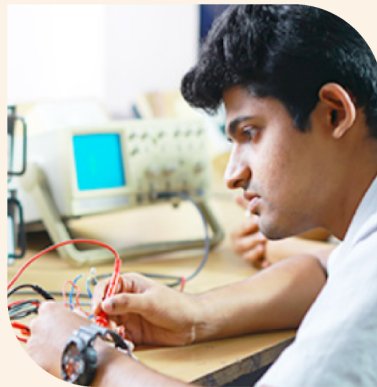




DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING (ECE)
EXPLORE, DREAM, DISCOVER

GENESIS

IGNITING THOUGHTS



VISION:

To be recognized at national and international level for excellence in education and research in Electronics and Communication Engineering.

MISSION:

- Inculcating leadership qualities, adaptability and ethical values
- Imparting quality education in the field of electronics, communication, and related areas to meet the challenges in industry, academia and research
- Nurture the growth of each individual by providing a dynamic and conducive learning environment.

In this edition

- **Department Activities/Achievement**
 - ASIET recognized by the Ministry of MSME, govt. Of India
 - CERD student project presentation
 - Startup ideation for the northeast
 - Sambrambaka (national level) program
 - AQMS - IoT based automatic queue management system
 - Beacon industry training for ECE and EEE students
 - Research seminar
- **Student Achievements**
- **Staff Achievements and Participation**
- **Student Participation**
- **Tech Talks**
 - Teacher's zone
 - Student's zone
- **Editorial board**
- **Upcoming events**

APRIL 2021 ISSUE 39: MONTHLY NEWSLETTER

DEPARTMENT ACTIVITIES/ACHIEVEMENT

ASIET RECOGNIZED BY MINISTRY OF MSME, GOVT. OF INDIA



Adi Shankara Institute of Engineering and Technology has been selected as a Host institute to setup Business Incubator (BI) for the implementation of the scheme "Support for Entrepreneurial and Managerial Development of MSMEs through incubator"

Benefits of accomplishing MSME Incubator

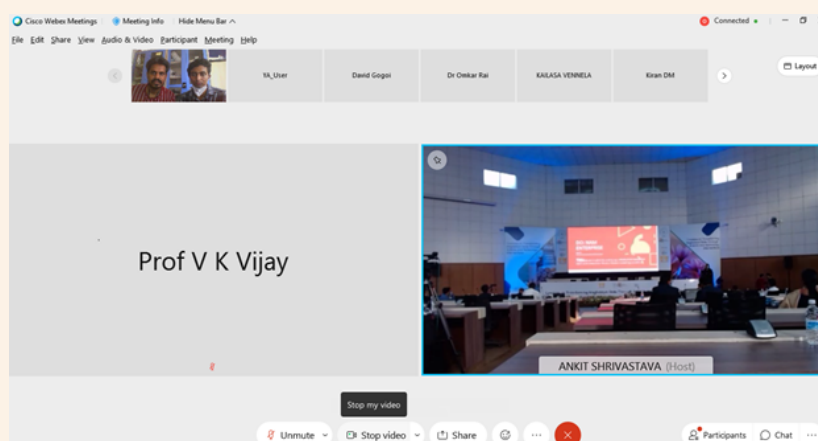
- Financial assistance up to 15 lakh for developing and nurturing an idea.
- Financial assistance up to 1.00 Cr. for procurement and installation of Plant and Machines in BI in order to strengthen the technology-related R&D activities of BI.
- Financial assistance of up to 1.00 Cr. as grants in aid for the seed capital support to HIs/BIs for converting deserving ideas into start-ups.

CERD STUDENT PROJECT PRESENTATION

A Student project titled "Development of a Remote Cardiac Health Monitoring System for Covid'19 Patients using Deep Learning" guided by Dr. Bipin P R got shortlisted for KTU CERD Student Project presentation. The Student Investigators are Krishnaraj R, Megha Sunil, Nihala Suman M N and Rose Mary Benedict [S8 ECE]

STARTUP IDEATION FOR THE NORTHEAST

The team from ASIET has been shortlisted for the event "Startup ideation for the Northeast" organized by NECTAR and UNNAT BHARATH ABHIYAN.



