CENTRE FOR IMAGE PROCESSING

About the Centre

The **Centre for Image processing** is initiated to motivate modern thinking, designing and implementing ideas in the field of Image Processing. The center is dedicated to develop modern & efficient image processing techniques, imaging systems, and their applications to information engineering, biology, and medical science.

Objectives of the Centre

- The objective is to study and understand the basics of images, image processing and software tools used to implement various algorithms and to implement computer vision techniques with emphasis on practical aspects.
- Collaborate and work with various agencies in the field of Image processing and also suggest our service to various scientific institutions.
- To conduct and organize various Technical seminars/workshops in the field of Image Processing.

Facilities Available

- **Server Configuration and Software**
- **Server Board: S2600WFT**
- **Processor: Intel Xeon Silver4210 CPU @2.20GHZ 2.19GHZ**
- **RAM: 64 GB   HDD :1863 GB**
- **Scilab 6.1.1**
- **Matlab**
- **System Configuration**
    - **11th Gen Intel(R) Core(TM) i5-11400 @ 2.60GHz   2.59 GHz**
    - **RAM: 16 GB   HDD: 878 GB**

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

Kuthambakkam, Chennai – 600124

Faculty coordinators & Members

S.No	Name of the Faculty	Specialization
1.	Dr.M. Malathi(Centre In charge)	Machine learning
2.	Dr.M. Chitra (Centre In charge)	AI, Machine learning
3.	Mr.K. Senthil Kumar	Signal processing and Machine learning
4.	Ms.S. Kalaivani	Filter Design for biomedical shielding
5.	Ms.P. Satyabama	Machine learning for data science
6.	Ms.M. Ramya	Deep learning
7.	Ms.D. Suganthi	Bibilometric Analysis.

Enrolled Students list

S. No.	Roll no.	Name of the student
1	202002002	V.Akshay kumar
2	202002014	V C Dhanush Prakash
3	202002015	R Divya
4	202002015	P Dhivya Dharshini
5	202002008	S Brindha
6	202002025	M R Keshni
7	202002026	C D Kishore
8	202002010	S Deekan
9	202002040	B Rajalakshmi

Publication Details

10 articles have been published in reputed Journals.

Journal Publication Details

S.No	Name of Faculty	Title	Name of the Journal	Impact Factor	SCI/ Scopus
1	Ms.S.Sheela	An Evaluation of Effectiveness of a Texture Feature Based Computerized Diagnostic Model in Classifying the Ovarian Cyst as Benign and Malignant from Static 2D B-Mode Ultrasound Images	Current Medical Imaging	1.315	SCI
2	Mr.RahulKrishnan	An Investigation Using Specific Absorption Rate Analysis to Diagnose Early-stage Breast Tumor using UWB Antenna	Current Medical Imaging	1.315	SCI
3	Dr.M.Malathi	Cancer detection using convolutional neural network optimized by multistrategy artificial electric field algorithm	International Journal of Imaging Systems and Technology	2.177	SCI
4	Dr.D.Nagarajan	Video compression using MPEG 7-MBBMC: techniques for communication	Multimedia and Tools Applications	2.577	SCI
5	Ms.S.Sheela	Brain tumor detection using gray levelCo-occurrence matrix feature extraction Technique	Smart Intelligent	-	Scopus

			Computing and Communication Technology		
6	Ms.S.Sheela	Drowsiness Detection using CNN	Smart Intelligent Computing and Communication Technology	-	Scopus
7	Dr.M.Malathi	Segmentation of breast cancer using fuzzy C means and classification by SVM based on LBP features	AIP conference proceedings	-	Scopus
8	Dr.M.Malathi	Segmentation of CT Lung Images Using FCM with Active Contour and CNN Classifier	Asian Pacific Journal of Cancer Prevention	-	Scopus
9	Mr.K.Senthil Kumar	Paddy Blast Detection using Color Co-occurrence Features and Support Vector Machine Classifier	IEEE	-	Scopus
10	Mr.K.Senthil Kumar	Melanoma Detection and Classification in Digital Dermoscopic Images Using Machine Learning	Lecture Notes in Networks and Systems	-	Scopus

Details of Industry/Academic Mentors

S.No.	Industry/Academic Mentors	Name of the Industry/Institution	Expertise
1.	Dr. V. Sapthagirivasan	Manager-R&D (Medical Devices, Capgemini	Medical Image Processing
2.	Dr.Sujatha	Shiv Nadar University	Image Processing and Fuzzy Intelligent Systems

Details of MoUs

S.No.	Name of the Industry	Date of MoU	Linkages
1.	SENTINEL Radiology Solutions, Chennai	08.03.2017	Consultancy

Details of Ongoing Projects

1. **Predicting bone density of a person using CT Images**

Bone density, or bone mineral density (BMD), is the amount of bone mineral in bone tissue. The concept is of mass of mineral per volume of bone (relating to density in the physics sense), although clinically it is measured by proxy according to optical density per square centimeter of bone surface upon imaging

2. Knee fracture Identification from X ray Images

Bone fracture is a common problem due to pressure, accident and osteoporosis. Moreover, bone is rigid portion and supports the whole body. Therefore, the bone fracture

is taken account of the important problem in recent year. Lower leg bone (Tibia) fracture types recognition is developed using various image processing techniques. The purpose of this work is to detect fracture or non-fracture and classify type of fracture of the lower leg bone (tibia) in x-ray image.

