



Making Precision Livestock Farming More Energy Efficient Using Compression Algorithms

UNIVERSIDAD
EAFIT[®]

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<https://github.com/McEwenAle/ST0245-001>

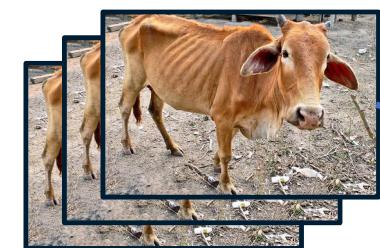


Training Process

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For the second
deliverable

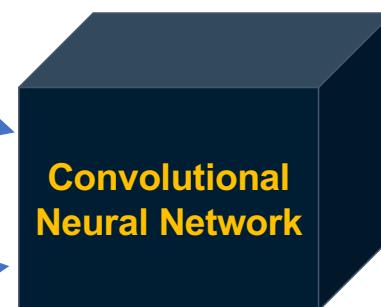


Sick-Cattle Images

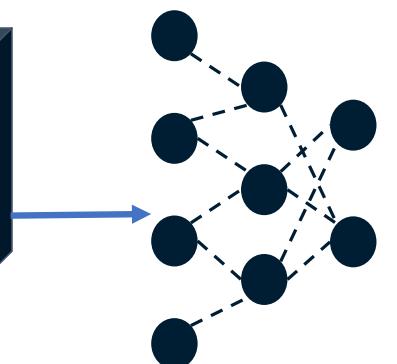
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Healthy-Cattle Images



Classification
Algorithm



Classification
Model

Perhaps you do not need
to change anything in this slide

Testing Process

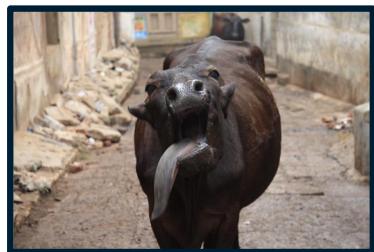
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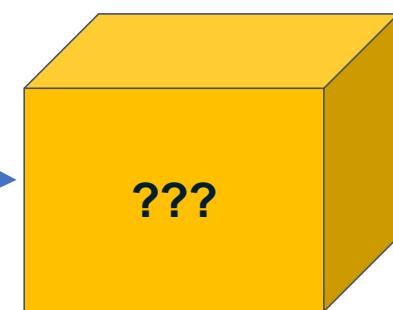
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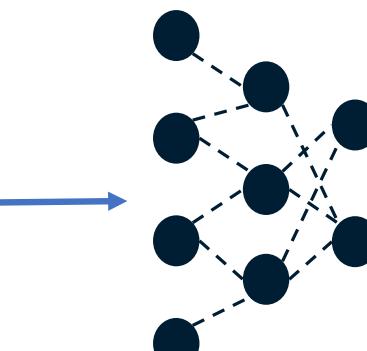
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Cattle Image



??? Compression
Algorithm



Classification
Model

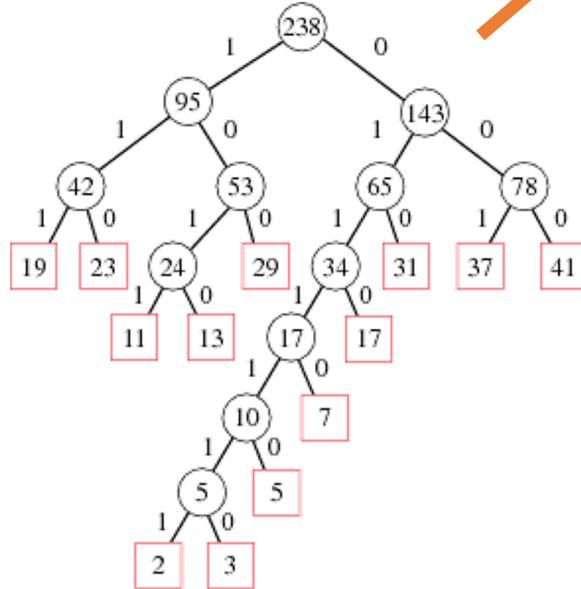


Output

Please, include the name of your
compression algorithms here

Compression Algorithm Design

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For the second
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Use vectorized figures to
explain the algorithm you designed, so
They are not pixelated like mine

