

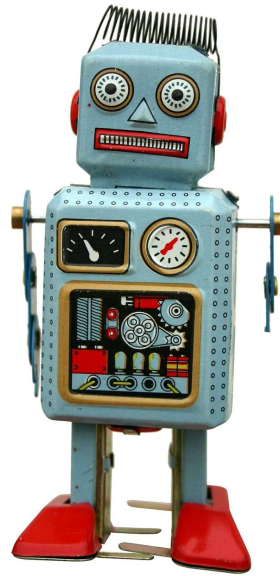
Computer Vision!

What is Computer Vision?

What is Computer Vision?
It's How AI processes Visual Inputs

How Computer Vision works

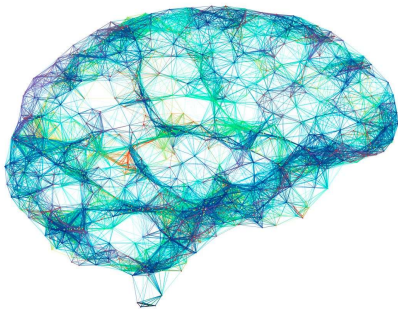
- How do Machines See?



Neural Networks is how Computers

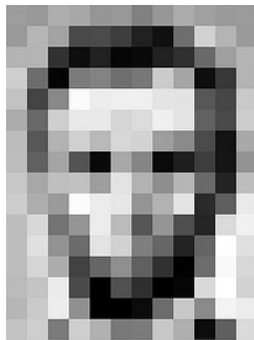


- Neural Networks
- Neural Networks love numeric only data
- Capable of taking an extremely high amount of input features, and labels, and Predicting
- How do we convert images to numbers?



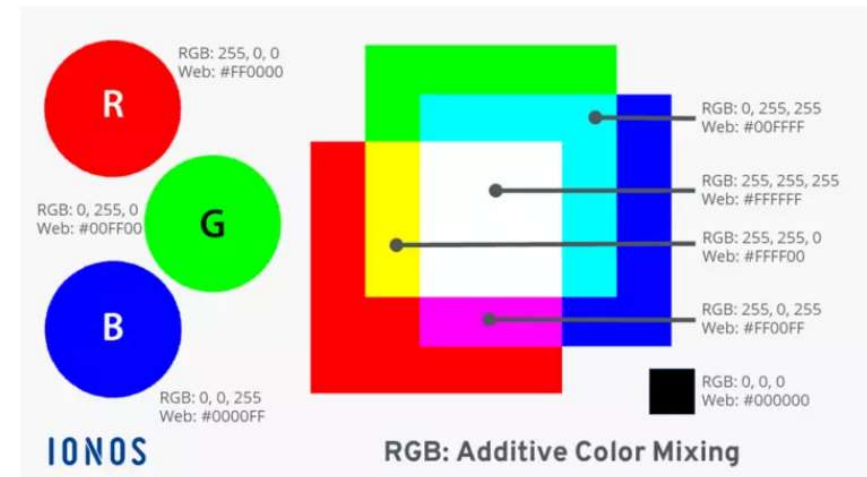
Converting Images to Numbers

- Images are comprised of pixels
- Colors of the Rainbow can be represented numerically
- Black and White is just 1 number (Magnitude or Intensity)
- 3 Numbers for Color by mixing RGB in varying Magnitudes