3. Retinal Image Processing With Defect Detection Using AI

Many important eye diseases as well as systemic diseases manifest themselves in the retina. Following a brief overview of the most prevalent causes of blindness in the industrialized world that includes age-related macular degeneration, diabetic retinopathy, and glaucoma, the review is devoted to retinal imaging and image analysis methods and their clinical implications. Methods for 2-D fundus imaging and techniques for 3-D optical coherence tomography (OCT) imaging are reviewed.

4. Lung Cancer Detection and classification

Lung cancer is one of the most common diseases among humans and one of the major causes of growing mortality. Medical experts believe that diagnosing lung cancer in the early phase can reduce death with the illustration of lung nodule through computed tomography (CT) screening. Examining the vast amount of CT images can reduce the risk.

Funded Research proposal

S.No	Title	Funding Agency /Scheme	Year	Status
1.	A Smart Traffic Management System based on Neutrosophic Image	SERB/ MATRICS	2022-2023	ACCEPTED FOR SECOND STAGE

2.	A Novel Machine Learning Framework for Medical Images that imitates Radiologist Cognition	SERB/ FIRE	2022-2023	ACCEPTED FOR SECOND STAGE
3.	Neutrosophic embedded system for identifying different pathologies in MR brain images	SERB/ SURE	2022-2023	Submitted

EVENTS CONDUCTED

1. **FDP on "Emerging applications in Image processing" from conducted through online.**

Date of Event: 01.03.2022 to 05.03.2022

Event Venue: Online mode

The Center for Image processing conducted Five days FDP on "Emerging applications

in Image processing"01.03.2022 to 05.03.2022

. The session was open to all students at the centre, and Dr. P. K. Nagarajan, the RIT

Principal, inaugurated the session and welcomed the speaker, Dr.S. Manjula.

The following topics were covered:

- Digital Image Processing- Fundamentals, MATLAB- Tools andAlgorithms

- Advancements in Glaucoma Identification and Detection

- Medical Image Analysis using CNN

- Image Compression Techniques

- Hands on training on Weka datamining tool for exhaled breath analysis

- Insights to convolutional neural networks for prediction and classification of Images

- Architectures for Image processing applications

- Image segmentation and detection- Industry Application

- Emerging Research applications in Image processing

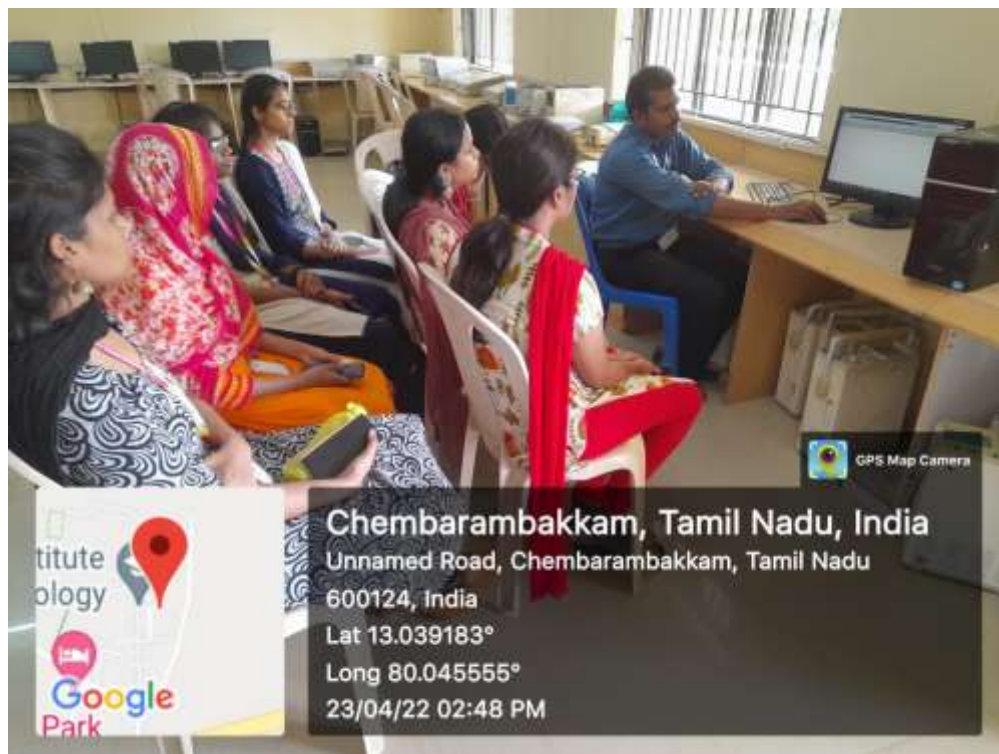- Demystifying Imaging Techniques using MATLAB