The team will receive funding support and other scaling-up opportunities. Team members are Mr. Gokul Krishnan S, Alumni, Dept ECE, ASIET and Mr. Anuroop K B, Assistant Professor, Dept ECE ASIET

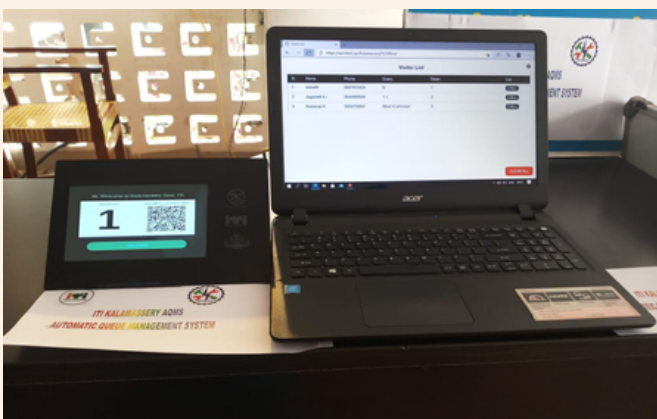
SAMRAMBAKA (NATIONAL LEVEL) PROGRAM

The exceptional talent and performance by the women entrepreneurs from Fablab, Adi Shankara Institute of Engineering & Technology, Kalady was featured in Sambrambaka (National Level) program by Flowers TV.

As a part of 'samrambhaka', a flowers TV program to uplift women entrepreneurs, Anita Shaji and Archana T of S8 ECA were given the opportunity to exhibit their saleable self made products like dishwash, floor cleaner and liquid detergent.



AQMS - IOT BASED AUTOMATIC QUEUE MANAGEMENT SYSTEM



A consultancy work on "AQMS - IoT based Automatic Queue management system" for GOVT. Industrial Training Institute Kalamessery was successfully completed by Dept ECE ASIET. The product launching was done by Dr.Chitra IAS director Employment and Training. Mr. Anuroop K B, Asst Prof, Dept ECE ASIET and Alumni startup Aerobits Pvt Ltd, from Dept ECE was involved in the work

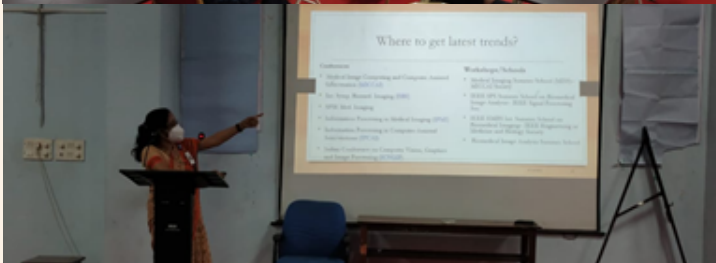
BEACON INDUSTRY TRAINING FOR ECE AND EEE STUDENTS:

A One day training was conducted by the Beacon Energy storage systems for the ASIET students. Beacon Energy Storage Systems is a energy storage and power electronics company with a goal to provide affordable renewable energy products and solutions to every household in India. A presentation was given by the company officials on the various products offered by the firm and the technology used in manufacturing was made understood. Hands on lab session was also organized.



RESEARCH SEMINAR

The fifth research seminar conducted by the Department of Electronics and Communication at the Mini seminar hall was delivered by Dr. Arya Devi P S on the topic "Medical Image Analysis" on 7th April 2021. The session mainly focused on various research prospects in Medical Image analysis aimed to arouse listeners' interest in the field. Starting out with a brief introduction, the presentation took the audience through a history of the current state of arts in the field. Various resources required in the area were also introduced.



