General conclusion

The realization of this work allowed us to become familiar with the field of medical imaging which was unknown.

This work also made us discover new interesting algorithms and methods for processing and information extraction such us BOLD, T-Test and the new method for the statistical analysis of fMRI data named Clustering method.

This latter method can help doctors and researchers to establish a rapid and reliable diagnosis in the case of cranial trauma or the early detection of a cerebral tumor; it is on this axis precisely our work.

In fact, the detection of the active areas of the brain with the Clustering method can accurately diagnose the patient's disease.
The results obtained by the proposed model made it possible to extract the active zones of the brain related to the spots realized by the subject. The fusion between the old methods (T-Test) and this new one (Clustering method) allowed us to reach the objective traced. Therefore the improvement of the statistical analysis of fMRI data.

Our work allowed us to introduce ourselves to scientific research and to better control the programming environment “MATLAB” known for its power in the field of mathematics and imaging in general.

The results obtained open up prospects for students and researchers to improve the field of medical imaging and discover new algorithms especially when it comes to the human brain.