The article’s heading “Internet of Medical Things: An Effective and Fully Automatic IoT Approach Using Deep Learning and Fine-Tuning to Lung CT Segmentation”. It’s a title with thesis.

The authors of this article are Luis Fabricio, Iagson Carlos, Adriell Gomes, Francisco Hercules, Virginia Xavier, Victor Hugo and Pedro Filho from Brazil and Mohhamad Hassan from Saudi Arabia.

The article is devoted to the problem of lung diseases and their diagnostic with help of deep learning of artificial intelligence and methods of the Internet of Things. If we speak about the abstract, the abstract says, that it based on medical diagnosis of lung pathologies by Computerized Tomography and classify lung images. The proposed approach has simplified the process of segmentation and diagnosis of the patient.

The keywords are following *deep learning*, *fine-tuning*, *transfer learning*, *image lung segmentation*.

In the introduction we can find the information about the global problem of Chronic obstructive lung disease. Authors tell us about the importance of detecting diseases at an early stage. Also, they provide some statistics. About 65 million people have chronic obstructive pulmonary diseases and approximately 3 million of these people die each year from these diseases. In 2010, it was the world’s third leading cause of death. Further they talk about diagnostic. Now doctors manually mark the region of interest to perform analysis regarding the type of pathology and its aggravation, and thus arrive at a definitive diagnosis.

Several pieces of research have been developed to aid medical diagnosis through digital image processing, machine learning, and deep learning. Most of the techniques obtained accuracy equal to or greater than 90% when compared to the ground truth provided by the specialist doctor.

The methods of the article are: Data-Set and Methodology: Classification and Segmentation. The main part of the body of the article describes these methods.

The data set used by this work contains a set of 1265 lung CT images, in Digital Imaging and Communications in Medicine (DICOM) format. The images were acquired in partnership with the Walter Cantídio Hospital of the Federal University of Ceará (UFC), Brazil.

The methodology of this study is divided into two phases. The first phase represents the classification for detection of lung images in CT scans using IoT, using trained models to identify the existence of lung in the input image of the proposed model.

In the second phase the model receives the image from the previous phase that contains the lung image. The lung tomography image is processed with the R-CNN Convolutional Neural Net Mask. This mask classification detects the region of interest. The output of this classification is a detected region. Next, research is carried out in the selected area and the pathology is determined.

The next step was to check the results and try to improve it. The researchers fine-tuned the system to get more accurate results. Their model, based on the Internet of things, was the best in the process of classification and segmentation of the lung area.

In conclusion, considering the need for fast and accurate pre-diagnoses, a high performance and speed tool was developed. Main application of this tool is to assist in the detection and segmentation of pulmonary images in CT exams. The application uses an innovative tool based on IoT to transfer learning and fine-tuning in the computational process.