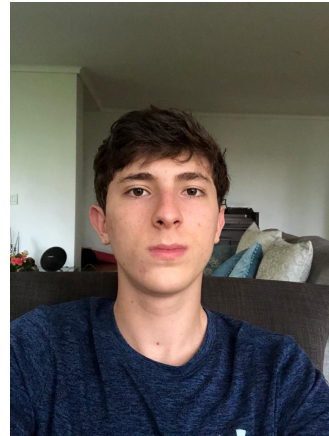# Algorithms to Further the Development of PLA Technologies

Tomas Calle

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Salazar

Simón
Marín

Mauricio
Toro

Sick-Cattle Images

Healthy-Cattle Images

Convolutional Neural Network
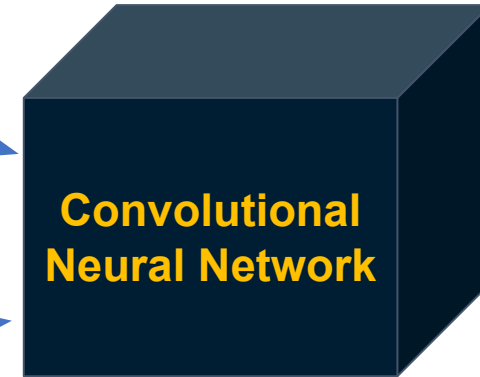
Classification Algorithm

