



Image Analysis for the Classification of Brain Tumor Location on MR Images

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Abstract:

During the past few years, brain tumor segmentation in Magnetic Resonance Imaging(MRI) has become an emergent research area in the field of medical imaging system. Accurate detection of brain tumor plays a important role in the diagnosis of tumor. Me and my students develop a program which analyses the MR Images of patient and recognizes the tumor by using image processing and detects the location of tumor. Detection of required area is sensitive and critical subject in segmenting medical images. Accuracy and fast computation time is two important scales for these segmentation algorithms. These algorithms gave different results depending on data sets and anatomic structures of images. We implement some of these algorithms and combine them. With first test of our implemented algorithm we see that sensitivity and computation time (3 seconds) good at Tresholding with small datasets. These tests also show us classification based segmentation algorithms (K-NN, SVM, Bayers) segments tumor accurately and produce good results for large data set but undesirable behaviors can occur in case of where a class is under represented in training data. In addition to that, clustering algorithms (K-means, Fuzzy) performs very simple, fast and produce good results for non-noise image but for noise images it leads to serious inaccuracy in the segmentation. This could be solved by using accurate pre-processing algorithms before segmentation. More tests with this program will continue with new implementations.

Biography:

Deniz YILDIZ is a senior year student at department of Computer Science in Çankaya University. Nowadays



she is working in Image Analysis for the Classification of Brain Tumor Location on MR Image's project and try to publish papers about researches results.

Publication of speakers:

- Deniz Yildiz et al; Natural ventilated buildings use of controls for changing indoor climate, In: Proceedings of the 5th World Renewable Energy Congress V. Florence: Italy. 20-25 September 1998, pp. 391-394.
- Deniz Yildiz et al; Air intake positioning to avoid contamination of ventilation, AIVC. 1995
- Deniz Yildiz et al; Resource conservation and management, Wadsworth Publishers. California: USA, 1990, pp.51-62.
- Deniz Yildiz et al; Forward facing up to climate change, in Global Climate Change and Life on Earth, R.C. Wyman (Ed), Chapman and Hall, London. 1991.
- Deniz Yildiz et al; Handbook - Fundamentals (SI), American Society of Heating, Refrigerating, and Air Conditioning Engineers Inc., USA. 2005.

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