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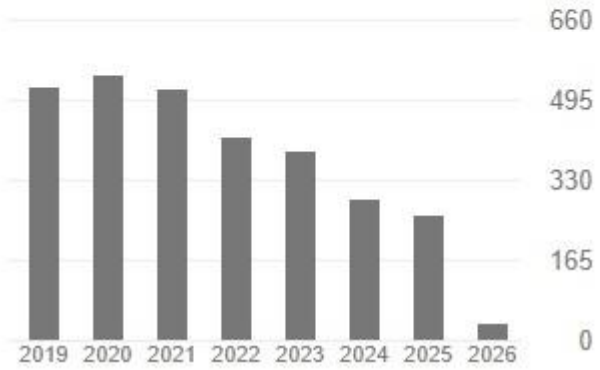

Routing Protocols in Wireless Sensor Networks – A Survey

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ABSTRACT

Advances in wireless sensor network (WSN) technology has provided the availability of small and low-cost sensor nodes with capability of sensing various types of physical and environmental conditions, data processing, and wireless communication. Variety of sensing capabilities results in profusion of application areas. However, the characteristics of wireless sensor networks require more effective methods for data forwarding and processing.

In WSN, the sensor nodes have a limited transmission range, and their processing and storage capabilities as well as their energy resources are also limited. Routing protocols for wireless sensor networks are responsible for maintaining the routes in the network and have to ensure reliable multi-hop communication under these conditions. In this paper, we give a survey of routing protocols for Wireless Sensor Network and compare their strengths and limitations.

KEYWORDS

Wireless Sensor Networks, Routing Protocols, Cluster Head.

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Cited by : 1134

Role of Middleware for Internet of things: A Study

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ABSTRACT

Internet of Things (IoT) has been recognized as a part of future internet and ubiquitous computing. It creates a true ubiquitous or smart environment. It demands a complex distributed architecture with numerous diverse components, including the end devices and application and association with their context. This article provides the significance of middleware system for (IoT). The middleware for IoT acts as a bond joining the heterogeneous domains of applications communicating over heterogeneous interfaces. First, to enable the better understanding of the current gap and future directions in this field a comprehensive review of the existing middleware systems for IoT is provided here. Second, fundamental functional blocks are proposed for this middleware system, and based on that feature wise classification is performed on the existing IoT-middleware. Third, open issues are analyzed and our vision on the research scope in this area is presented.

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KEYWORDS

Internet of Things, middle ware, semantic model, context-awareness, ubiquitous computing.

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Cited by : 390

Intelligent Approaches to interact with Machines using Hand Gesture Recognition in Natural way: A Survey

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ABSTRACT

Hand gestures recognition (HGR) is one of the main areas of research for the engineers, scientists and bioinformatics. HGR is the natural way of Human Machine interaction and today many researchers in the academia and industry are working on different application to make interactions more easy, natural and convenient without wearing any extra device. HGR can be applied from games control to vision enabled robot control, from virtual reality to smart home systems. In this paper we are discussing work done in the area of hand gesture recognition where focus is on the intelligent approaches including soft computing based methods like artificial neural network, fuzzy logic, genetic algorithms etc. The methods in the preprocessing of image for segmentation and hand image construction also taken into study. Most researchers used fingertips for hand detection in appearance based modeling. Finally the comparison of results given by different researchers is also presented.

KEYWORDS

Hand gesture recognition, fingertip based detection, fuzzy logic, Learning Methods, gesture analysis

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Jpeg Image Compression Using Discrete Cosine Transform- A Survey

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ABSTRACT

Due to the increasing requirements for transmission of images in computer, mobile environments, the research in the field of image compression has increased significantly. Image compression plays acrucial role in digital image processing, it is also very important for efficient transmission and storage of images. When we compute the number of bits per image resulting from typical sampling rates and quantization methods, we find that Image compression is needed. Therefore development of efficient techniques for image compression has become necessary .This paper is a survey for lossy image compression using Discrete Cosine Transform, it covers JPEG compression algorithm which is used for full-colour still image applications and describes all the components of it.

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KEYWORDS

Image Compression, JPEG, Discrete Cosine Transform.

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Cited by: 248

A Study of Various Steganographic Techniques Used for Information Hiding

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ABSTRACT

The art of information hiding has received much attention in the recent years as security of information has become a big concern in this internet era. As sharing of sensitive information via a common communication channel has become inevitable, Steganography – the art and science of hiding information has gained much attention. We are also surrounded by a world of secret communication, where people of all types are transmitting information as innocent as an encrypted credit card number to an online-store and as insidious as a terrorist plot to hijackers. Steganography derives from the Greek word steganos, meaning covered or secret, and graphy (writing or drawing) [1]. Steganography is a technology where modern data compression, information theory, spread spectrum, and cryptography technologies are brought together to satisfy the need for privacy on the Internet. This paper is an attempt to analyse the various techniques used in steganography and to identify areas in which this technique can be applied, so that the human race can be benefited at large.