Congratulations



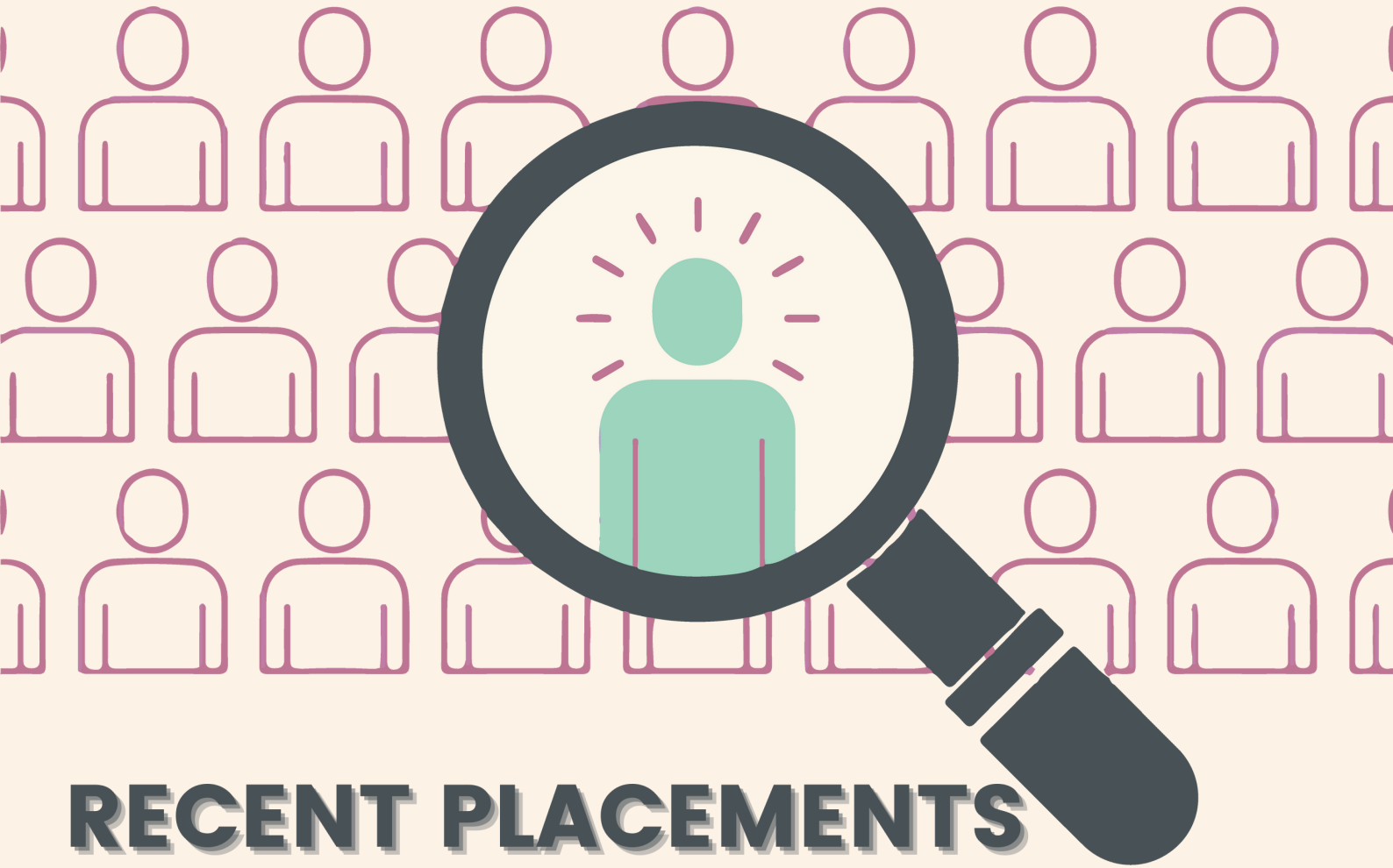
Gaea Titus E (S1 ECA)

for getting the Elite Certification for the NPTEL Course "Data Science for Engineers" offered by IIT, Madras.



Lakshmi Nandana N R of (S6 ECB)

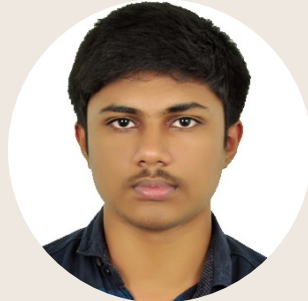
is selected from APJAKTU NSS Cell for International Youth exchange program of Ministry of Youth affairs and sports. She was selected based on the interview conducted at MES college Kuttippuram



We congratulate all the successful student who got placed in various companies this year.