Classification Model

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Cattle Image

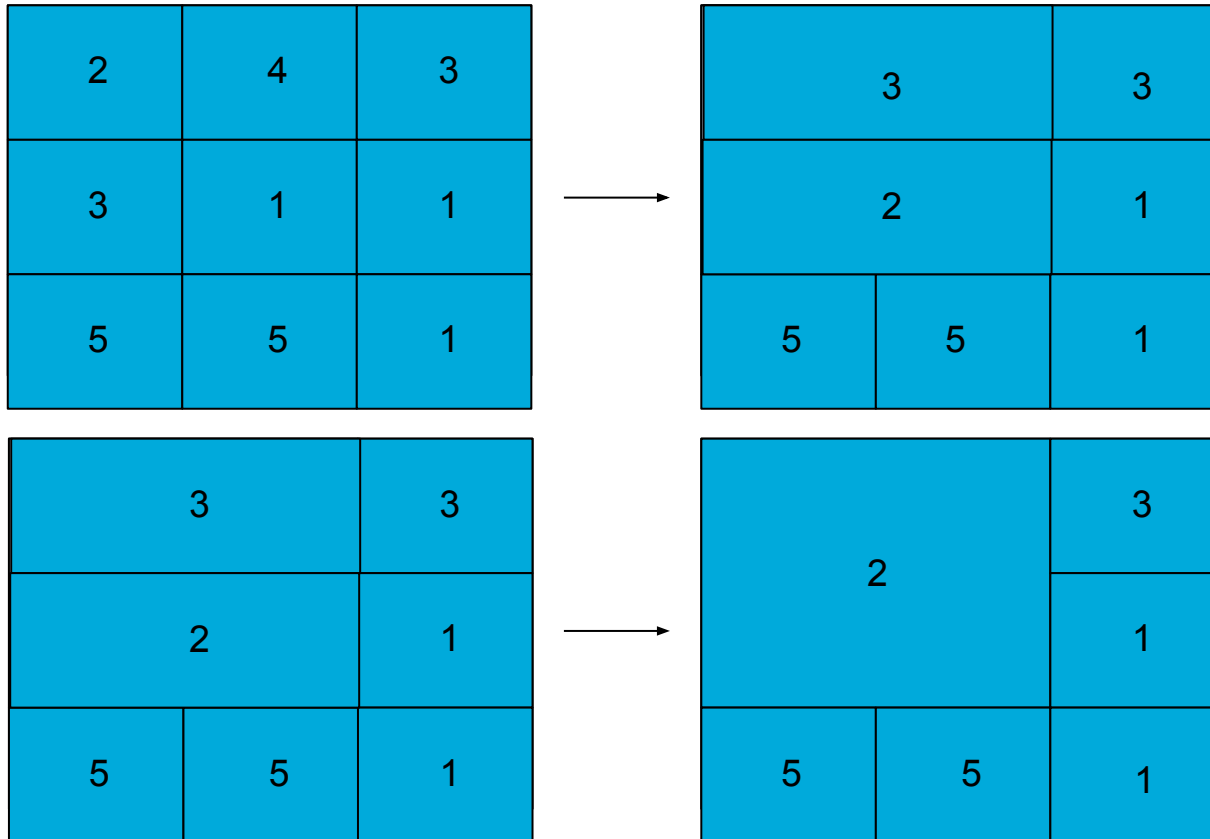**Interpolation Algorithm**

Classification Model

Output
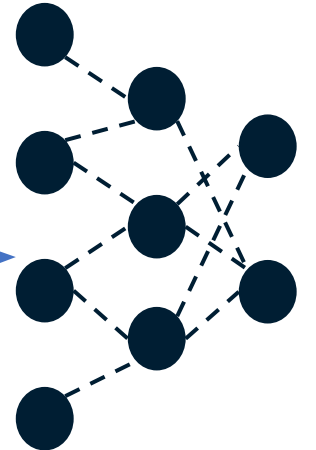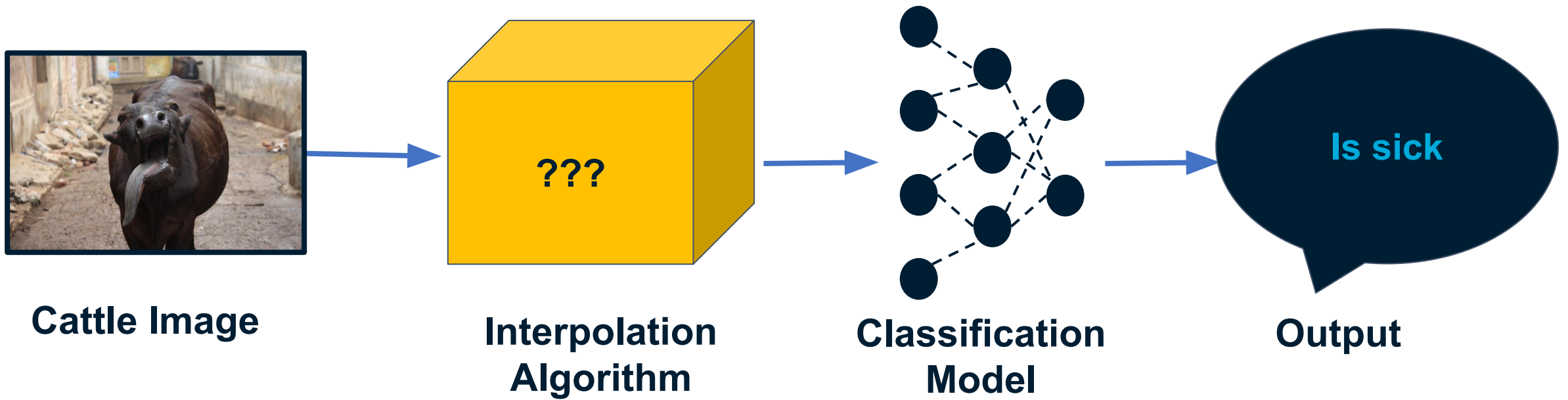
Image compression algorithm - Interpolation Algorithm
The algorithms converts n values into 1 value that represents the average of n values.

