



# Transformation of unstructured information from clinical analysis for an Electronic Health Record

## Short description (what need was solved?)

Health services daily generate a great amount of information, and it is a real need to computationally treat that information in order to efficiently manage it and allow patients to access to their medical personal information from whatever electronic device.

The Electronic Health Record (EHR) is the computational unit of information that agglutinates the diverse medical personal information of a patient. Accordingly, the EHR is the record edited by the medical staff, and consulted by patients. Health companies need to automatically populate the EHRs of their policyholders. As a first step, they required to populate the EHR with data from non-digitalized blood tests.

## What service(s) provided?

The digitization of blood tests requires to tackle two research challenges: (1) the transformation of text data in images to raw text; and (2) the development of a clinical laboratory independent parser for the extraction and structuring the data of test bloods.

We have developed a system that addresses the two mentioned challenges. Specifically, we developed a computer vision method grounded in an Optical Character Detector (OCR) for the transformation of non-digitalized blood tests into raw texts readable by a computer. Subsequently, we developed an automatic parser based on a deterministic finite automaton for the identification, extraction and population of the target data from the blood tests. We have integrated the two methods in a software application that generates an EHR of a patient grounded in the image file of a blood test give as input.

## Relationship with digitization

The developed service will allow patients to automatically digitize their blood tests and store it in a unified EHR, as well as to share it with their personal health insurance company. The service will also empower patients because they will be able to possess their medical data and to choose their health company.

The digitization of medical information is crucial because will help to (1) efficiently manage the increasing amount of health information, and (2) provide structured and understandable information to patients about their medical data.

## Customer, details

MAPFRE España. Compañía de Seguros y Reaseguros, S.A.

Spain

ES: <https://www.mapfre.com/corporativo-es/>

EN: <https://www.mapfre.com/corporate/>