KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

Warangal – 506 015, Telangana, INDIA (An Autonomous Institute under Kakatiya University, Warangal)

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ELECTROMANIA

A Technical Magazine

VOL-IX

Academic Year: 2019-2020

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Vision of the Department

- Develop the department into a full-pledged center of learning in various fields of Electronic and Communication Engineering in pursuit of excellence in Education, Research, Entrepreneurship and Technological services to the society.

Mission of the Department

- Imparting quality education to develop innovative and entrepreneurial professionals fit for the globally competitive environment.
- To nurture the students in the field of Electronics and Communication Engineering with an overall back-ground suitable for attaining a successful career in higher education, research and Industry

Program Educational Objectives (PEOs) of the Department

The PEO's of the B.Tech (Electronics and Communication Engineering) program are focused on making our graduates technologically superior and ethically strong

PEO-I: Building on fundamental knowledge, graduate should continue develop technical skills within and across disciplines in Electronics and Communication Engineering for productive and successful career maintaining professional ethics

PEO-II: Graduates should develop and exercise their capabilities to demonstrate their creativity in engineering practice and team work with increasing responsibility and leadership

PEO-III: Graduates should refine their knowledge and skills to attain professional competence through lifelong learning such as higher education, advanced degrees and professional activities

Program Outcomes (POs) of the Department

Engineering program must demonstrate that their students attain the following outcomes:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs) of the Department

PSO1: Readiness for immediate professional practice.

PSO2: An ability to use fundamental knowledge to investigate new and emerging technologies leading to innovations.

EDITORIAL BOARD

Principal Message

I am very happy that the Department of Electronics & Communication Engineering for bringing out ELECTROMANIA, a Technical Magazine of the department. This magazine will definitely pave way to understand the latest trends in engineering and their applications in industrial and scientific sphere. The student fraternity can enhance their technical skills by exchange of their views on latest trends taking place in the field of science & technology.

I hope this MAGAZINE will be well received by student community and faculty.

- Dr. K. Ashoka Reddy
Principal

Faculty In-Charge Message

We express our happiness that the Department of Electronics & Communication Engineering is releasing a technical magazine "ELECTROMANIA" volume-IX.

This magazine will serve as good resource to update the students' knowledge and keep them in touch with the latest developments. The rapid growth of the technology has enabled the students to expand and improve their technical skills in multiple domains.

We would also like to thank student members for their ingenious work.

- Sri S. Pradeep Kumar, Asst. Prof.

- Mr. Md Abdul Muqueem, Asst. Prof.

Editor In-Charge Message

It is heartening to note that Department of Electronics & Communication Engineering is publishing its magazine "ELECTROMANIA" volume – IX. I congratulate the Faculty Editorial Board and student members for their wonderful efforts in bringing up the "ELECTROMANIA" volume – IX. The research articles published by faculty and students in different areas will helpful the student community to update themselves on latest research. Hope this will help students to exposure on advanced technologies, and enhance the opportunities to work/research in core areas. Department of ECE established 4 new labs: Embedded Systems and Applications, IoT, and Advanced DSP processors, Artificial Intelligence and Machine Learning with the support of Management and Principal. This Magazine is a mirror reflecting the creativity of young minds of the institution. I hope that such endeavor would continue in future as well.

- Dr. B. Rama Devi
Prof. & Head, Dept. of ECE

Board Members

Editor's In-charge

Prof. K. Ashoka Reddy, Principal
Dr. B. Rama Devi, Prof. & Head, Dept.of ECE

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L.Shashi Preetham (II ECE-III)

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WHAT TO LEARN

LISP

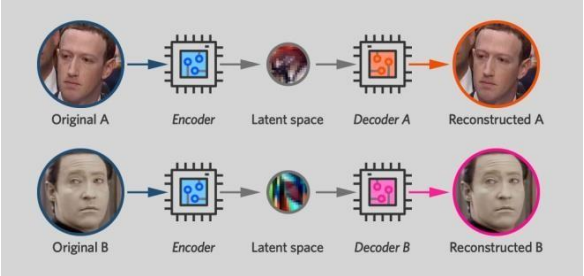
Lisp (historically **LISP**) is a family of computer programming languages with a long history and a distinctive, fully parenthesized prefix notation. Originally specified in 1958, Lisp is the second-oldest high-level programming language in widespread use today. Only Fortran is older, by one year. Lisp has changed since its early days, and many dialects have existed over its history. Today, the best-known general-purpose Lisp dialects are Clojure, Common Lisp, and Scheme.

Lisp was originally created as a practical mathematical notation for computer programs, influenced by the notation of Alonzo Church's lambda calculus. It quickly became the favored programming language for artificial intelligence (AI) research. As one of the earliest programming languages, Lisp pioneered many ideas in computer science, including tree data structures, automatic storage management, dynamic typing, conditionals, higher-order functions, recursion, the self-hosting compiler, and the read–eval–print loop.

DEEP FAKE

Deepfakes (a portmanteau of "deep learning" and "fake") are synthetic media in which a person in an existing image or video is replaced with someone else's likeness. While the act of faking content is a not new, deepfakes leverage powerful techniques from machine learning and artificial intelligence to manipulate or generate visual and audio content with a high potential to deceive. The main machine learning methods used to create deepfakes are based on deep learning and involve training generative neural network architectures, such as autoencoders[] or generative adversarial networks (GANs)

Deepfakes rely on a type of neural network called an autoencoder. These consist of an encoder, which reduces an image to a lower dimensional latent space, and a decoder, which reconstructs the image from the latent representation. Deepfakes utilize this architecture by having a universal encoder which encodes a person in to the latent space. The latent representation contains key features about their facial features and body posture. This can then be decoded with a model trained specifically for the target. This means the target's detailed information will be superimposed on the underlying facial and body features of the original video, represented in the latent space.[



DATASCIENCE

Data science is an inter-disciplinary field that uses scientific methods, processes, algorithms and systems to extract knowledge and insights from structured and unstructured data. Data science is related to data mining and big data. Data science is a "concept to

unify statistics, data analysis, machine learning and their related methods" in order to "understand and analyze actual phenomena" with data. It employs techniques and theories drawn from many fields within the context of mathematics, statistics, computer science, and information science. Turing
award winner Jim Gray imagined data science as a "fourth paradigm" of science (empirical, theoretical, computational and now data-driven) and asserted that "everything about science is changing because of the impact of information technology" and the data deluge. In 2015, the American Statistical Association identified database management, statistics and machine learning, and distributed and parallel systems as the three emerging foundational professional communities.

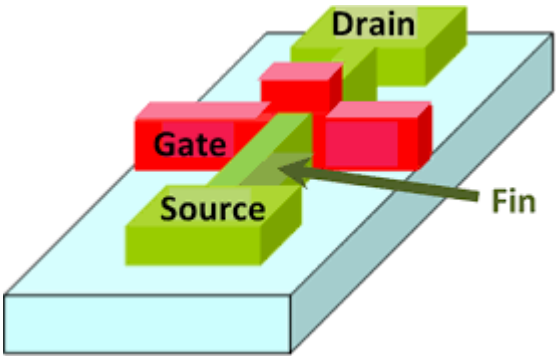
WHAT'S TRENDING NOW

GOOGLE STADIA

Stadia is a cloud gaming service operated by Google. It is advertised to be capable of streaming video games up to 4K resolution at 60 frames per second with support for high-dynamic-range, to players via the company's numerous data centers across the globe, provided they are using a sufficiently high-speed Internet connection. It is accessible through the Google Chrome web browser on desktop computers, or through Pixel smartphones, Chrome OS tablets and Chromecast.

"**Negative latency**" is a concept by which **Stadia** can set up a game with a buffer of predicted **latency** between the server and player, and then use various methods to undercut it. It can run the game at a super-fast framerate so it can act on player inputs earlier, or it can predict a player's button presses.

FINFET



A **fin field-effect transistor** (**FinFET**) is a multigate device, a MOSFET (metal-oxide-semiconductor field-effect transistor) built on a substrate where the gate is placed on two, three, or four sides of the channel or wrapped around the channel, forming a double gate structure. These devices have been given the generic name "finfets" because the source/drain region forms fins on the silicon surface. The FinFET devices have significantly faster switching times and higher current density than planar CMOS (complementary metal-oxide-semiconductor) technology.

FinFET is a type of non-planar transistor, or "3D" transistor.[1] It is the basis for modern nanoelectronic semiconductor device fabrication. Microchips utilizing FinFET gates first became commercialized in the first half of the 2010s, and became the dominant gate designat 14nm, 10nm and 7nm process nodes.

REVERSE WIRELESS CHARGING TECHNOLOGY

Wireless reverse charging is a feature that makes it possible to use one device to charge another one that support wireless charging. This means that you can use the Huawei Mate 20 Pro to charge other devices that support wireless charging such as the iPhone X.

Wireless reverse charging draws some of the power in one device and transfers it to the other. Literally, it turns a device into a charging pad for the other device.