for

2	4
3	1

$(2+4)/2 = 3 = x1$

$(3+1) / 2 = 2 = x2$

$(x1+ x2)/2 = 2$

2

The algorithm iterates over blocks of 4 values and calculates the average of all values.
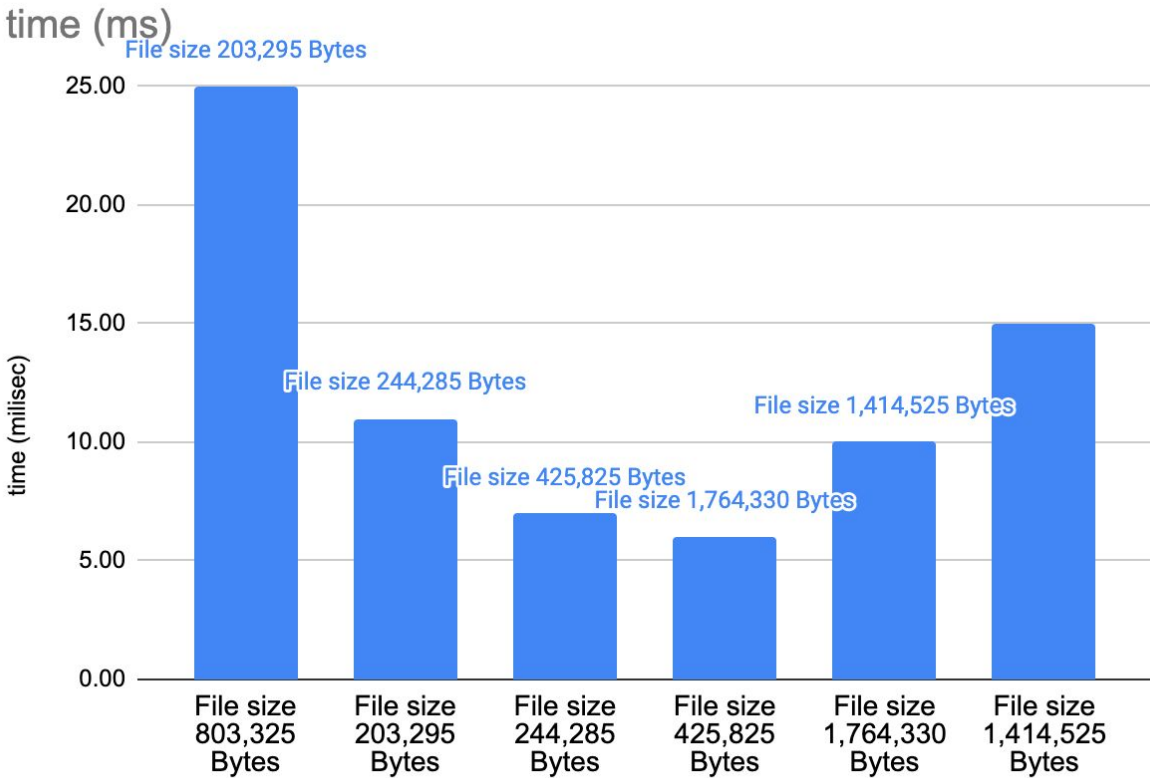
|	Time Complexity	Memory Complexity
Image compression	O(N*M)	O(N*M)
Image decompression	O(N*M)	O(N*M)

Run length algorithm combined with summations algorithm. N represents the number of rows in the photograph`s pixel matrix and the M represents the number of columns in the photograph`s pixel matrix.