BALAKRISHNA R

coditas

DEEPAK NN

BYJU'S
The Learning App

JISHNU S

RESEMBLE
SYSTEMS
BUSINESS VALUE FOCUSED

 ERNST & YOUNG



SWETHA
VINAYAKUMAR

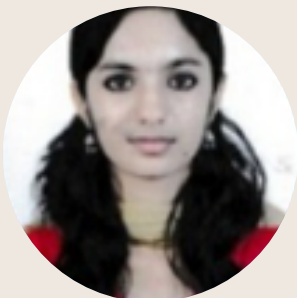


LINZA MARY
VARGHESE



GREESHMA K V

2020 PASSOUTS PLACED IN E&Y



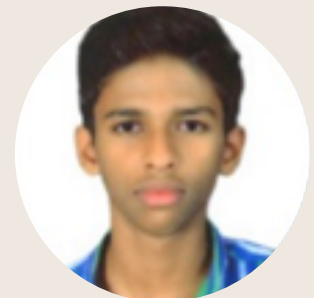
Amitha M



Anjitha S



Ann Maria Santosh



Austin Francis



Harikrishna P A



Livin Varghese



Rahul Menon A



Minnu Priya Joseph

2017-2021 ECE batch placed at UST Global

STAFF ACHEIVEMENT AND PARTICIPATION

Dr Ragesh G K

- Selected as a member of the technical program committee for the international Conference-EAI SmartGov 2021 – 3rd EAI International Conference on Smart Governance for Sustainable Smart Cities, November 24 – 26,2021, Portugal

Dr. Bipin P R

- Published a research paper titled "Exploitation whale optimization based optimal offloading approach and topology optimization in a mobile ad hoc cloud environment" in Journal of Ambient Intelligence and Humanized Computing (SCIE indexed).

Dr. Arya Devi P S

- Successfully Translated the files of SWAYAM- NPTEL course TALE 2: Course Design and Instruction of Engineering Course (127108016) offered by IISc Bangalore in the Malayalam Language

Dr. Suraj Damodaran

- Published a manuscript titled "Design of suboptimal model-matching controllers using squared magnitude function for MIMO linear systems", in Automatika: Journal for control, measurement, electronics, computing and communications (publisher Taylor & Francis) which is Science Citation Index Expanded journal. ISSN 0005-1144/1848-3380.
- Attended a AICTE sponsored Short Term Training Program on "Control System Design – Classical and Modern with Hands-on" conducted by College of Engineering Pune on March 22-27, 2021

Mrs. Prameela B

- Selected as a Reviewer of International Journal of Engineering and Technology Innovation and IEEE Symposium on Industrial Electronics & Applications (ISIEA 2021).

Mr. Ajay Kumar

- Submitted PhD thesis to APJAKTU, it has been recommended and found eligible for defending PhD viva-voce examination.

Mrs. Arya Paul

- Submitted a Proposal on "AI-enabled IoT networks" for AICTE ATAL FDP

STUDENT ACHIEVEMENT AND PARTICIPATION

Student Batch	Name	Title of Course/Event attended	Conducted By	Date
2017-21	PANKAJ KUMAR DWIVEDI	Python Quick Start	Linkedin Learning	4/17/2021
2020-24	SERREEN SABU	Water quiz as part of Jal Shakti Abhiyan :Catch The Rain	National Water Mission and MyGov	04-01-21
2020-24	SERREEN SABU	Dekho Apna Desh	Ministry of Tourism and MyGov	04-05-21
2020-24	JAISON T POULOSE	Wordpress Devlopment	Udemy	04-04-21

TECH TALKS

TEACHER'S ZONE

AUTHOR:

Dr. GOPAKUMAR V

PROFESSOR DEPARTMENT OF ECE, ASIET



CODING- THE NEW ESSENTIAL LITERACY

Necessity is the mother of all invention and if there is one invention that has revolutionized and given rise to the Digital Revolution that we live in today, that is the computers. Over the last decade or so we have seen many transformations happening in this space from the basic calculators which could do simple arithmetic steps to the quantum systems that are on the verge of being commercially available. Like machine-made manual tasks easier, computers have made mental tasks faster and have revolutionized the world that we live in currently. It is so entrenched and integrated into human life at all facets, that a life without computers is unimaginable.

Now let us take a step back and think about what makes a computer work as we see it today. The lifeblood for computers is the programs written on it, be it the microcode firmware or the application programs that they run. A computer is nothing but a dumb device unless we program it to be smart, and that brings up the differentiating factor, the programs to make it function the way it is expected.