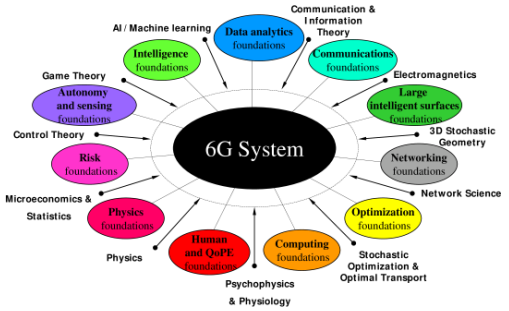
Huawei has been a major player in propagating reverse charging technology. Devices like Ascend Mate 2 4G, Media Pad M1 and X1 all supported wired reverse charging over four years ago. However, the Mate 20 Pro is the first mainstream smartphone to support wireless reverse charging.

Manufacturers are beginning to put big, fat cells inside other gadgets we use. Maybe it's about time to give a boost to some of our weakly equipped gadgets wirelessly with reverse wireless charging

Reverse wireless charging, and big batteries will greatly reduce trips to the power socket and carrying around charging pods. Consequently, you will be able to charge a device that supports wireless charging by simply stuffing it back to back with your reverse wireless charging device in the pocket.

WHAT'S NEXT

6G



The ongoing deployment of 5G cellular systems is continuously exposing the inherent limitations of this system, compared to its original premise as an enabler for Internet of Everything applications. These 5G drawbacks are currently spurring worldwide activities focused on defining the next-generation 6G wireless system that can truly integrate far-reaching applications ranging from autonomous systems to extended reality and haptics. Despite recent 6G initiatives111One example is the 6Genesis project in Finland , the fundamental architectural and performance components of the system remain largely undefined. In this paper, we present a holistic, forward-looking vision that defines the tenets of a 6G system. We opine that 6G will not be a mere exploration of more spectrum at high-frequency bands, but it will rather be a convergence of upcoming technological trends driven by exciting, underlying services. In this regard, we first identify the primary drivers of 6G systems, in terms of applications and accompanying technological trends. Then, we propose a new set of service classes and expose their target 6G performance requirements. We then identify the enabling technologies for the

introduced 6G services and outline a comprehensive research agenda that leverages those technologies. We conclude by providing concrete recommendations for the roadmap toward 6G. Ultimately, the intent of this article is to serve as a basis for stimulating more out-of-the-box research around 6G.

AUTONOMOUS VECHILES

An autonomous car is a vehicle capable of sensing its environment and operating without human involvement. A human passenger is not required to take control of the vehicle at any time, nor is a human passenger required to be present in the vehicle at all. An autonomous car can go anywhere a traditional car goes and do everything that an experienced human driver does.

The Society of Automotive Engineers (SAE) currently defines 6 levels of driving automation ranging from Level 0 (fully manual) to Level 5 (fully autonomous). These levels have been adopted by the U.S. Department of Transportation.

COBOTS

A **cobot**, or **collaborative robot**, is a robot intended for direct human robot interaction within a shared space, or where humans and robots are in close proximity. Cobot applications contrast with traditional industrial robot applications in which robots are isolated from human contact. Cobot safety may rely on lightweight construction materials, rounded edges, and inherent limitation of speed and force, or on sensors and software that ensures safe behavior.

The International Federation of Robotics (IFR), a global industry association of robot manufacturers and national robot associations, recognizes two types of robots – 1)industrial robots used in automation (in an industrial environment) and 2) service robots for domestic and professional use. Service robots could be considered to be cobots as they are intended to work alongside humans. Industrial robots have traditionally worked separately from humans behind fences or other protective barriers, but cobots remove that separation.

Cobots can have many uses, from information robots in public spaces (an example of service robots), logistics robots that transport materials within a building, to industrial robots that help automate unergonomic tasks such as helping people moving heavy parts, or machine feeding or assembly operations.

The IFR defines four levels of collaboration between industrial robots and human workers.

PERSONALITIES WHO MADE A DIFFERENCE

Rajeev Suri

Rajeev Suri was born on 10 October 1967 in New Delhi, India. He grew up in Kuwait. He is a Singaporean citizen and is based in Espoo, Finland. Rajeev Suri has a Bachelor's of Engineering (Electronics and Communications) from Manipal Institute of Technology, which was affiliated to Mangalore University at that time.

In his more than 20 years of international experience, Rajeev has worked in roles comprising strategy and M&A, product marketing, sales, major account leadership, regional and business unit leadership and has lived in Middle East, Asia, Africa and Europe. He worked for multinational corporations in India and Nigeria before joining Nokia in 1995. Suri followed Simon Beresford-Wylie as the CEO of NSN in October 2009 after Nokia Networks and Siemens Networks had been merged. He is considered a 'turnaround specialist' in the global tech circles. He is responsible for consolidating the telecom industry by various acquisitions including Motorola, Panasonic , Alcatel Lucent and Siemens.

On 23 November 2011, Suri announced that the company planned to eliminate 17,000 jobs by the end of 2013 to enable NSN to refocus on mobile broadband equipment, the fastest-growing segment of the market. The reductions would slash the company's work force by 23 percent from 74,000. The cuts followed NSN's $1.2 billion purchase of Motorola's mobile network equipment business in July 2010, which added staff; and would help the company trim annual operating expenses by $1.35 billion by the end of 2013.

Sanjay Kumar Jha

Jha was born in 1963. He received a BS in electrical engineering from the University of Liverpool and a PhD in electronics engineering from the University of Strathclyde. In 2011, Sanjay was awarded the honorary degree of D.Sc. by the University of Strathclyde, and in 2018, he was inducted into the United States National Academy of Engineering.

Jha began his career at Qualcomm in 1994 as a senior engineer with the Qualcomm very-large-scale integration group working on the Global star satellite phone, and later on the first 13k vocoder application-specific integrated circuit, which was integrated into Qualcomm's MSM2200 chipset. In 1997 Jha was promoted to vice-president of engineering, where he was responsible for leading the integrated-circuit engineering group. Jha led and oversaw the development of five generations of modem and cell site chipsets, both digital baseband and RF (radio frequency), and system software. He was promoted to senior vice-president of engineering in 1998.

In 2002 he led the formation of Qualcomm Technologies & Ventures, where he managed both the technology investment portfolio and the new technology group as senior vice-president and general manager. Jha became executive vice-president of Qualcomm and president of Qualcomm CDMA Technologies in 2003 and was appointed COO in December 2006.

On 4 August 2008 it was announced he would be the new CEO for the Motorola Mobile Devices business.[1] He served in this role until May 22, 2012 when Dennis Woodside of Google took over the role of CEO at Motorola Mobility.

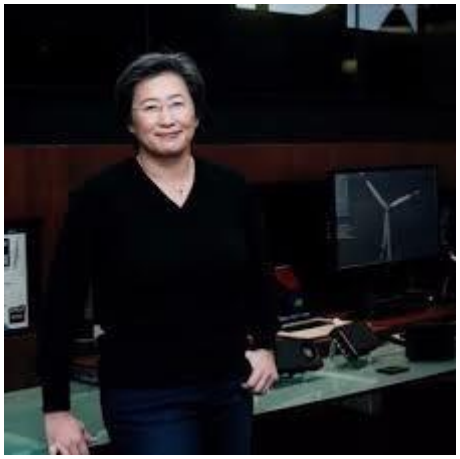
On January 7, 2014 it was announced that Sanjay Jha would be the CEO of GlobalFoundries Inc. GlobalFoundries is a privately held company with its headquarters in Santa Clara, California, United States. GlobalFoundries is the second largest semiconductor foundry business in the world with fabs in Malta, New York, Dresden, Germany, Singapore, East Fishkill, New York and Essex Junction, Vermont.

Before joining Qualcomm, Jha held lead design engineering roles with Brooktree Corporation in San Diego, and Hirst Research Centre in London.

Jha has served on the board of directors of the Semiconductor Industry Association, and as vice-chairman of the Fabless Semiconductor Association (now the Global Semiconductor Alliance (GSA)).

On March 9, 2018, he stepped down as CEO of GlobalFoundries.

Lisa Su



By age 10, Lisa developed a taste for engineering by taking apart and fixing her brother's remote-control cars to see how they worked. However, during her freshman year at MIT in 1986 when she took a position as an undergrad research assistant manufacturing test silicon wafers for graduate students, she came to truly understand the power and potential of semiconductors. She focused her remaining education, including a masters and doctorate from MIT, on understanding and advancing state-of-the-art semiconductor device technologies. It was during this period when Lisa began to see a future defined by semiconductors becoming intertwined with nearly every aspect of daily life.

Throughout her career, Lisa has established herself as a pioneering engineer in the semiconductor industry and a trusted leader. Lisa spent the majority of her early career at IBM, starting first as a research staff member with a specialty in device physics. In 2002, MIT Technology Review named Lisa a "Top Innovator Under 35" in part due to her foresight in forming the company's Emerging Products group and passion for merging technology with new applications. In addition to this leadership role, she was also a driving force behind IBM's work to replace the industry standard aluminium interconnects that were used in nearly every major chip with copper, a major industry advancement that fueled the development of higher-performance and more energy efficient chips. Lisa then held the role of chief technology officer at Freescale, where she led the company's R&D efforts before being entrusted by CEO Rich Beyer with leading the company's networking-chip business. In this capacity, she led Freescale's embedded processing and communications processor business to a leading market share position.