Time and Memory Consumption

Time Consumption

Memory Consumption

	Compression Ratio
Healthy Cattle	20 : 13
Sick Cattle	20 : 13
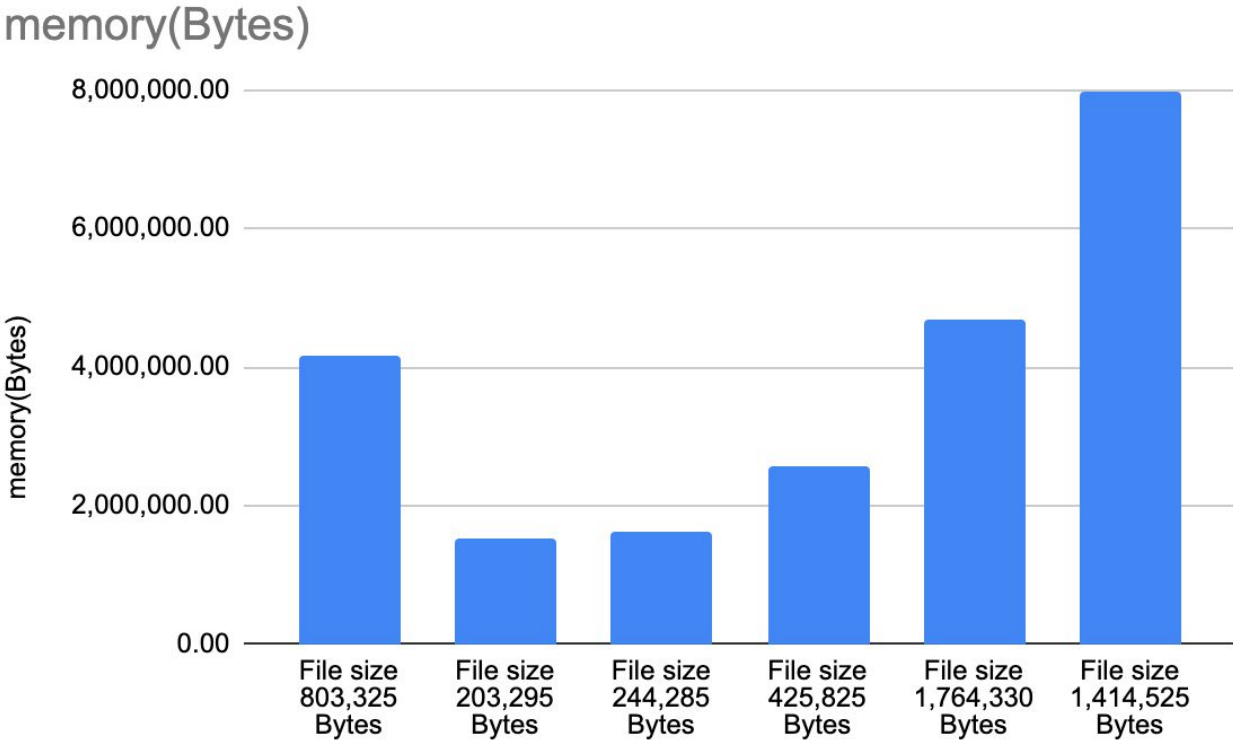
Average compression ratio for Healthy Cattle and Sick Cattle.

C. Patiño-Forero, M. Agudelo-Toro, and M. Toro. Planning system for deliveries in Medellín. ArXiv e-prints, Nov. 2016. Available at: https://arxiv.org/abs/1611.04156

Cornell University

arXiv.org > cs > arXiv:1611.04156

Computer Science > Data Structures and Algorithms

[Submitted on 13 Nov 2016]

Planning system for deliveries in Medellín

Catalina Patiño-Forero, Mateo Agudelo-Toro, Mauricio Toro

Here we present the implementation of an application capable of planning the shortest delivery route in the city of Medellín, Colombia. We discuss the different approaches to this problem which is similar to the famous Traveling Salesman Problem (TSP), but differs in the fact that, in our problem, we can visit each place (or vertex) more than once. Solving this problem is important since it would help people, especially stores with delivering services, to save time and money spent in fuel, because they can plan any route in an efficient way.

Comments:	5 pages, 9 figures
Subjects:	**Data Structures and Algorithms (cs.DS)**
ACM classes:	F.2.0; G.2.2
Cite as:	arXiv:1611.04156 [cs.DS]
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THANK YOU!