The way a computer function is dictated by the way it is programmed, and hence it is a skill that is in high demand now and in the ages to come. While talking of programming (coding), we need to clearly differentiate between system programming and application programming. It is an ever-expanding field that is growing at unimaginable levels. While system programming is a niche skill, for the purposes of the general public and this article, let us restrict it to application programming. We need to instruct the systems to work in a certain manner and provide a certain user experience. We need to be able to write a program that humans can understand (High-level language), which in turn gets translated to a language the computer understands (Machine language) and gives an output that humans understand. No wonder over the years computer programming has evolved from an age where functionality and efficient programming was important to the current age when not only functionality but also the end-user experience is important. Computer resources have become so cheap that it is now integrated into our everyday life in a big way. The current age of smart gadgets and the new age users meant the programming also had to evolve to lower the barriers of entry for programmers. The average age of a computer programmer has gone down to the pre-teens. It is no more a niche skill secluded to the confines of office spaces in certain elite organizations, but a skill that all can possess if they are keen and if they do not wish to be left out in the highly competitive world.

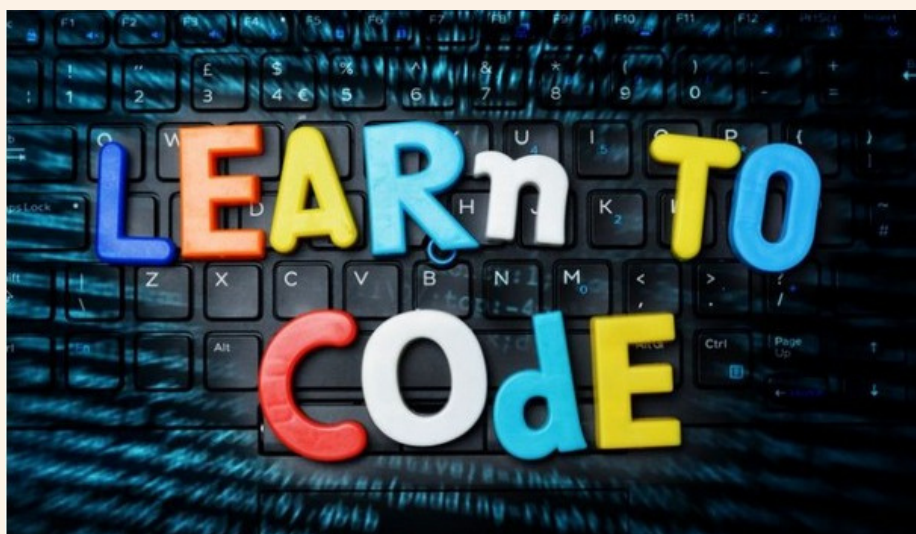
Aspiring Minds, a talent assessment company reported in year 2019 that, only 2.5 percent of, Indian engineers possess skills in the field of artificial intelligence, only 4.5 percent are skilled in data engineering and only 5.3 percent know proper coding in wireless technology. All the three areas mentioned above are the backbone of industry revolution 4.0. The report also states that Indian graduates who are able to write correct code or program with minimum errors is only 9.9%, which means that more than 90% of Indian graduates are not proficient to write and execute a computer program. The same coding skill sets for US and Chinese counterparts are 34.1% and 8.6% respectively. So at present it is very irrelevant to ask “why should I learn to program?” exactly the same way the question arose in early 15th century that “Why I should I learn to read?”



It would be great if you know the basics of programming, and is able to apply design thinking philosophy. With the right approach and analytical mindset, any big problems in front of you to be addressed by a computer program can be broken up into simple pieces of programs which can be assembled together with the necessary to come out with the complete solution. Programming these days is no longer about writing hundreds of lines code. It is about breaking down a problem into smaller pieces and then addressing them individually before putting it all back together as if solving a jigsaw puzzle. This is the era of Service Oriented Architecture, Micro-services, containerization, etc. Current age programming is no longer about writing complex code which required cumbersome syntax known only to very few. This means computer programming of today urges you to think smarter and solve problems intelligently; irrespective of it being a societal problem to solve or a scientific one. New age programming required analytical thinking and ability to have a holistic view of the solution to the problem in hand. It is about building the solution from multiple pieces that are already available like a chef at a fast food restaurant. The skill sets of the new age programmer are quite different and constantly evolving. The programmer of today is quite isolated from the underlying hardware technology to a considerable extent. Platform agnostic programming is what the new trend is, at least for the non-critical requirements. While programming skills needed for mission critical and business critical requirement addressed by super computers and mainframe computers are quite different, this is beyond the scope of the discussion here

Most of the online services and equipment that we use in our day to day life, which includes smart devices, home appliances, vehicles, etc., are wisely programmed. As widely accepted and stated by Moore, the computing power doubles every couple of years. This means that you would also need to be more intelligent and smarter while you create the code and the associated algorithm. Requirements as predictive and prescriptive analytics, forecasting, computer generated imagery (CGI), etc require more and more processing power and more innovative programming models which traditional programming models may fail to address efficiently. This doesn't really translate to lesser manpower requirements but to new skill sets and more efficient programming requirements. It is just that the output per person is much higher than earlier times.