Since joining AMD in 2011, Lisa has made contributions that have been instrumental in strengthening the company's leading technology IP, products and customer relationships. She led key elements of AMD's strategy to diversify beyond the traditional PC market into adjacent markets where the company's leadership IP gives it a competitive advantage. She worked closely with Microsoft and Sony to place semi-custom AMD chips inside the hugely successful Xbox One and PS4™ game console line-ups, and oversaw the introduction of the highly-successful AMD Ryzen™ product family and innovative new AMD Radeon™ graphics products for gaming, machine learning and HPC markets. Lisa has also been at the forefront of the company's return to the datacenter market with the AMD EPYC™ processor family, which brought back choice and innovation to a stagnant server CPU market, as well as created new opportunities in emerging fields such as machine learning and artificial intelligence. Under Lisa's leadership, in 2018 AMD was the best performing stock in the S&P 500 based on delivering its second straight year of greater than 20 percent annual

revenue growth and its most profitable year since 2011.

CAREER PROSPECTS

The job growth of this career is predicted to grow by seven per cent from present till 2026. Mentioned below are the career options available for B. tech ECE students

Career options after B. Tech ECE

We have divided the options into core jobs, non-core jobs, government jobs, startups and higher education. We have given the details of the same in the sections below.

Core job opportunities after B.Tech ECE

After the completion of the course, ECE engineers prefer working for a company that directly works in the electronics field or assisting other companies in the same field. The companies are rare but these are the companies that have job opportunities for core ECE students like Semiconductors, Alstom Corporate, Bharat Heavy Electricals, Havells, Crompton Greaves, Neolex Cables, HBM Power Systems, Exide Industries, and many more. With this students can also find suitable opportunities in communication companies like Siemens, BSNL, Sony Ericsson, Reliance and Nokia.

The job opportunities in these companies are astonishing, but vacancy or hiring students is pretty low. Sometimes there are instances where students do not find a single job opening for core positions in these companies.

For an ECE engineer, students are able to apply for the positions of Design Engineer, ASIC Engineer trainee, Jr. Embedded Engineer or Network Support Engineer. After a successful selection in any of these designations, a student gets a chance to work in the field of circuit design, wireless communications, robotics, electronics, VLSI, NanoTechnology, Embedded Systems, Digital Electronics, Optical Communications, Signal and many more.

Non-Core Jobs (Different Fields) after B. Tech ECE

Getting work opportunities in the core field is often not possible, but there are other options for students; they can apply for non-core jobs. These non-core jobs are often found in the software industry as technical experience in these jobs is not mandatory. Often these jobs require a basic understanding of programmes such as C/C++ languages and excellent communication skills.

Private companies such as Wipro, Tata Consultancy Services, Accenture, Infosys, HCL, Genpact and many more are options where ECE students can work. These students can apply and work in the capacity of assistant software engineer, junior software engineer, programmer, net engineer, quality analyst and many other positions. The jobs offered by such firms have a good pay scale and they often provide benefits and other perks.

A student needs to find out about the off-campus recruitment schedules for these firms on their official websites as these companies do not come during college placements.

Government jobs after B. Tech ECE

After the successful completion of the programme, students of several career options after B. Tech ECE and can apply for government jobs as well. Public service companies recruit both on the basis of GATE score and fresh graduates without GATE score. In order to secure a position in any public firm, a student needs to qualify the written examinations. These exams are held by the Public Service Commission of India. Some of the common PSU jobs in this field would be for technicians and engineers in companies like BSNL, MTNL, ISRO, DRO, BHEL, ONGC, SAIL, and many more.

Several financial institutions such as banks hire these engineers for the position of technicians and junior engineers. IBPSand SBI hire engineers for different posts every year, so

students need to check their websites on a regular basis for complete details. Along with these, there are jobs in various other fields such as the defence sector, education and many more.

Startup after B. Tech ECE

Opening a startup is likely to be a risky business, however, a student can always try this by accumulating his/her knowledge along with a proper plan. Since there are not a lot of startups in the ECE industry so competition would be less as compared to another profession. A start-up in this field could come from various fields like VLSI, Robotics, Nanotechnology, Optical Communication, Embedded Systems, Digital Electronics and many more.The idea seems appealing, but success is found by those who are willing to work hard and smart. Taking important steps and a proper plan would lead to success.

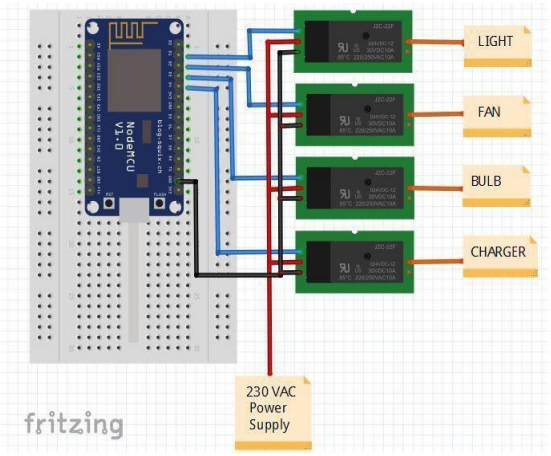
Higher studies after B. Tech ECE

If a student does not find any of the above-mentioned solutions suitable for him/her, in that case, he/she can definitely opt for further studies. This option helps the students in adding more weightage to their resume and widening job opportunities. A student can opt for any of the following programmes like M.Tech, Ph.D., M.S, and MBA. Students need to check the details of various courses before applying to any of the institutions offering these courses.

PROJECTS

HOME AUTOMATION USING ESP8266

The electrical plugs in our homes have switches and sockets with wired associations. An individual needs to truly move and work the switch either on or off and apply or control current to the home appliances. The individual who is away from home can not either control appliances or know the flow status of the equivalent and this may bring about wastage of electrical vitality. Individuals may encounter electrical stun on the off chance that the associations are uncovered. A automated framework is expected to wipe out massive wired associations of switches and attachments in the electrical plug. The plan of automated framework ought to be basic and simple to control the home apparatuses remotely and furthermore be checked their status simultaneously with wired/remote access gateways.



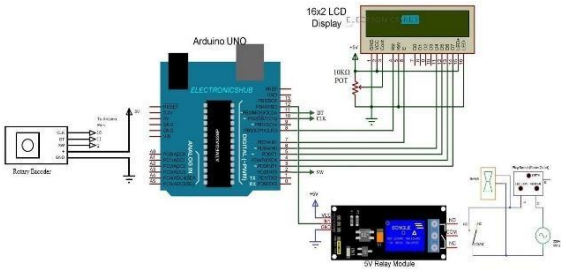
Initially we dump the required code(program) into the microcontroller using the USB port. Now we need to set the phrases for turning on and turning off the device using IFTTT. Now connections are made accordingly as show in Fig . Whenever we wake the google assistant in smart speaker or smart phone and recite the phrase there are two possibilities.(assuming normally opened configuration)

Case i: If we recite the phrase to turn on a device to google assistant then it sends a signal to microcontroller, microcontroller sends the signal through GPIO pin to the relay. Now the relay gets closed and the device which is connected to relay is switched on.

Case ii: If we recite the phrase to turn off the device to google assistant then it sends a signal to microcontroller, microcontroller now makes the GPIO pin to high impedance state. So, no signal will reach the relay and relay gets opened. This breaks the circuit and device turns off.

ARDUINO BASED SMART PHONE CHARGING CONTROLLER

Almost every mobile phone (either a fancy smart phone or a simple feature phone) user faces this one issue: connecting your phone to the charging adapter and forgetting that you plugged in the device. Almost all the modern charge controllers on mobile phones are very advanced and detect when your battery is fully charged and disconnect supply of power to the battery (not completely but a keeps the device in a charging state known as trickle charge). But the main disadvantage of keeping the device plugged in even after the battery is full it effects on the lifetime of the battery. Every battery has a limit to the number of times it can be charged (known as charge cycles). The main concept behind the Arduino based Smartphone Charging Controller is very simple. Set the time for which you wish to charge your mobile phone. Once the time is reached, power supply to the charger is turned off automatically. Using this project, you can plug in your phone to the charger, set the time for which your phone gets charged and forget as the project will automatically disconnect power to the charger. This project is very useful for people who tend to charge the phone during night time or those who often forget that they plugged in the phone to the charger.



The main components of the project aside from Arduino UNO are Rotary Encoder, Relay and 16X2 LCD Display. Let me start with the Relay. Connect the IN1 Pin of the Relay Module to Pin 12 of Arduino.

Coming to the rotary encoder, its CLK, DT and SW pins are connected to Pins 10, 11 and 2 of Arduino UNO. Finally, the LCD, Pins 8 through 3 of Arduino are connected to RS, E, D4 – D7 of the LCD.