Use these
Colors for
Your figures

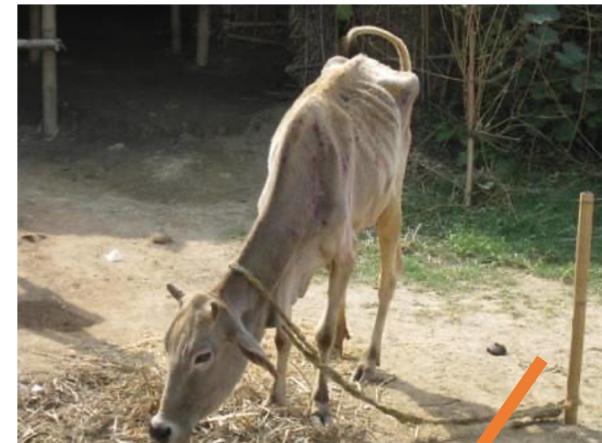


Image compression algorithm for animal-health automatic classification (In this semester, one could be LZS, Huffman, LZ77, LZ78... please choose).

Include a HD picture related to the
problem of animal health in
precision livestock farming

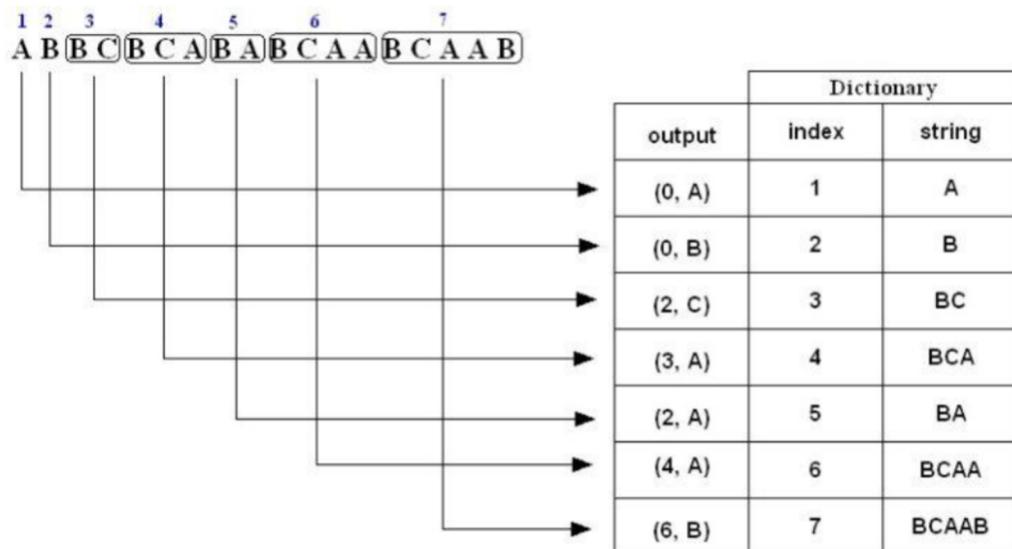
Explain the figures in your
own words

Compression Algorithm Design

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Keep this title

Encode (i.e., compress) the string **ABBCBCABABCABCABCAB** using the LZ78 algorithm.



The compressed message is: (0,A)(0,B)(2,C)(3,A)(2,A)(4,A)(6,B)

*Use vectorized figures to
explain the algorithm you designed, so
They are not pixelated like mine*

*Complete this slide
For the second
deliverable*



Include a HD picture related to the problem of animal health in precision livestock farming

Explain the figures in your own words.

Keep this title

Compression Algorithm Complexity

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Create the table in Powerpoint. Do not
copy pixelated screenshots from the
technical report please!

	Time Complexity	Memory Complexity
Image compression	$O(N^2 \cdot M \cdot 2^M)$	$O(N \cdot M \cdot 2^M)$
Image decompression	$O(N \cdot M)$	$O(1)$

Time and memory complexity of the (In this semester, one could be Lzs, LZ77, LZ78, Huffman... please choose) algorithm. Please explain what do N and M mean in this problem. PLEASE DO IT!