Future forecast shows that the demand for smart programmers at present and in the future will be on the rise. Like we learn the alphabets in primary classes, learning the basics of programming also need to be introduced in small classes as part of students' academic curriculum. It has to be noted that coding has become an integral part of the school curriculum since the 6th standard in India's new education policy 2020 (NEP2020). We have to appreciate it, as researches show that learning to code enhances and inculcates skills as creativity, problem-solving, critical and analytical thinking, mathematical skills, and by debugging code they get resilience, persistence, structural thinking and becomes a lifelong continuous learner. Some good links for start coding freely or with very minimal cost, irrespective of age and/or educational qualifications are at NPTEL under the Ministry of Education India (<https://nptel.ac.in/course.html>). There you search for programming courses, Codecademy(<https://www.codecademy.com>), free Code Camp (<https://www.freecodecamp.org>) coding courses at edX (<https://www.edx.org/learn/coding>), coding classes at COURSERA (<https://www.coursera.org/courses?query=basic%20coding>), WhiteHat Jr (live online coding for kids <https://www.whitehatjr.com/>), code monkey (<https://www.codemonkey.com/hour-of-code/coding-adventure/>) and more online links are available at <https://learntocodewith.me/posts/code-for-free/>.



In conclusion, coding is a tough but mandatory skill to be developed for all, especially for students. They must be comfortable with simple Excel, Python, and C/C++ programming initially and go further to make mobile apps and then to solve complex problems those come up most effectively

TECH TALKS

STUDENT'S ZONE

AUTHORS:

ABHIJITH SEBASTIAN, DEVIKA RAJAN
S8 ECE, DEPT. OF ECE, ASIET



TECHNOLOGY OF IMAGE PROCESSING

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be an image or characteristics or features associated with that image.

Almost in every field, image processing puts a live effect on things and is growing with time to time and with new technologies. There are several applications for image processing.

1) Image sharpening and restoration

It refers to the process in which we can modify the look and feel of an image. It basically manipulates the images and achieves the desired output. It includes conversion, sharpening, blurring, detecting edges, retrieval, and recognition of images.

2) Medical Field

There are several applications in the medical field which depends on the functioning of image processing.

- Gamma-ray imaging
- PET scan
- X-Ray Imaging
- Medical CT scan
- UV imaging

3) Robot vision

There are several robotic machines that work on digital image processing. Through image processing technique robot finds their ways, for example, hurdle detection robot and line follower robot.

4) Pattern recognition

It involves the study of image processing, it is also combined with artificial intelligence such that computer-aided diagnosis, handwriting recognition and images recognition can be easily implemented. Nowadays, image processing is used for pattern recognition.

