Detección de malas hierbas a través de técnicas de redes neuronales convolucionales y visión artificial

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***Abstract*—Today the computation stays i**

I. Introduction

I wish you the best of success.

mds
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II. State of Art

During the last centuries, huge progress has taken place in science and technology developments. Significant milestones such as Communications, Numerical Computer Control and the miniaturization of components have benefited social and industrial sectors on its approach to solve specific problems.
Globalization has permitted countries who are not leader technology developers, like Ecuador, to receive leading edge technological products in order to satisfy requirements and propose solutions to still-unresolved problems.
Industry transformation is a science evolution example; manufacturing, food, and information industries, among others, are signs of this industrial revolution. However there are fields still unexplored in Ecuador like agroindustry. Agriculture in Ecuador has not changed much since precolombine times; while it is true that there are efficient agriculture practices, the lack of technological resources make it impossible for the country to exploit its true potential as an agricultural producer.
Nowadays, one of agriculture challenges is the development of precision agriculture techniques focused on Weed and Crop segmentation. There are studies that show the impact of Weed in corn crops [1]; its yield is affected by 5000 kg/ha. Currently, growing development of Artificial Vision and Machine Learning algorithms allow researchers to propose solutions for Weed Segmentation in Crops.
One of the first approximations to the algorithms of detection of Crops is the developed [2], this could be possible by the use of IR Images, the image is processed by a hysteresis umbral and the method of Min Neighbouring to identify the row of crops. In recent years the implementation of Machine Learning has opened new possibilities for differentiate the Weed from the crops, recently Chend and Mason had developed an algorithm by the use of Harris Corner detector, Feature Detector and using the DBSCAN(Density-based spartial clustering of apllications with noise) as Machine Learnin, it demonstrates an effectiveness of 98% in the identification of Weeds in the Rice. Hong, Lei and Heping use an optimal method for detection in various types of luminosity, they achived this by the use an ANN for weed and maize classification, with a precision of 92.5%, Araguez et. al perform their analysis through the analysis of the green hystogram and performing the segmentation of the crop and weed by classifiers not specified in the document. Su Hnin Hlaing1, Aung Soe Khaing used the binarization methods of OTSU and Watershed for the segmentation of the images, while the classification was given through a areas analysis to perform a thresholding, although the method is computationally effective when the Weed distribution does not resemble the size to the crop plant, its error increases when there is more density of crop than of weed. Romeo et. al propose to use a fuzzy clustering approach to correctly segment the crop green and the same algorithm to classify the soil crop. Potena, Nardi and Pretto use a multispectral camera to obtain RGB and NIR images, for the segmentation and classification they use a light CNN for the first process and a Deep CNN for classification, its accuracy is up to 98%. There is an approximation to Cicco, Potena, Griseeti CNN through the generation of datasets

III. Matherial and Methods

IV. Test

V. Conclusion

The conclusion goes here.

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