Explain the tables in your
own words

Use superindices to represent the
exponents. DO NOT use the ^
symbol



Include a HD picture related to the
problem of animal health in
precision livestock farming

Time and Memory Consumption

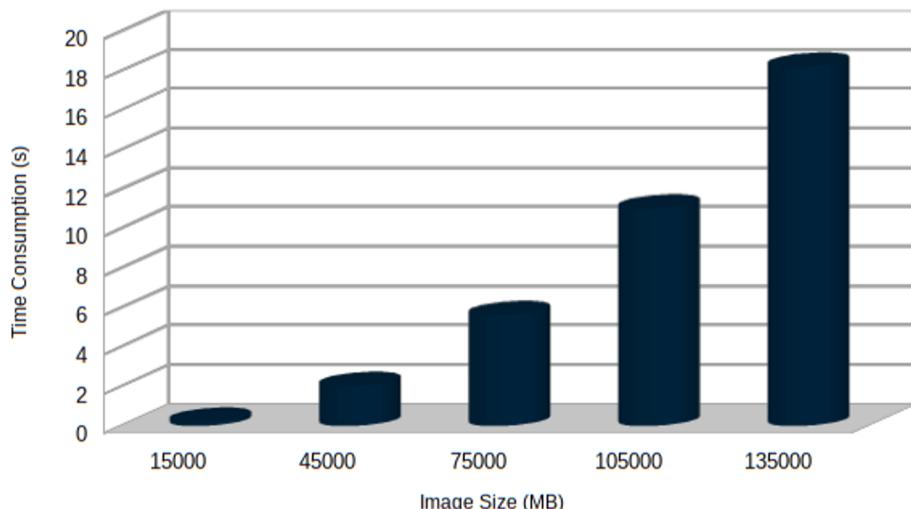
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For the third deliverable

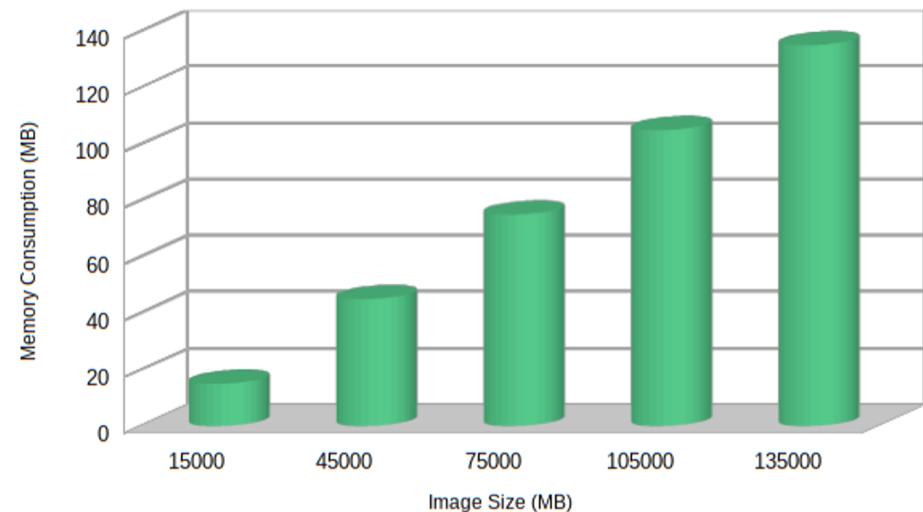


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in the slides

Create the plots in Excel. Do not copy
pixelated screenshots from the technical
report please!



Time Consumption



Memory Consumption

Please, include measurement units in
both X axis and Y axis, for instance, MB,
s, KB, minutes...

Keep this title

Average Compression Ratio

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	Compression Ratio
Healthy Cattle	100 : 1
Sick Cattle	98 : 1

Average compression ratio for Healthy Cattle and Sick Cattle.

Explain the tables in your own words

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Create the table in Powerpoint. Do not copy pixelated screenshots from the technical report please!



