SRINIVAS UNIVERSITY

Mangalore-575001, Karnataka (India)

Srinivas Research Centre for Biomedical Image Processing and Computer Networks

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Biomedical Image Processing

Biomedical image processing is similar in concept to biomedical signal processing in multiple dimensions. It includes the analysis, enhancement and display of images captured via x-ray, ultrasound, MRI, nuclear medicine and optical imaging technologies.

Image reconstruction and modeling techniques allow instant processing of 2D signals to create 3D images. When the original CT scanner was invented in 1972, it literally took hours to acquire one slice of image data and more than 24 hours to reconstruct that data into a single image. Today, this acquisition and reconstruction occurs in less than a second.

Rather than simply eyeball an x-ray on a lightbox, image processing software helps to automatically identify and analyze what might not be apparent to the human eye. Computerized algorithms can provide temporal and spatial analysis to detect patterns and characteristics indicative of tumors and other ailments.

Depending on the imaging technique and what diagnosis is being considered, image processing and analysis can be used to determine the diameter, volume and vasculature of a tumor or organ; flow parameters of blood or other fluids and microscopic changes that have yet to raise any otherwise discernible flags.

Computer Networks

A computer network, or data network, is a digital telecommunications network which allows nodes to share resources. In computer networks, computing devices exchange data with each other using connections (data links) between nodes. These data links are established over cable media such as wires or optic cables, or wireless media such as WiFi.

Network computer devices that originate, route and terminate the data are called network nodes. Nodes can include hosts such as personal computers, phones, servers as well as networking hardware. Two such devices can be said to be networked together when one device is able to exchange information with the other device, whether or not they have a direct connection to each other. In most cases, application-specific communications protocols are layered (i.e. carried as payload) over other more general communications protocols. This formidable collection of information technology requires skilled network management to keep it all running reliably.

Computer networks support an enormous number of applications and services such as access to the World Wide Web, digital video, digital audio, shared use of application and storage servers, printers, and fax machines, and use of email and instant messaging applications as well as many others. Computer networks differ in the transmission medium used to carry their signals, communications protocols to organize network traffic, the network's size, topology, traffic control mechanism and organizational intent. The best-known computer network is the Internet.

About the Research Centre

This research centre is an initiative in the field of Computer Science and Engineering at Srinivas University College of Engineering and Technology (S.U.C.E.T), focusing various activities in the area of Medical Image Processing and Computer Networks. With the active participations from faculties and students of SUCET, this centre wish to contribute by means of research and teaching activities in this sphere and also intending to present papers in the field of Medical Image Processing and Computer Networks at national and international seminars and conferences apart from conducting a large number of training programs in this domain. This also proposes an industry-academic partnership to form many of its activities.

Objectives of Srinivas research centre for Medical Image processing and Computer Networks

• Developing teaching materials and preparing working papers.

• Organize workshops / seminars / conferences

• Conducting certificate programmes for aspirants

• Undertaking research and consultancy studies.

• Preparing engineering graduates for the Image Processing or Computer Networks domain.

List of Publications

1. Co-authored paper titled "Implementation of PET and MRI Brain Image Fusion using DWT and AHE", in the National Conference on Emerging Trends in Science and Engineering (NCETSE 2018), held at SMVITM, Bantakal Udupi, Karnataka India, on 27 and 28 April 2018. Also the paper published in International Journal of Scientific & Engineering Research, Volume 9, Issue 5, May-2018 ISSN 2229-5518.
2. Presented paper titled "A study based on different protocols to enhance security for data dissemination in WSN's in the National Conference on "Security, Privacy and Analytics [SPA]-2018 at R.V. College of Engineering, Bengaluru. Also the paper published in Coimbatore Institute of Information Technology (CiiT) International Journal, Volume 10, Issue 5 May 2018 ISSN 0974-9616.
3. Presented paper titled "Enhanced Efficient Congestion Control Mechanism for Real Time Traffic to Attain QoS in MANET's in the National Conference on "Security, Privacy and Analytics [SPA]-2018 at R.V. College of Engineering, Bengaluru, on 4th and 5th May 2018.
4. Presented paper at 2nd National Conference on Emerging Trends and Advances in Information Technology (NCETAIT-2017) at Adichunchanagiri Institute of Technology, Chikkamagaluru, Karnataka, India and **secured Best Paper Award**. Paper titled "Computer Aided Diagnosis and Identification of Malarial Parasite with HSV Color Space using Blood Images".
5. Presented Paper titled "Automated Diagnosis and Identification of Malarial Parasite in Blood Images", in the 2nd IEEE International Conference on Recent Trends in Electronics, Information and Communication Technology (RTEICT-2017) at Sri Venkateshwara College of Engineering, Bengaluru on 19th and 20th May 2017.
6. Presented Paper titled "Automated Diagnosis and Identification of Malarial Parasite in Blood Images" in the 3rd International Conference on Advances in Computer and Communication Engineering (ACCE-2017) at Vemana Institute of Technology, Bangaluru on 5th and 6th May 2017.
7. Presented paper on "Diagnosis and Classification of IUGR using Variational Level Sets and Artificial Neural Networks at International Conference on Signal and Image Processing BNMIT, Bangalore, India.
8. Presented paper on "IUGR Diagnosis and Classification using Level sets and Radial Basis Function Neural Network at International Conference held at Siddaganga

Institute of Technology, Tumkur, Karnataka, India.

9. Co-authored international conference paper on “Data Security in Clouds using Access Control and Security using attribute based methods at IJSCRE held at Bengaluru, Karnataka, India.

Journal Publications

1. Comparison of Different Methods for Medical Image Fusion, Rakshitha, Rashmi Laxman Gavadi, Akhilraj V Gadagkar, International Research Journal of Engineering and Technology (IRJET) Volume 4, Issue 11 , November 2017.
2. A Review on Different Techniques For Medical Image Fusion, Shreya Kotian, Silvia Dsouza, Akhilraj V Gadagkar, International Journal of Recent Trends In Engineering & Research, Volume – 3, Issue – 11; November 2017.
3. Review on Different Segmentation Techniques for Lung Cancer CT Images , Akhilraj V Gadagkar, International Journal of Recent Trends In Engineering & Research Volume – 4, Issue – 1; January 2018.