FDP on Emerging applications in Image Processing
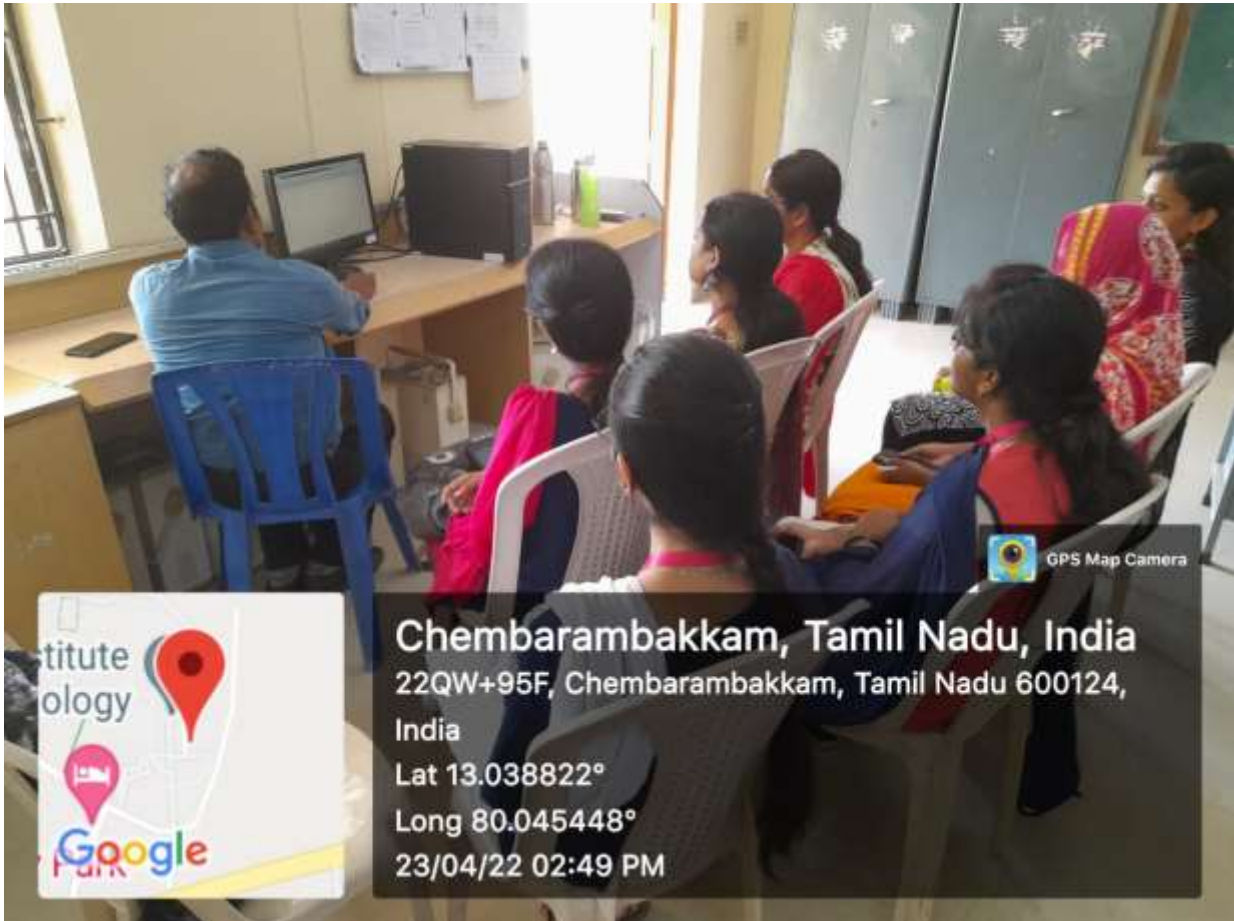
2. Training on Basics of Matlab Software

Date - 22.04.2022

Topics

- ➢ Introduction to Matlab Software
- ➢ Basic functions and Syntax of Matlab
- ➢ Simple Mathematical computations on signal and Image Processing

Training on Matlab

Training on Matlab