

Results



Name	Age	Height	Weight	Cel.
23			6518152345	
27			6128151234	
36			2177124567	
45			0123456789	
68			9876543210	
59			0123456789	



Original image

Extracted form

Gridlines and
Extracted digits

Electronic form

Name	Age	Height	Weight	Cel.
	23			6518152345
	27			6128151234
	36			2177124567
	45			0123456789
	68			9876543210
	59			0123456789

Q&A

Thank you