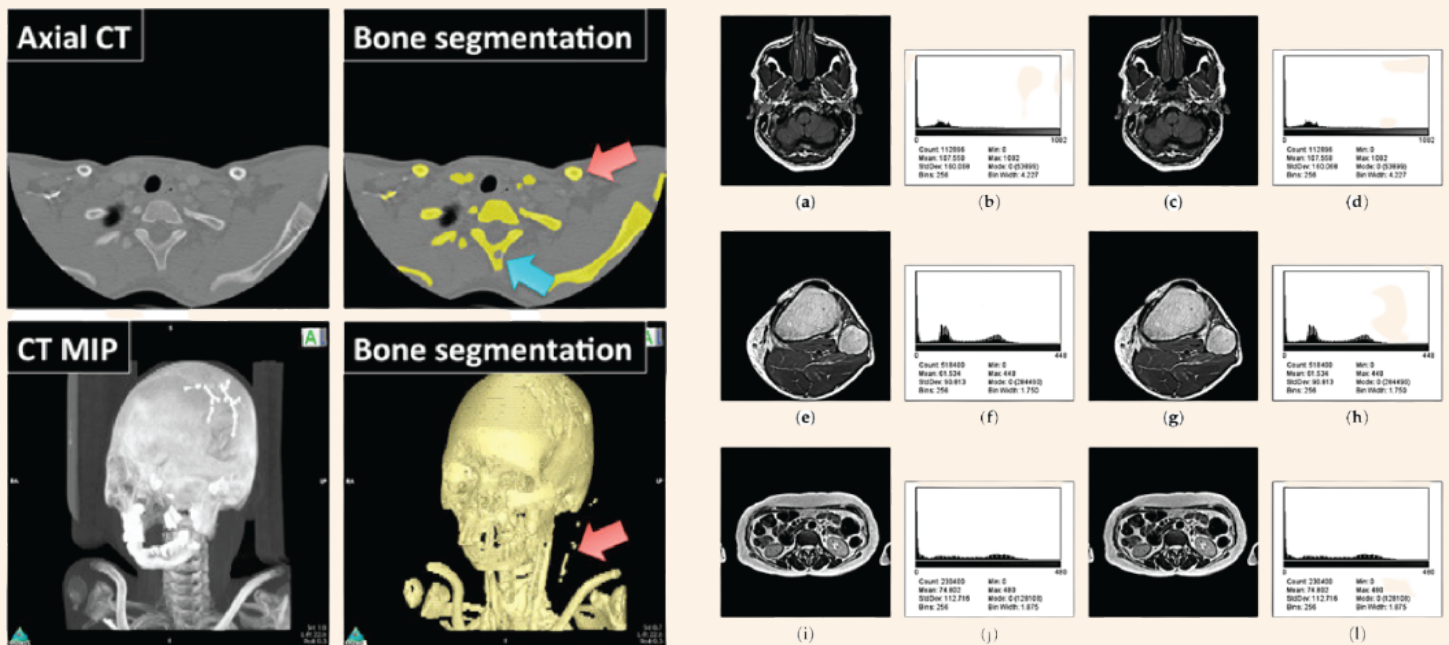
5) Video processing

It is also one of the applications of digital image processing. A collection of frames or pictures are arranged in such a way that it makes the fast movement of pictures. It involves frame rate conversion, motion detection, reduction of noise and colour space conversion etc.

Recent developments in image processing

In the image recognition field,

- Content Moderation
- Billions of users share content online and tons of it falls within a range from inappropriate to outright illegal. Platforms operating with user-generated content (UGC) face a significant challenge – how to efficiently and effectively monitor UGC and block inappropriate and offensive images, videos and text. Content moderation done poorly can disturb vulnerable groups, hurt the brand's reputation and cause compliance and legal issues.
- Who takes care of the “toxic digital garbage”?
- Content moderation can be performed by humans, AI or both. More than 100,000 people worldwide monitor the most violent, pornographic, exploitative and illegal content to protect internet users from online bullies and criminals. The job is tough and can take its emotional and mental toll.



Other developments are:

- Automatic image segmentation
- Handwriting recognition and Face recognition
- Restoration of murals using Digital Image processing techniques
- steganography in a defence application, medical fields etc.
- Medical image steganography

STAFF EDITORS



Dr RAGESH G K
Head Of Department(HOD).
Department of ECE



Ms ANJANA S
Assistant Professor
Department of ECE



Ms NEETHA K
Assistant Professor
Department of ECE

STUDENT EDITORS



Ms Hridaya U Mallia
S5 ECA
Department of ECE



Ms Kavya G Padiyar
S5 ECB
Department of ECE



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Department of ECE



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24th MAY - 30 MAY 2021

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INSTITUTE OF ENGINEERING AND TECHNOLOGY

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About

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Topics include:

Cyber-Physical Systems and IoT
Computer Science and Big Data
Artificial Intelligence
Machine Learning
BlockChain
Data Analytics
Computing
(Cloud, Cluster, Grid, Soft, Edge, Fog, Quantum, etc.)
Reconfigurable Systems, MEMS/NEMS
Networking Protocols and communication
(mm-Wave technologies, cognitive radio, spectrum management, WBAN, multi-carrier, M2M communication, etc.)
Signal and Image Processing
Cyber Security
Data Security/ Information Assurance

Abstract Registration Due

15th June, 2021

Submission Deadline

30th April, 2021

Notification Due

1st June, 2021

Final Version Due

1st July, 2021

Submit the full paper here:

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