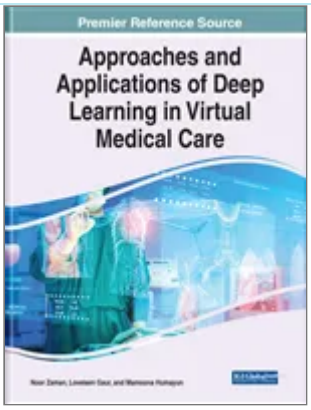

A Systematic Mapping Study of Low-Grade Tumor of Brain Cancer and CSF Fluid Detecting Approaches and Parameters

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Abstract

Low-grade tumor or CSF fluid, the symptoms of brain tumor and CSF liquid, usually require image segmentation to evaluate tumor detection in brain images. This research uses systematic literature review (SLR) process for analysis of the different segmentation approach for detecting the low-grade tumor and CSF fluid presence in the brain. This research work investigated how to evaluate and detect the tumor and CSF fluid, improve segmentation method to detect tumor through graph cut hidden markov model of k-mean clustering algorithm (GCHMkC) techniques and parameters, extract the missing values in k-NN algorithm through correlation matrix of hybrid k-NN algorithm with time lag and discrete fourier transformation (DFT) techniques and parameters, and convert the non-linear data into linear transformation using LE-LPP and time complexity techniques and parameters.

Chapter Preview

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Introduction

The motive of this chapter is to evaluate and use a proper scientific method of research methodology use in the research platform to solve the research problems in a systematic and organized body of knowledge. This chapter examines three multiple techniques use to explain the background of Hybrid GCHMkC, CM-DFT, and LE-LPP-TC techniques and multiple parameters details to use in segmentation method of MRI and research questions that are mentioned in details. Research methodology is an approach to scientifically find solutions to all the research questions. It is the skill of studying how research work is done systematically and finding the research problem together with the techniques or methods to be used. It is very important to know not just only the research methodology, but also the phases to follow in carrying out the research. This research explains the research methodology to be adopted in this research work. An overview of the phases of this research is to be explained and presented in this research.

Research Questions

R1: What is the concept of methodological framework use in the research platform to solve the research problems of missing imputation hybrid k-NN algorithm?
R2: How Operational Research Framework method implement in this research?
R3: What technique we use for Research Problem Formulation of missing imputation of hybrid k-NN algorithm and how it will solve the problem?
R4: What is the key factor of Implementation, Testing and Performance Evaluation and experimental setup of this research?
R5: What are parameters we use to solve the problem formulation of missing imputation hybrid k-NN algorithm in this research?
R1: What is the concept of methodological framework use in the research platform to solve the research problems of missing imputation hybrid k-NN algorithm?

Methodological Framework

The general research framework is divided into three main parts including Hybrid GCHMkC, CM-DFT, and LE-LPP-TC techniques. These main parts of the research have been clarified to set out the research questions of the problem as well as the research methodology utilized to accomplish research objectives. The performance measurement used is explained with the sole purpose of assuring the correctness of the achieved results. The first part introduces a Hybrid *k*-NN model by utilizing the novel technique of GCHMkC for segmenting and reconstructing the datasets of images to enhance the accuracy of the images and increase the efficiency of the k-NN algorithm. It begins with studying and planning, where the research problem is formulated. The process then proceeds to design, developed, simulate and evaluate the technique (S.Saeed *et al*.,2019).

The second section introduces the Correlation Matrix of Discrete Fourier Transform (CM-DFT) technique for correlation matrix to reconstruct test data points by training data to assign different k values of different test data points, referred to as the Correlation Matrix of k-NN (CM-kNN) classification, by improving performance in terms of the least-squares loss function is used to minimize the reconstruction error to reconstruct each test data point by all training data points. It also involves the experiment and running phase, in which the experiment setup, the dataset is explained.

The third part introduces a technique for minimizing the execution time of a hybrid k-NN model in medical images of datasets by combining the Laplace Transformation of Eigen maps with Locally Preserving Projection (LELPP) and Time complexity. The purpose of this technique is to minimize the execution computational time in the transformation of linear matrix by non-linear features in the datasets to become achieve better outcomes of optimizing solutions of the proposed method.

R2: How Operational Research Framework method implement in this research?

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