Components like 16×2 LCD Display, Rotary Encoder and Arduino UNO can be placed on a breadboard but I though it would be nice to place the relay in a single socket power outlet box with a control switch in order that the relay would control the socket and you'll connect your charging adapter into the socket.

Initially arduino uno and lcd are connected according to the connections.

After making the required connections as per the circuit diagram, upload the code to Arduino and switch on the power supply. You will get Hours (HH), Minutes (MM), Seconds (SS) on the 16×2 LCD Display. By selecting Hours, rotate the knob on the rotary encoder to line the specified number of hours. When the hours value is reached, push the knob to fix that value. Similarly, you can set minutes and seconds. After everything is set, select OK on the LCD and push the knob.

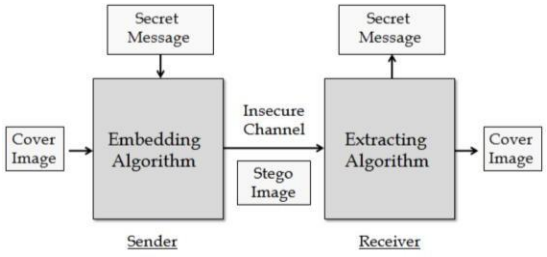
Now, the relay gets activated (which means the phone starts charging) and therefore the countdown begins for the quantity of your time set by you. Once the countdown reaches "0", the relay is turned off (power to adapter is off). During charging if there's a power

failure, the remaining time is stored within the memory and when the power comes back, it'll prompt you whether to continue with the countdown or to line a new time. Accordingly, the charging will beperformed.

STEGANOGRAPHY USING MATLAB

Over the last few decades, security of data exchanged over the network has become a major concern. Two major techniques have existed to achieve the same, namely cryptography and steganography. The recent growth in computational supremacy and communication technology has propelled today's security technique called steganography to foremost. Cryptography alters the structure of the text itself such that the secret message is in other than human readable form whereas steganography hides the text behind some other digitally representative media, thus transmitting it unsuspectingly. These techniques are required to protect the data theft over rapidly growing network. To achieve this there is a need of such a system which is very less susceptible to human visual system which can be implemented using steganography.

In this mini project, a steganography algorithm called Least Significant Bit (LSB) algorithm is used to hide data inside an image. This image processing technique is implemented in MATLAB. This foundational algorithm can also be modified to have encryption to transfer sensitive data. It can also be further modified to hide image inside an image or a video inside a video.



Least significant bit (LSB) substitution is a simple approach to embedding information in image file. First the secret image pixel values are converted into bits (binary). Then these bits are embedded directly into least significant bit (LSB) plane of the cover-image in a deterministic sequence or pattern. Changing the least significant bit doesn't bring about human distinguishable difference due to the fact that the amplitude of the change is little. In this procedure, the inserting limit can be expanded by utilizing at least two least significant bits. Due to this, not just the risk of noticing the inserted message or image increase, additionally the image quality corrupts (i.e mean square error increases)

e.g Let the binary values of pixels of cover image be

(10101000) (11110000) (10101010) (01010101) (10101111) (10101011) (00101010) (11100010)

Let the binary value of pixel of secret image be (11111111)

All these bits (1‟s) are substituted into LSB bits of cover image. Hence the modified binary values of pixels of cover image are,

(10101001) (11110001) (10101011) (01010101) (10101111) (10101011) (00101011) (11100011)

Embedding Algorithm

Step1: Extract the pixels of cover image.

Step2: Extract the pixels of secret image.

Step3: Convert the pixels into binary format.

Step4: Find the interval between bits to be inserted (i.e find total size of cover image and divide it with total size of secret image).

Step5: Replace LSB bit of 1st 8 pixels of cover image with the interval between each bit and next 16 pixels LSB bit with length of secret image.

Step6: Embed the secret image bits into the remaining pixels in steps of calculated interval, thus stego image is created

Extracting Algorithm

Step1: Extract the pixels of stego image.

Step2: From the first 8 pixels, the interval

between each embedded bit is fetched.
Step3: From next 16 pixels, the length of secret image is fetched.
Step4: Based on length of secret image and interval, the bits are extracted and secret image is obtained.

TECHNOLOGY THE NEW AGE PROBLEM SOLVER

Technology is being able to tackle with the modern problems which are much complicated. Problems which we cannot solve are solved by technologies like AI, Robotics and IOT and makes the things cakewalk for us. We can say that AI and Robotics are going to play a crucial role in transforming the world.

Additive Manufacturing: From Wearables to Printable Organs and Smart Clothes

Additive manufacturing helps in creating everything from printable 3D organs to wearables. This type of manufacturing starts with liquid or powder and builds into a 3D shape through a digital template, each layer at a time. So, how this constitute a solution? Well, such products can be customized to the end user and take 3D printing into a high-tech world.

Machines can print human cells and find application in creation of living tissues in fields such as tissue repair and regeneration as well as screening. This is also a step forward in the field of personalized medicine. 3D printing of integrated electronic parts such as nanoscale computer components and circuit boards is the next step.

Making the Globe Smaller: Travel Right, Smart Flights

Websites such as Triplt organize travel plans including flights, trains, cruises, cars, hotels and a 24-48 hour itinerary. Search Engine sites provide links to travel sites and online travel agencies, aggregators and consolidators are there to guide you every step of the way. The airplanes and ATC also use technology to make the journey comfortable. Transport and travel have changed for the better and we have reached miles ahead from travel books and slow trains.

Healthcare

Creating technology solutions that meet the needs of patients and providers relies on developers focusing on concrete problems and whether technology can help alleviate those pain points. Mobile communication lends itself well to fast or real-time communication; targeted group communications; the ability to share images, test results and other key clinical information; and data tracking throughout the care continuum, all of which have a place in creating better systems of care. And with nearly every provider already using smart phones and apps in their daily lives, new platforms with mobile applications take advantage of equipment and knowledge already available to every caregiver.

Sense and Avoid Drones: Innovation with Numerous Applications

Flying robots, UAVs or drones can be used for checking power lines, providing emergency aid, agriculture, filming and other applications requiring comprehensive and affordable aerial surveillance. Drones have reliable ability to avoid collision and create autonomy while carrying out tasks which are too tough or remote for humans to accomplish. Sense and avoid drones can be used for operating reliably in tough conditions such as dust storms or blizzards.

TECHNOLOGY NEWS

Number of 5G devices breaks 200 barrier

The Global mobile Suppliers Association (GSA) has reported that the number of announced 5G devices has broken the 200 barrier for the first time.

With 208 5G devices now announced from 78 vendors, the number of commercial devices has more than doubled in the last five months, having surpassed the milestone of 100 devices from 41 vendors in August 2019.

"During 2019, the number of announced 5G devices grew rapidly, starting with a few announcements and then gathering pace as operators in various parts of the world launched their first commercial 5G services," said Joe Barrett, President, GSA. "This growth has continued into 2020 with the number of announced 5G devices exceeding 200 for the first time. Not only is this a symbolic milestone, but it also means we are starting to be able to identify trends in spectrum support and form factors. The diversity of both further reinforces how the industry is working hard to deliver on the 5G promise to markets and operators around the globe."

The latest market data reveals that over two-thirds (66.8%) of all announced 5G devices are identified as supporting sub-6 GHz spectrum bands and just over one-third (33.6%) are understood to support the mmWave spectrum. Slightly more than 27% of all announced devices are known to support both mmWave and sub-6 GHz spectrum bands. The bands known to be most supported by announced 5G devices are n78, n41, n79 and n77.

Bluetooth Low Energy v5.2 IP

Imagination Technologies has unveiled its latest Bluetooth Low Energy (BLE) IP, designed to support the Bluetooth SIG version 5.2 specification.

According to the company, the iEB110 is a complete BLE solution, that includes RF, controller software and Bluetooth Low Energy host stack. By providing a complete solution using the popular open-source Zephyr and Cordio host stacks together with a comprehensive set of profiles, companies looking to integrate BLE IP into their solution can take advantage of reduced integration and development costs, resulting in a much quicker time to market.

Designed for integration into complex communication systems-on-chips (SoCs), the iEB110 provides a fully featured, ultra-low-power BLE v5.2 solution. It offers high performance, efficient RF, with optimum silicon area and external bill of materials (BOM). The architecture allows seamless integration with Imagination's Wi-Fi IPs to create cost-effective multi-standard, wireless communication SoCs.

iEB110 takes advantage of the new Low Complexity Communication Codec (LC3) and efficient software algorithm to deliver clear audio at low power, enabling manufacturers to create small form factor, low power audio devices such as earbuds and hearing aids.

iEB110 supports advanced Bluetooth 5.2 features such as Angle of Arrival/Angle of Departure (AoA /AoD) allowing sub 1m location and tracking accuracy, LE long-range operation for extended indoor and outdoor coverage, and LE-2M PHY for higher throughput.