157	153	174	168	150	152	129	151	172	151	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	6	124	131	111	120	204	166	15	56	180
194	68	137	251	237	239	239	238	227	87	71	201
172	105	207	233	233	214	220	239	228	98	74	206
188	88	179	209	185	215	211	158	139	75	20	169
189	97	165	84	10	168	134	11	31	62	22	148
199	168	191	193	158	227	178	143	182	105	36	190
205	174	158	252	236	231	149	178	238	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	195	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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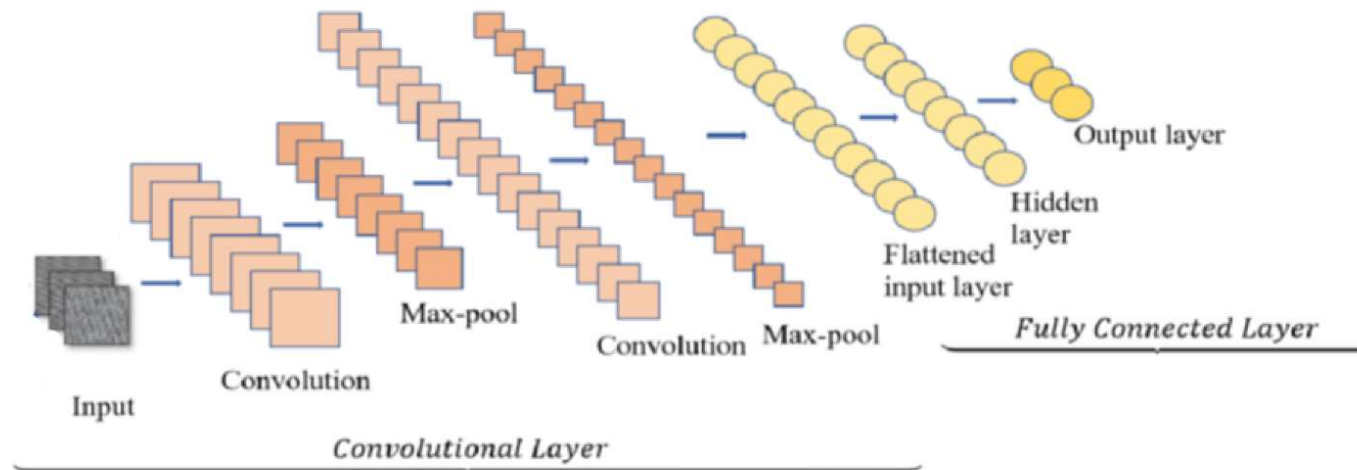
Feature Extraction

- Convolutions are applied to the image to extract Features
- <https://youtu.be/KuXjwB4LzSA?si=XDEXlYlgbh2nxWYj>
- <https://www.youtube.com/shorts/4xWpQe3G9ql>
- 3Blue1Brown, the resource for breaking down confusing ideas
- <https://www.thinkwithgoogle.com/marketing-strategies/automation/applied-machine-learning/>
- <https://youtu.be/wMdX2Hy5XN8?si=noqH5Vsg3Ya01ShP>

- Maybe understanding the Convolutions is not necessary for a lot of Deep Learning Scientists/Researchers interested in Language.

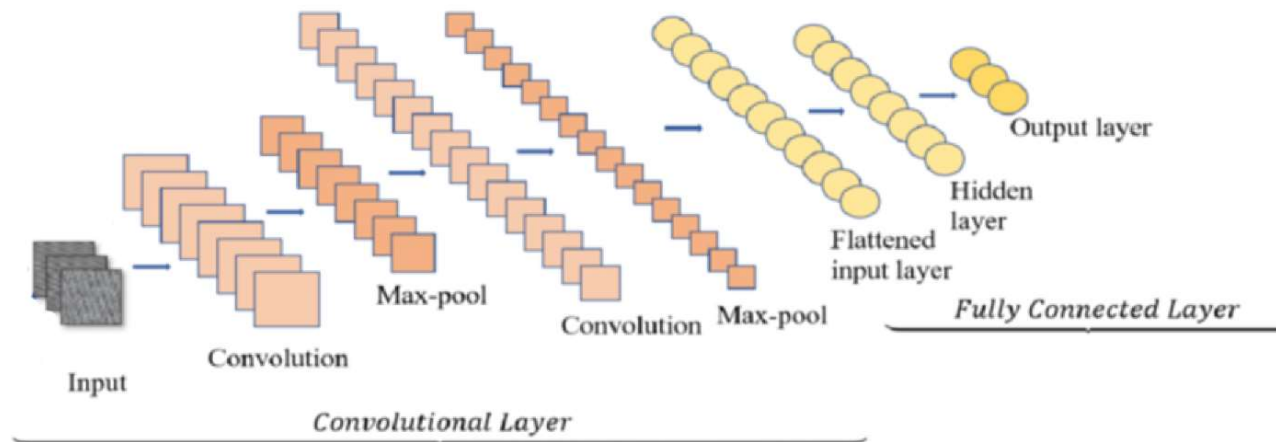
2D Convolutional Neural Network?

