



**Kandidat**

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Mapping typologies through digital processing

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**Keywords**

Thermography, heritage, 3D model, 3d viewer, multispectral, cultural heritage, classification, software, programming

**Zusammenfassung**

In the present project thermography techniques are used in order to detect moistures and faults in the walls of silos of Burjassot. In addition, this document combines the information of visible spectral images with thermal photographs to improve the results obtained in the project. To detect the faults and moistures in the silos of Burjassot classification by pixel processes are used. Furthermore, this research brings a program of classification adapted to the conditions of the silos.

The classification processes used in this work analyze the digital levels of each pixel of the image and classify each pixel in a defined class previously.

A study of the spectral response of each material found in the silos is done. The elements that have similar spectral properties are grouped in the same defined class in order to numerate the materials found in silos.

The classification process is based on pixel and this classification process needs classification algorithms to group the pixels in a determinate class. The classification algorithms used in this project are maximum likelihood and k nearest neighbors.

The project compares the obtained results of the maximum likelihood algorithm with the k nearest neighbors algorithms and try to improve the k nearest algorithm modifying the source code of the algorithm in order to obtain better results.