Richard Edgar, Senior Director of Product Management, Imagination Technologies, said, "We believe that with the new rich set of features provided by the latest BLE specification, the ability of BLE to provide low-

power audio solutions and accurate indoor positioning will enable a new range of applications. The iEB110 has been developed to enable silicon vendors who want to integrate the latest BLE features into their products, as a quick and cost-effective solution to do so."

3D ToF sensor-based eye-tracking solution

Eyeware, a Swiss 3D eye-tracking technology company and Melexis have joined forces to create an advanced driver monitoring system (DMS).

The DMS leverages Eyeware's attention-monitoring technology and uses Melexis' MLX75027 3D Time-of-flight sensors with VGA resolution, to enable robust eye gaze and head tracking for in-cabin driver monitoring, even in sunlight.

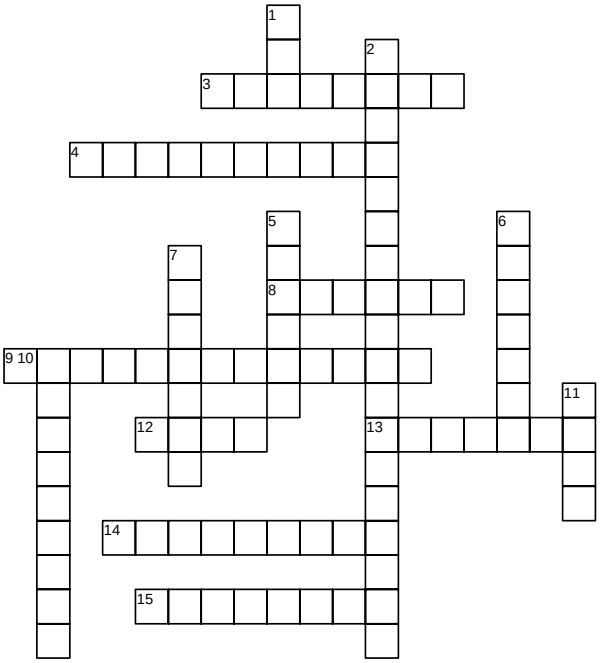
Eyeware uses 3D time-of-flight cameras to overcome the limitations of infrared-based tracking technology. The company's algorithms, using proprietary strategies based on data-driven machine learning approaches, make it applicable in systems using low power, costeffective and compact sensors.

"This collaboration demonstrates the robustness and wider range of head movements that can be achieved using ToF technology, compared with current driver monitoring systems," said Gualtiero Bagnuoli, Product Marketing Manager, Melexis. "Our MLX75027 3D time-of-flight sensor with VGA resolution, employs a high modulation frequency (20-100MHz) to drive the IR illumination which means the sensor is almost completely unaffected by light, even under changing conditions."

The range data provided by the 3D time-of-flight sensor is used to enhance the reliability of the head and gaze tracking capabilities of the system, enabling it to monitor a very wide range of head movements. The VGA 3D ToF sensor requires a minimal footprint, allowing it to be easily integrated into the rear-view mirror assembly.

"Although the resolution is lower than current driver monitoring cameras, the DMS needs just one sensor to track both driver and passenger," explained Bagnuoli.

ELECTRONIC PUZZLE



Across

3.A law relating the voltage difference between two points, and the electric current flowing between them

4.the degree to which a substance or device opposes the passage of an electric current, causing energy dissipation

8.stable subatomic particle occurring in all atomic nuclei, with a positive electric charge equal in magnitude to that of an electron, but of opposite sign

9. an electric current flowing in one direction only.

12. the SI unit of electromotive force, the difference of potential that would drive one ampere of current against one ohm resistance

13. a flow of electricity which results from the ordered directional movement of electrically charged particles.

14. a material or device that conducts or transmits electricity

15. a stable subatomic particle with a charge of negative electricity, found in all atoms and acting as the primary carrier of electricity in solids

Down

1. the SI unit of electrical resistance, expressing the resistance in acircuit transmitting a current of one ampere when subjected to a potential difference of one volt.

2.An electric current that reverses its direction many times a second at regular intervals, typically used in power supplies

5. a unit of electric current equal to a flow of one coulomb per second

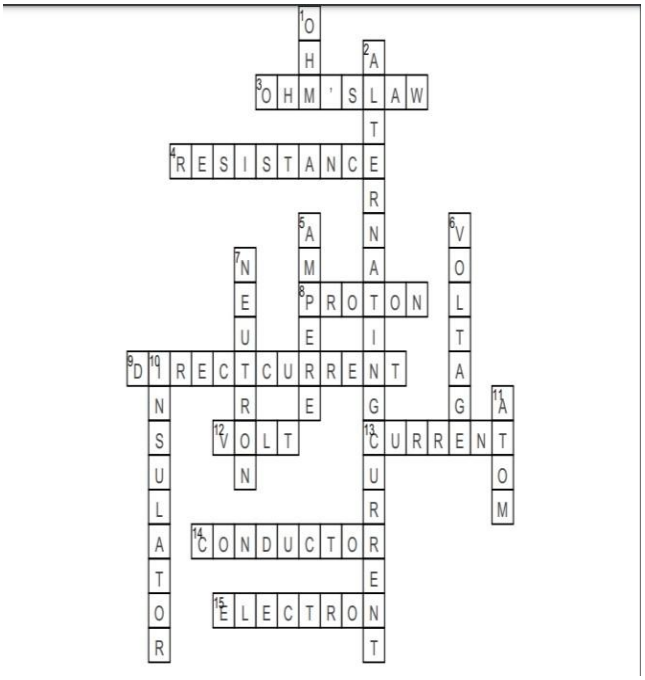
6.an electromotive force or potential difference expressed in volts

7.Neutron a subatomic particle of about the same mass as a proton but without an electric charge, present in all atomic nuclei except those of ordinary hydrogen

10. a substance or device that does not readily conduct electricity

11. The basic unit of a chemical element

Answers



Faculty Publications

(Academic Year: 2019-2020)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

S.No	Faculty Name	No of Journals	No of Conferences	Total
1	Dr. G. Raghotham Reddy	3	1	4
2	Dr. B. Rama Devi	3	0	3
3	Smt. S.P. Girija	2	1	3
4	Sri E. Suresh	0	1	1
5	Smt A. Vijaya	0	1	1
6	Dr. M. Raju	1	0	1
7	Dr. V. Venkateshwara Reddy	1	0	1
8	Sri A. Srinivas	2	0	2
9	Sri K. Ramudu	3	1	4
10	Syed Zaheeruddin	2	0	2
11	Sri V. Raju	2	1	3
12	Sri D. Venu	2	1	3
13	Sri R. Srikanth	1	0	1
14	Dr.M.Chandrasekhar	2	1	3
15	Sri S. Pradeep Kumar	0	1	1
16	Dr. K. Sowjanya	0	1	1

17	Dr.B.Dhanalaxmi	1	0	1
18	Sri G. Kranthi Kumar	0	1	1
TOTAL		**25**	**11**	**36**

Publication Details

S.No.	Faculty Name	Journal Publications
1	**Dr. B.Rama Devi**	*Application of Modified Bellman-Ford Algorithm for Cooperative Communication* Wireless Personal Communications, **109,** 2025–2049 (2019) ISSN: 0929-6212
		Experimental Validation of Spectrum SensingonVarious Transceivers Using Software Defined Radio Wireless Personal Communications, 109, pp.1615–1630(2019)ISSN: 0929-6212.
		Load factor optimization using intelligent shifting algorithms in a smart grid tree network *Cluster Comput* **22,** 14603–14614
2	**Dr. G. Raghotham Reddy**	Ganta Raghotham Reddy and S.P.Girija "Local Homogeneity Based Morphological Operators for Segmentation of Fabric Defect via LSE" International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-4, November 2019
		Ramudu Kama and Ganta Raghotham Reddy "Level Set Segmentation of Oil Spills from Earth Observatory Images Via Spatial KFCM Clustering" International Journal of Innovative Technology and Exploring Engineering (IJITEE), April 2020. ISSN: 2278-3075, Volume-9 Issue-6
		Kama Ramudu, Kalyani Ch, Tummala Ranga Babu and Ganta Raghotham Reddy "Segmentation of Soft Tissues and Tumours from Biomedical Images using Optimized K-Means Clustering via Level Set formulation" International Journal of Intelligent System applications (IJISA), Vol.11,issue 9, September-2019, pp: 18-28, Mecs Publisher ISSN: 2074-904X (Print), ISSN: 2074-9058 (Online)
3	**Smt. S.P. Girija**	S.P.Girija and RameshwarRao "MIMO OFDM Blind