- 2D because images are 2D
- Convolutional because we apply Convolution Layers



2D Convolutional Neural Network?

- Max-pool because we need to reduce dimensions after Convolution
- Activation Function, Output Layer because we have desired Output

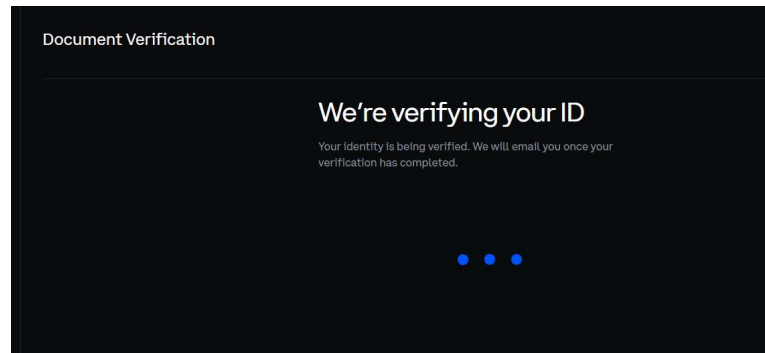


Let's go to the Python Code!

How can Computer Vision be
used with Crypto?

Fraud Prevention

- Already in use verifying identity, documents



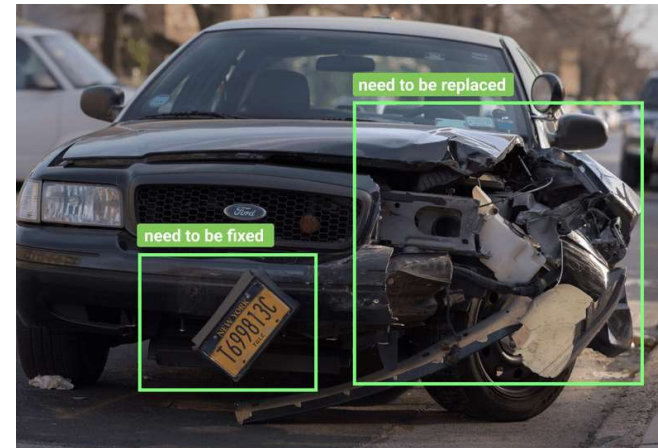
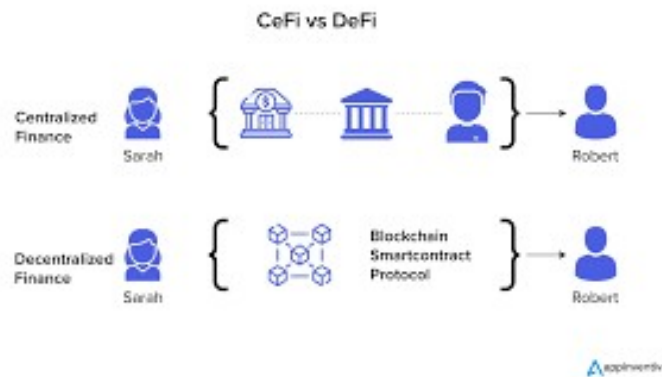
Food Traceability

- Did a delivery show up? Is food spoiled? Broken Seal?



Insurance

- Decentralized insurance would pay out upon receipt of video/images proof



Healthcare

- Image based verification can lead to better aid distribution using smart contracts



Nature Conservation and Advocation

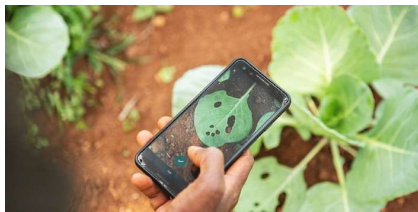
Photos can be associated with environmental resources by Geolocation
This data along with other sensor data, can be managed on public blockchain



Nature Conservation and Advocation

Provides a crowd-source verifiable fact of possible environmental quality

All interested parties could contribute information: Farmers, Environmentalists, Outdoor Recreationalists, even Augmented Reality Enthusiasts



Thanks for Watching!

