HACETTEPE UNIVERSITY
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

APPLICATTION OF MACHINE LEARNING TO RESOURCE ALLOCATION IN WIRELESS COMMUNICATION AND BREAST CANCER CLASSIFICATION USING MACHINE LEARNING

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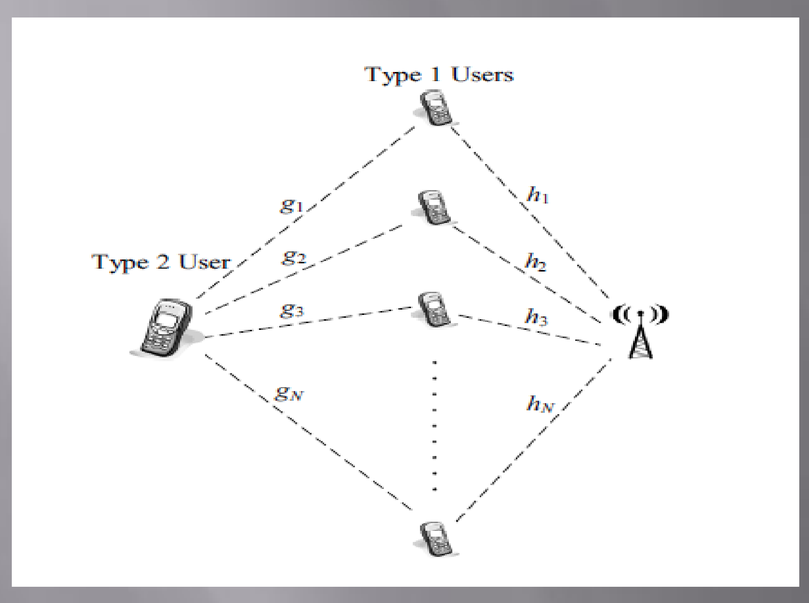
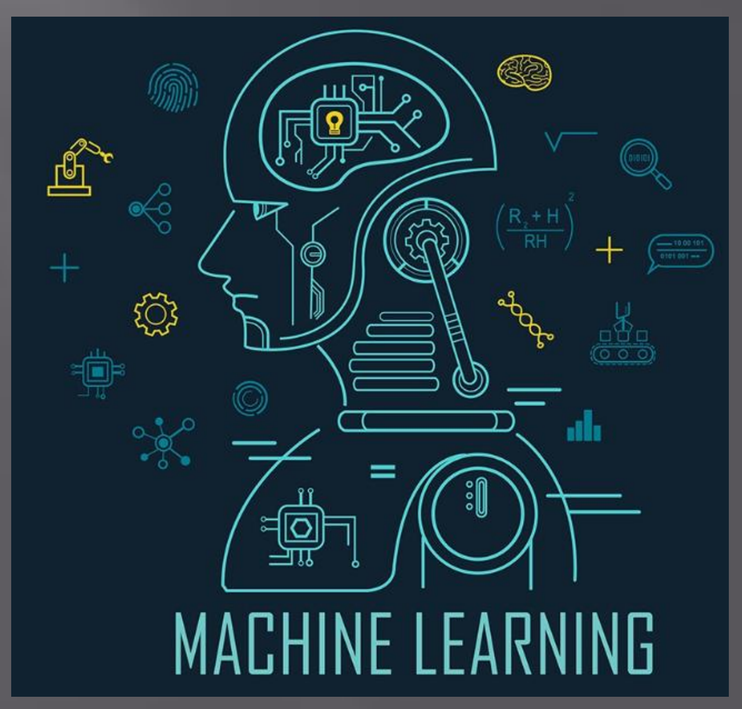
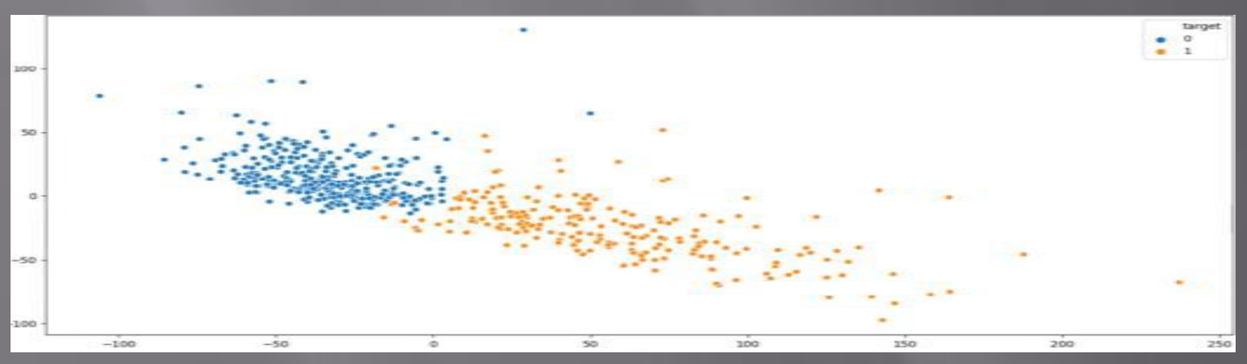
This project is realized for the graduation project of final part. This project contains two main part named application of machine learning to resource allocation in wireless communication and breast cancer classification using machine learning. In this project python programming language is used for implementing machine learning technique which classification algorithm. This project contains solving power optimization problem for wireless networks and classifying the tumors for breast cancer as benign or malignant.



The main purpose for this project is obtaining more efficient electromagnetic radio spectrum and optimizing network power. So, different wireless systems can be run at the same frequency. T1U represents femtocell users and T2U represents macro cell users. Power optimization is key point for T1U and T2U to share the same spectrum. The algorithm has been developed to solve obtained optimization problem.

This project aims to classify the tumors for breast cancer by machine learning techniques. Breast cancer is most common type of cancer all around the world. Breast cancer is prelevant among women and it is the most common cancer related cause of death among women. Early diagnosis is critial and vital to increase chances of survival. Because of this reason doctors and engineers thought that computers can help them to detect and classify the tumors.





I achieved 99% accuracy by using the necessary methods and that result is very important for future of using artificial intelligence in the field of health.
On the other hand, we know that we can achieve better quality by using machine learning in the field of telecommunications