		Channel Equalization using Multilayer Neural Network in Impulsive Noise Environment" International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-6, March 2020
		Ganta Raghotham Reddy and S.P.Girija "Local Homogeneity Based Morphological Operators for Segmentation of Fabric Defect via LSE" International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue-4, November 2019
4	**Dr.M.Raju**	Holistic Review on Brain Tumor Segmentation using Deep learning", pp.1081-1091 International Journal of Future Generation and Networking ISSN:2233-7857
5	**Dr. V. Venkateshwara Reddy**	V.V. Reddy, Frequency Reconfigurable Fractal Patch Circularly Polarized Antennas for GSM/Wi-Fi/Wi-MAX Applications. IETE Journal of Research, 03772063
6	**Sri A. Srinivas**	A.Srinavas Optimized Level Set Method for Segmentation of SAR Images using Adaptive Fuzzy-K-Means Clustering PP 2039-2049 IJAET. ISSN: 2249 – 8958
7	**Sri K. Ramudu**	N.C.Santosh Kumar,Ramudu Kama,V.Tejaswini and AzmeeraSrinivas "An Effective Segmentation of Retinal Blood Vessels Using Optimized PCA and Morphological Operators" Volume-8 Issue-3 International Journal of Recent Technology and Engineering (IJRTE), September 2019. ISSN: 2277-3878, Volume-8 Issue-3
		Ramudu Kama and GantaRaghotham Reddy "Level Set Segmentation of Oil Spills from Earth Observatory Images Via Spatial KFCM Clustering". International Journal of Innovative Technology and

		Exploring Engineering (IJITEE), April 2020 ISSN: 2278-3075, Volume-9 Issue-6,
		Kama Ramudu, KalyaniCh, TummalaRangaBabu and GantaRaghotham Reddy "Segmentation of Soft Tissues and Tumours from Biomedical Images using Optimized K-Means Clustering via Level Set formulation" International Journal of Intelligent System applications (IJISA), Vol.11,issue 9, September-2019, pp: 18-28, MecsPublisher, ISSN: 2074-904X (Print), ISSN: 2074-9058 (Online)
8	**Syed Zaheeruddin**	Image Contrast Enhancement by Homomorphic Filtering based Parametric Fuzzy Transform" . Pg. 162-172 In Proc. of Elsevier, Procedia Computer Science (open access article) 1877-0509
		Fore ground segment Using Multimode Background in Real time Perspective, pp 585-600 Innovations in Electronics and Communication Engineering Lecture Notes in Networks and Systems, vol 107. Springer, Singapore 978-981-15-3172-9
9	**Sri V. Raju**	V.Raju Performance Analysis of Double Gate Junctionless Tunnel Field Effect Transistor: RF Stability Perspective 10(11) International Journal of Advanced Computer Science and Applications
		Fore ground segment Using Multimode Background in Real time Perspective, pp 585-600 Innovations in Electronics and Communication Engineering Lecture Notes in Networks and Systems, vol 107. Springer, Singapore 978-981-15-3172-9
10	**D. Venu**	Weight Matrix-Based Representation of Sub-Optimum Disturbance Cancellation Filters For Passive Radars,2333-2345 Journal of Advanced Research in Dynamical and Control Systems ISSN: 1943-023X

11	**R.Srikanth**	Segmentation of Low Contrast Satellite and Medical Images Based on Level Set Function with Harmony Search Optimization Algorithm, 7306-7313 International Journal of Engineering and Advanced Technology ISSN: 2249 – 8958
12	**Dr.M.Chandrasekhar**	Optimized ramp patterns for tracking applications pp:656-665 IJAST ,Vol.28 No:20, ISSN:2005-4238
		A Compact Integrated Small Disk Monopole Antenna with DGS for Wireless Applicationspp.1677-1679 IJEAT, ISSN: 2249-8958, vol.9,Issue-3
13	**Dr.B.Dhanalaxmi**	Medical Images and its Security using Chaotic Aggorithm Pp:160-171 International Journal of Engineering and Technology (IJET ISSN: 2319 – 8613, Volume-12 No-2, Mar-Apr, 2020

International Journal of Recent Technology and Engineering (IJRTE)
ISSN: 2277-3878, Volume-8 Issue-4, November 2019

Local Homogeneity Based Morphological Operators for Segmentation of Fabric Defect via LSE

Gosta Raghotham Reddy, S.P.Girija

Abstract: In the cloth manufacturing industry, texture imperfection discovery turns into a vital and basic advance in good quality control. In this field, the interest is higher than conservative while a decrease in labor cost and related advantages are taken into consideration. In addition, the advancement of an excitedly mechanized examination framework requires effective and strong calculations. To conquer this issue, in this paper, we present another texture imperfection location conspire which utilizes the neighborhood homogeneity. Its initial step comprises in procuring another homogeneity picture designated as a H-image. Later the next step is the utilization of Morphological shutting to the H-image is ended by utilizing the Level Sets. Reproductions on various texture pictures and distinctive imperfection angles demonstrate that the proposed technique accomplishes a normal exactness of 99.33%.

Keywords: *Fabric imperfection identification, local homogeneity "H- image", morphological operations and Level Sets.*

I. INTRODUCTION

In quality control one of the primary strides of assembling forms is Deformity location. In texture field, imperfection recognition turns into a significant assignment because of the generally utilized material in day by day life. Texture abundons are in charge of almost 85% of the deformities found in the article of clothing industry [1]. Likewise, it has been watched [2] that the cost of material texture is diminished by 45% to 65% because of imperfections. It is basic, in this way, to recognize, distinguish, and keep these deformities from reoccurring. A texture deformity is commonly spoken to by a wired variety as for the general surface viewpoint. Visual human assessment prompts regular mistakes because of a few reasons, in particular, the weariness and fine imperfections. Subsequently, the computerization of these tasks improves quality and lessens work costs. As affirmed by [3, 4], there are in excess of 70 sorts of texture abundons characterized by the material business. A human texture examination makes a progress rate around the percentage of 60 to 75 [3]. A similar machine mechanized assessment is demonstrated in Figure 1.

Robotized visual examination strategies are progressively considered as of late. There are different visual review frameworks, forexample, imperfection recognition of tiles, woods, fired, sheet steel and materials [5– 19]. Detection of Texture deformity is a standout among most plotting issues in a visual review. At present, we are having a ton of new investigations as well as explores which are mentioned in texture review [10– 19].

In this paper we accentuate this issue and explore a few new strategies to overcome the issues of existing Work. The surface examination has an incredible enthusiasm for picture handling, and there are numerous applications in its breaking down and preparing, one of which is imperfection identification. Thusly, various techniques are regularly created to tackle the deformity recognition task in texture pictures. The creators in [4] propose an audit of the workmanship field in this state. Chan and Pang - [10] gave a far-reaching review of texture imperfection identification by Fourier investigation. Wavelet change is another strategy which was connected in [11– 14].

Then again, Latif-Amet et al. proposed a methodology which utilizes [15] a wavelet hypothesis and a co-occurrence framework for the identification of imperfections experienced in a material picture and arranges every sub-window into a deficient or a non-deficient by means of Mahalanobis remove. Gabor channel is widely utilized in the area of texture imperfection identification. All recognition approaches which utilizes Gabor channel can be grouped into a pair of classifications. One is to utilize a channel bank, an example,[16,17]and the

Another classification is to utilize ideal channels, for example, [18– 20]. As a rule, utilizing with a channel bank can create inordinate information for preparing however a lot of channels may help the division. Correspondingly, the nature of limitation and acknowledgment is influenced significantly and the time utilization is vast too.

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Level Set Segmentation of Oil Spills from Earth Observatory Images Via Spatial KFCM Clustering

Ramanda Rama, Gosta Raghotham Reddy

Abstract: In this paper, we present a novel technique called spatial kernel fuzzy clustering with adaptive level set approach for oil spill segmentation. The proposed method is developed here by applying the results of the first stage the kernel fuzzy clustering (KFCM) to improve the kernel fuzzy c-means clustering (KFCM) is noise. In the second stage, a level set method is used to refine the previous stage segmentation results. The performance of the level set segmentation is subjected to proper initialization and optimal selections of its controlling parameters. The controlling parameters of adaptive level set algorithm are the results of kernel fuzzy clustering. The proposed novel spatial kernel fuzzy clustering algorithm is enhanced the level solution problem. Such developments make level set handling and more strong segmentation. The results confirm the effectiveness for oil spill images over the conventional LV model in number of iterations, computational time and SNR.

Keywords: *Oil Spill Image Segmentation, adaptive Level set Equation, spatial kernel fuzzy clustering.*

I. INTRODUCTION

A well studied problem in computer vision is the fundamental task of segmenting or partitioning an image into disjoint regions with applications ranging from medical image analysis, quality control, or military surveillance and tracking. Although the general segmentation problem involves separating N distinct partitions, a piecewise assumption of two sets is to be segmented improperly by a standard region-based algorithm, but correctly by an edge-based algorithm. Heterogeneous objects frequently occur in natural and medical imagery. To accurately segment these objects, a new class of active contour energies should be considered which utilizes local information, but also considered which utilizes local information, but also incorporates the benefits of region-based techniques. Incorporates the benefits of region-based techniques. Segmentation is to Partition an image into disjoint, connected components that are homogeneous with intensity, texture or certain parameters.

Active contour Method is evolving contours towards boundaries of interest by designed forces (e.g. edge, region information or prior knowledge). Active contour models have a variational mathematical description, their solutions satisfy certain minimum principles.