KEYWORDS

Source URL : https://airccse.org/journal/ijcses/current2013.html

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Energy Saving in Wireless Sensor Networks

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ABSTRACT

A wireless sensor network (WSN) consists of a large number of sensor nodes which are deployed over an area to perform local computations based on information gathered from the surroundings. Each node in the network is equipped with a battery, but it is almost very difficult to change or recharge batteries; therefore, the crucial question is: “how to prolong the network lifetime to such a long time?” Hence, maximizing the lifetime of the network through minimizing the energy is an important challenge in WSN; sensors cannot be easily replaced or recharged due to their ad-hoc deployment in hazardous environment. Considering that energy saving acts as one of the hottest topics in wireless sensor networks, we will survey the main techniques used for energy conservation in sensor networks. The main focus of this article is primarily on duty cycling schemes which represent the most compatible technique for energy saving and we also focus on the data-driven approaches that can be used to improve the energy efficiency. Finally, we will make a review on some communication protocols proposed for sensor networks.

KEYWORDS

Wireless sensor networks, Energy saving, Data driven, Duty cycling.

Source URL : https://airccse.org/journal/ijcses/current2012.html

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A KALMAN FILTERING TUTORIAL FOR UNDERGRADUATE STUDENTS

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ABSTRACT

This paper presents a tutorial on Kalman filtering that is designed for instruction to undergraduate students. The idea behind this work is that undergraduate students do not have much of the statistical and theoretical background necessary to fully understand the existing research papers and textbooks on this topic. Instead, this work offers an introductory experience for students which takes a more practical usage perspective on the topic, rather than the statistical derivation. Students reading this paper should be able to understand how to apply Kalman filtering tools to mathematical problems without requiring a deep theoretical understanding of statistical theory.

KEYWORDS

Data Processing, Kalman Filtering, Tutorial

Source URL: https://airccse.org/journal/ijcses/current2017.html

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A Comparative Study Of Clusterhead Selection Algorithms In Wireless Sensor Networks

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ABSTRACT

In Wireless Sensor Network, sensor nodes life time is the most critical parameter. Many researches on these lifetime extension are motivated by LEACH scheme, which by allowing rotation of cluster head role among the sensor nodes tries to distribute the energy consumption over all nodes in the network. Selection of clusterhead for such rotation greatly affects the energy efficiency of the network. Different communication protocols and algorithms are investigated to find ways to reduce power consumption. In this paper brief survey is taken from many proposals, which suggests different clusterhead selection strategies and a global view is presented. Comparison of their costs of clusterhead selection in different rounds , transmission method and other effects like cluster formation, distribution of clusterheads and creation of clusters shows a need of a combined strategy for better results.

KEYWORDS

Wireless Sensor Network, cluster-head (CH), LEACH

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ARTIFICIAL INTELLIGENCEMARKUPLANGUAGE: A BRIEF TUTORIAL

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ABSTRACT

The Automatic Facial Expression Recognition has been one of the latest research topic since 1990's.There have been recent advances in detecting face, facial expression recognition and classification. There are multiple methods devised for facial feature extraction which helps inidentifying face and facial expressions. This paper surveys some of the published work since 2003 till date. Various methods are analysed to identify the Facial expression. The Paper also discusses about the facial parameterization using Facial Action Coding System(FACS) action units and the methods which recognizes the action units parameters using facial expression data that are extracted. Various kinds of facial expressions are present in human face which can be identified based on their geometric features, appearance features and hybrid features . The two basic concepts of extracting features are based on facial deformation and facial motion. This article also identifies the techniques based on the characteristics of expressions and classifies the suitable methods that can be implemented.

KEYWORDS

Artificial Intelligence, Chatterbot, Pattern Recognition, Artificial Intelligence Markup Language (AIML), Tutorial
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AUTOMATIC FACIAL EXPRESSION ANALYSIS A SURVEY

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ABSTRACT

The Automatic Facial Expression Recognition has been one of the latest research topic since 1990's.There have been recent advances in detecting face, facial expression recognition and classification. There are multiple methods devised for facial feature extraction which helps in identifying face and facial expressions. This paper surveys some of the published work since 2003 till date. Various methods are analysed to identify the Facial expression. The Paper also discusses about the facial parameterization using Facial Action Coding System(FACS) action units and the methods which recognizes the action units parameters using facial expression data that are extracted. Various kinds of facial expressions are present in human face which can be identified based on their geometric features, appearance features and hybrid features . The two basic concepts of extracting features are based on facial deformation and facial motion. This article also identifies the techniques based on the characteristics of expressions and classifies the suitable methods that can be implemented.

KEYWORDS

Facial Expression, FACS, Geometric Features, Appearance Features, Deformation, Facial Motion.
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