Include a HD picture related to the problem of animal health in precision livestock farming

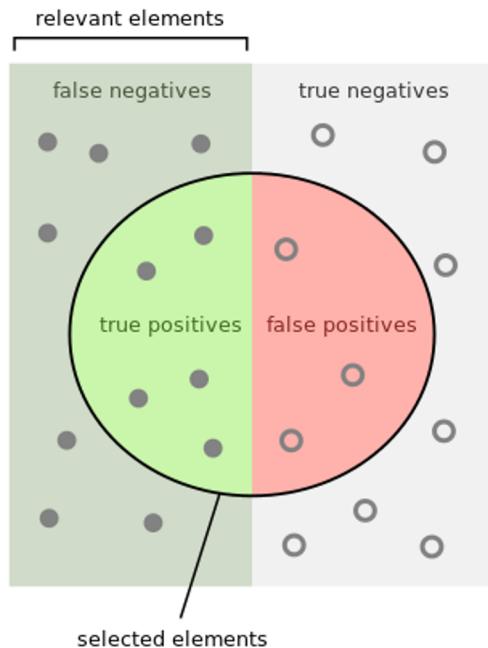
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Classification Evaluation Metrics

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Use vectorized figures to
explain the algorithm the evaluation metrics,
so they are not pixelated like mines

Use these
Colors for
Your figures

$$\text{Precision} = \frac{\text{How many selected items are relevant?}}{\text{How many selected items are selected?}}$$

$$\text{Recall} = \frac{\text{How many relevant items are selected?}}{\text{How many relevant items are there?}}$$

If possible, avoid equations for
simple concepts that can be
explained through diagrams

Explain Accuracy too...

Create a graphical
representation using
the notation proposed
in this slide

Classification Evaluation Metrics

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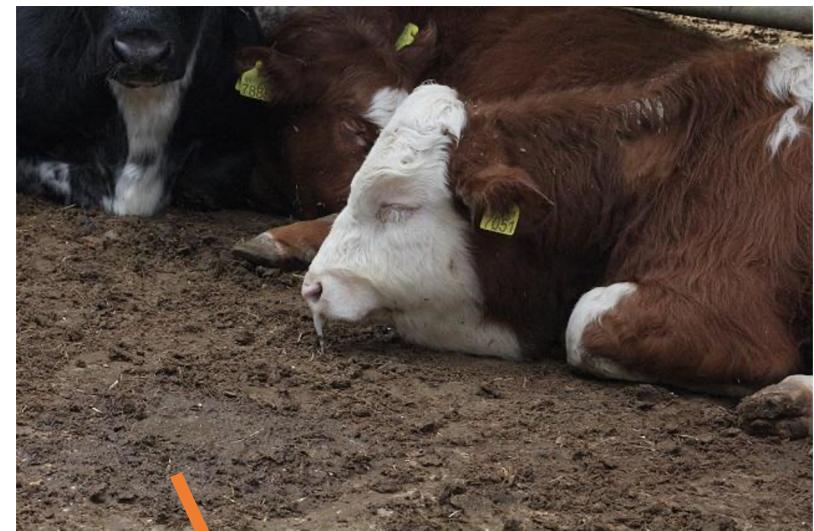
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	Testing data set (original images)	Testing data set (compressed images)
Accuracy	0.3	0.2
Precision	0.25	0.21
Recall	0.12	0.11

Evaluation metrics using a testing dataset of ?? healthy cattle and ?? sick cattle images. Compressed images were obtained with ??? algorithm (Please, complete with your algorithm)

Create the table in Powerpoint. Do not copy pixelated screenshots from the technical report please!



Include a HD picture related to the problem of animal health in precision livestock farming

Explain the tables in your own words

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*Include the citation of the report
in arXiv and link. Alternatively, use OSF*

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>

*Include a
screenshot*

*Include the teaching assistant and
professor, please*



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]
(or arXiv:1611.04156v1 [cs.DS] for this version)



*Please do not forget the
acknowledgements to your scholarship
(if you have one)*



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THANK YOU!

Supported by

The first two authors are supported by a Sapiencia grant financed by Medellín municipality. All the authors would like to thank the "Vicerrectoría de Descubrimiento y Creación", of Universidad EAFIT, for their support on this research