Edge based Rely on edge information (high magnitude of image gradient). Limitation – sensitive to noise, artifacts, may leak through gaps in boundary. Region based: Make use of information on regional statistics from image intensities. Limitation – high noise level, intensity homogeneity, complex intensity distribution. Combination of edge based and region based.

There are two well-established concepts in image segmentation: pixel classification and tracking variational boundary [7]. The first one assumes that the pixels in each subclass have nearly constant intensities, which is true for the anatomical structures with similar

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Segmentation of Soft Tissues and Tumors from Biomedical Images using Optimized K-Means Clustering via Level Set formulation

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***Abstract*—Biomedical Image-segmentation is one of the ways towards removing an area of attentiveness by making various segments of an image. The segmentation of biomedical images is considered as one of the challenging tasks in many clinical applications due to poor illuminations, intensity inhomogeneity and noise. In this paper, we propose a new segmentation method which is called Optimized K-Means Clustering via Level Set Formulation. The proposed method diversified into two stages for efficient segmentation of soft tissues and tumor's from MRI brain Scans Images, which is called pre-processing and post-processing. In the first stage, a hybrid approach is considered as pre-processing is called Optimized K-Means Clustering which is the combined**

modalities such as CT, MRI, colonoscopy images for extraction of regions in anatomical structures. The segmentation of image in medical mainly involves in measuring the volume of tissue, extracting the structures of anatomy, visualization of pathology and classification of tissues. One of the developed imaging technique is the Magnetic Resonance Imaging –MRI which is the greatest sensitive method fashionable detecting an abnormalities of the brain. It is the well-known method to record brain images with much greater contrast between different soft tissues than CT.

Segmentation is mainly used in separation of different tissues from each other, through extraction and identical features. Segmentation of Magnetic resonance imaging

MIMO OFDM Blind Channel Equalization using Multilayer Neural Network in Impulsive Noise Environment

First Author S.P.Girija and Second Author Rameshwar Rao

Abstract*: Multiple Input Multiple Output (MIMO) system has several input and output antennas for executing the data transmission. Channel Estimation (CE) is required in MIMO, to achieve the effective signal transmission over the various amount of antennas. By using CE over the MIMO, the noiseless data transmission is performed. Hence in this paper, a Multi-layer Neural Network (MNN) is used for identifying the CE and this system is named as Multi-layer Neural Network-MIMO-Digital Filter (MNN-MIMO-CE) is proposed for blind channel equalization. The MNN-MIMO-CE has Feed forward Artificial Neural Network (FANN) with back propagation in Levenberg-Marquardt (LM) algorithm and it has two processes MNN training and MNN testing. LM algorithm is used to train the MNN. These processes are used to provide the CE for different combination of antennas. The performance of the MNN-MIMO-CE method is evaluated in comparison with the existing method [25] through simulations using BER as the performance measure.

Keywords* : Multiple input multiple output, Feed forward neural network, Back propagation, Levenberg-Marquardt algorithm, Channel estimation, Signal to noise ratio and Bit error rate

I. INTRODUCTION

MIMO is widely used configuration system and it has the capacity to offer fast, reliable high throughput wireless link [1]. Frequency selective channel is modified into parallel set of frequency flat sub-channels in OFDM technology [2]. Combination of both the technologies is a major breakthrough for mobile wireless system applications [3-5]

The major problem area in MIMO-OFDM system is channel equalization. The transmitted sequence is affected with both linear and non-linear distortions in the channel. Equalization is done to minimize the effects of those distortions. Through multi path transmit and receive antennas learning are emerging as efficient algorithms. Nonlinear mapping is better done through Neural Networks than through other methods. Hence signals can be effectively processed through nonlinear channels using neural networks. The natural structure of neural network which has multiple inputs and multiple outputs is more suitable for MIMO systems [10-14]. Conventional feed forward neural networks viz., radial basis function(RBF), back propagation (BP), multilayer perception(MLP) have been employed for MIMO-OFDM system channel equalization[14-17]. Blind equalization using multilayer feed forward perceptron ANN is applied to avoid the Inter Symbol Interference (ISI) which is produced by the bandwidth limited channel with multipath propagation. Three-layer ANN is utilized with the feedback for describing the channel estimation and equalization. The second and third ANN layer comprises of gradient algorithm and kalman filter respectively. These two layers are combined with the feedback of the turbo iteration process to improve the estimation accuracy [18-21]

However, the noise encountered in practical applications is more impulsive in nature than that predicted by Gaussian distribution. Underwater acoustic noise, low frequency atmospheric noise and many types of man made noises are few examples. To model these types of noises α-stable distribution is used [22]. Authors of [23-24] proposed a Fractional Lower-Order Multi-User Constant Modulus Algorithm (FLOS-MU-CMA) to handle robustly α-stable noise and interference in the data. FLOS_MU_CMA is developed for removing the non-Gaussian impulsive noise. The system performance is resolved by the fractional lower order constant. The multiuser constant modulus algorithm cost function was generalized and a new blind equalization algorithm was defined [25] in impulsive noise environment.

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Local Homogeneity Based Morphological Operators for Segmentation of Fabric Defect via LSE

Ganta Raghotham Reddy, S.P.Girija

Abstract: *At the cloth manufacturing industry, texture imperfection discovery turns into a vital and basic advance in good quality control. In this field, the interest is higher than conservative while a decrease in labor cost and related advantages are taken into consideration. In addition, the advancement of an entirely mechanized examination framework requires effective and strong calculations. To conquer this issue, in this paper, we present another texture imperfection location conspire which utilizes the neighborhood homogeneity. Its initial step comprises in processing another homogeneity picture designated as a H-image. Later the next step is the utilization of Morphological shutting to the H-image is ended by utilizing the Level Sets. Reproductions on various texture pictures and distinctive imperfection angles demonstrate that the proposed technique accomplishes a normal exactness of 99.35%.*

Keywords: *Fabric imperfection identification, local homogeneity "H- image", morphological operations and Level Sets.*

1. INTRODUCTION

In quality control one of the primary strides of assembling forms is Deformity location. In texture field, imperfection recognition turns into a significant assignment because of the generally utilized material in day by day life. Texture abandons are in charge of almost 85% of the deformities found in the article of clothing industry [1]. Likewise, it has been watched [2] that the cost of material texture is diminished by 45% to 65% because of

Robotized visual examination strategies are progressively considered as of late. There are different visual review frameworks, forexample, imperfection recognition of tiles, woods, fired, sheet steel and materials [5– 19]. Detection of Texture deformity is a standout among most plotting issues in a visual review. At present, we are having a ton of new investigations as well as explores which are mentioned in texture review [10– 19].

In this paper we accentuate this issue and explore a few new strategies to overcome the issues of existing Work. The surface examination has an incredible enthusiasm for picture handling, and there are numerous applications in its breaking down and preparing, one of which is imperfection identification. Thusly, various techniques are regularly created to tackle the deformity recognition task in texture pictures. The creators in [4] propose an audit of the workmanship field in this state. Chan and Pang - [10] gave a far-reaching review of texture imperfection identification by Fourier investigation. Wavelet change is another strategy which was connected in [11– 14].

Then again, Latif-Amet et al. proposed a methodology which utilizes [15] a wavelet hypothesis and a co-occurrence framework for the identification of imperfections experienced in a material picture and arranges every sub-window into a deficient or a non-defective by means of Mahalanobis remove. Gabor channel is widely utilized in the area of texture imperfection identification. All recognition approaches which utilizes Gabor channel can be

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HOLISTIC REVIEW ON BRAIN TUMOR SEGMENTATION USING DEEP LEARNING

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Abstract

Brain is central apprehensive framework of human. The main reason of death in human being will be tumor of brain. The main thought behind deep learning will be inclusive characteristic representations might be effectively learned with deep architectures that are collected of stacked layers of "trainable non-linear operations". Nevertheless, due to picture content diversity, it will be critical to learn effective characteristic representations directly from pictures for MRI. Latest recommended methodologies are to settle the kernel of 1st layer as HPF (high-pass filter). It may be known as pre-processing layer. For different words, the information of label will be not sufficient to learn capable characteristic representations for brain tumor. The current survey sections & categorizes the MRI brain tumor picture as malevolent or benevolent. The procedure includes are Feature extraction, Pre-processing, classification and Segmentation. The current work segments the tumor utilizing Genetic Algorithm identifies and categorizes the tumor utilizing hybrid classifier.

Keywords:: Auto Encoders (AE), Brain tumor (BT), Deep Learning (DL), Deep Convolution Neural Networks (DCNNs), Deep Neural Networks (DNN), Genetic Algorithm (GA), Generative Adversarial Networks (GAN), Long Short-Term Memory (LSTM), Magnetic Resonance (MR), Rectifier Linear Units (ReLU), Recurrent Neural Networks (RNN)

I. INTRODUCTION

The brain will be the handling center dreapensible for implementation of all actions through the body of human. The tumor formation in brain might threaten the life of human specifically. The initial finding of brain disease is expanding the survival rate of patient. Between the amounts of imaging modalities, MR imaging will be expansively utilized toward physicians to choose the determination tumors [1]. MRI will be a non-invasive & best soft tissue contrast imaging modality that gives

Frequency Reconfigurable Fractal Patch Circularly Polarized Antennas for GSM/Wi-Fi/Wi-MAX Application

V. V. Reddy

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ABSTRACT

Frequency reconfigurable circularly polarized (CP) fractal antennas are presented. At first, a fractal shaped slot is inscribed on the bigger size fractal structure. Inside the scratched opening, a small size asymmetrical fractal patch is embedded and switching diodes are brought along *x* and *y* – sides to attach these internal and external patches. By applying asymmetrical fractal curves as boundaries, imbalance is developed inside the structure for CP. The sizes of the inner and outer patches are chosen in the sort of manner to resonate the antenna at GSM (1.8 GHz), WLAN (2.45 GHz) and Wi-MAX (3.4 GHz) bands, respectively. The fractal curve parameters are optimized to enhance CP radiation. Four switches are used to govern the antenna. Measured and simulation outcomes are in near agreement, which proves that the suggested antennas are well ideal for WLAN/Wi-MAX, GSM/Wi-Fi, GSM/Wi-Fi/Wi-MAX applications. Similarly, several frequency reconfigurable antennas have been studied by using various fractal curves.

KEYWORDS: Circular polarization fractal curve frequency reconfigurable GSM Microstrip antenna Wi-MAX WLAN

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An Effective Segmentation of Retinal Blood Vessels Using Optimized PCA and Morphological Operators

N.C.Santosh Kumar, Ramudu Kama, V.TeJaswini , Azmeera Srinivas

Abstract*—The structure of blood vessels interior in the eye is a significant source of indicator for many diseases if exist in a human body. The extraction of vasculature network of blood vessels which plays a vital role in the study and diagnosis of many eye related diseases like diabetic retinopathy, glaucoma, and many cardiovascular diseases is a challenging task. In this paper, a new method to derive tree-shaped vasculature from retinal fundus RGB images is proposed. This proposed algorithm is performed in two stages: (1) Pre-processing stage involves Particle Swarm Optimization (PSO) algorithm to compute optimized image which holds the global optimal pixels of the input RGB image followed by conversion of PSO optimized image to gray image using PCA which is then contrast enhanced with CLAHE. (2) Post-processing stage is carried out working on the contrast enhanced gray image for attaining better accuracy of retinal blood vessel segmentation by using Thresholding as well as morphological operator. The performance measures of proposed method are evaluated on DRIVE and STARE databases and obtained best results with an average accuracy of 96.44% and proven to be an outstanding method compared to other existing retina vessel segmentation algorithms.

***Keywords*—Retinal Fundus Image, Particle Swarm Optimization, Thresholding, Morphological Operator.**

I. INTRODUCTION

The diabetic retinopathy is the most well-known cause for impairment of vision it causes loss of blood supply inside the retina by the broadly spread diabetes which leads to diabetic retinopathy [1]. The division of veins in the pictures of retina is a significant feature in diagnosis and treatment of diabetic retinopathy. There are numerous different illnesses that are frequently analyzed dependent on their progressions [2]. Retinal veins division is additionally the center stage in robotized enlistment of two retinal veins pictures of a specific patient to pursue and analyze his malady advance at various occasions [3]The classification issue of retinal veins The variation in the segmentation process of blood vessels and the quantitative measurement of retinal blood vessel plays a crucial role in many research efforts that are associated with vascular structures. Many clinical researchers proved that retinal blood vessels are significant structures of retinal images. in some cases, retinal blood vessel must be omitted for easy recognition of pathological lesions (exudates or micro aneurysms). The process of retinal blood vessel extraction practices few complications [5]: "(i) The retinal blood vessels have a wide scope of widths from (15 pixels) to (3 pixels) and different tortuosity. (ii) Various structures show up in retinal picture, as we.. as the optic plate, fovea, exudates and shade epithelium variations, which extremely disturb the programmed vessel extraction. (iii) The thin vessels with unlike surroundings may seem to be lengthened and disconnect spots, which are generally lost. (iv) The vessel power differentiate is feasible and variant, the tiny vessel is particularly overpowered. The figure-1 the diabetic retinopathy is identified by the clots of blood vessels in retina it causes when diabetic detects the tiny blood vessels inside the retina. Figure-1 gives an idea of the process of segmentation

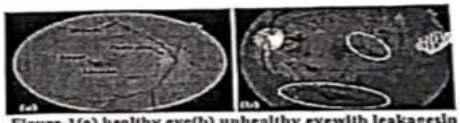

Figure-1(a) healthy eye(b) unhealthy eyewith leakagesin blood vessels

The remaining paper is arranged as follows: The section 2 introduces the related work that had done by different authors by using different optimization techniques. Section

International Journal of Engineering and Advanced Technology (IJEAT)
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Optimized Level Set Method for Segmentation of SAR Images using Adaptive Fuzzy-K-Means Clustering

Chenigaram Kalyani, Lalitha Nagapuri,Chinta nirosha, Azmeera Srinivas

Abstract: *The complications that occurred in remote sensing image information and analysis algorithms growth of a large scale image segmentation haven't kept a place with the requirement for the methods which to develop the final accuracy of object detection as well as the recognition. Traditional Level set segmentation methods which are Chan-Vese (CV), Image and Vision Computing (IVC) 2010, ACM with SBGFRLS, and Online Region-Based ACM (ORACM) are suffered from more amounts of time complexity, as well as low segmentation accuracy due to large intensity homogeneities and the noise at which the region based segmentation is impossible. So this is the reason, we proposed a navel hybrid methodology called adaptive particle swarm optimization (PSO) based Fuzzy K-Means clustering algorithm. The proposed approach is diversified into two stages; in stage one, pre-processing the input image to improve the clustering efficiency and overcome the obstacles present in traditional methods by using particle swarm optimization (PSO) and Adaptive Fuzzy K-means clustering algorithm. With the help of the PSO algorithm, we get the "optimum" pixels values are extracted from the input SAR images, these optimum values are automatically acted as clusters centers for Adaptive Fuzzy K-Means Clustering instead of random initialization from the original image. The pre-processing segmentation result improved the clustering efficiency but suffers from few drawbacks such as boundary leakages and outliers even particle Swarm optimization is used. To overcome the above drawbacks post-processing is needed to facilitate the superior segmentation results with the help of the level set method. It utilizes an efficient curve deformation driven by external and internal forces to capture the important structures (usual edges) in an image. The combined approach of both pre-processing and post-processing which is called Particle Swarm Optimization based Adaptive when compared with the traditional level set methods.*

Keywords: *Remote Sensing Images, Image Segmentation, Adaptive Fuzzy-k-Means clustering, and Fast Level Set Method.*

I. INTRODUCTION

Study and analysis of earth observation images like oil spills, cyclones, fire and still more.is one of the major tasks were it consists of segmentation of an image, enhancement, and representation, etc. So here, the work is done on the segmentation of oil slicker creeps image, typhoon soulik image, oil slick Image and Gulf of Alaska image which were taken from the NASA earth observatory database. Attaining the data about an object without considering the physical information of an object and thus in contrast to onsite observation which had been done only by remote sensing. In numerous fields, remote sensing is utilized, along with the geography, land surveying as well as Earth Science disciplines.

Depending on the propagated signals like Electro-magnetic radiation at present remote sensing- term denotes the utilization of technologies like satellite depending on the sensor to classify and sense the objects like surfaces, atmosphere, and oceans on earth. The classifications of remote sensing are of two types. The foremost one is the "active remote sensing", where the signal is emitted through the satellite or an aircraft were the object reflections are detected by a sensor. The next type of remote sensing classification is "passive remote sensing" at which the sensor is used to detect the sunlight reflection [1-2].

Recently in image segmentation, the applications of remote sensing along with object detection as well as image

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Segmentation of Soft Tissues and Tumors from Biomedical Images using Optimized K-Means Clustering via Level Set formulation

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***Abstract*—Biomedical Image-segmentation is one of the ways towards removing an area of attentiveness by making various segments of an image. The segmentation of biomedical images is considered as one of the challenging tasks in many clinical applications due to poor illuminations, intensity inhomogeneity and noise. In this paper, we propose a new segmentation method which is called Optimized K-Means Clustering via Level Set Formulation. The proposed method diversified into two stages for efficient segmentation of soft tissues and tumor's from MRI brain Scans Images, which is called pre-processing and post-processing. In the first stage, a hybrid approach is considered as pre-processing is called Optimized K-Means Clustering which is the combined approach of Particle Swarm Optimization (PSO) as well as K-Means Clustering for improve the clustering efficiency. We choose the 'optimal' cluster centers by**

modalities such as CT, MRI, colonoscopy images for extraction of regions in anatomical structures. The segmentation of image in medical mainly involves in measuring the volume of tissue, extracting the structures of anatomy, visualization of pathology and classification of tissues. One of the developed imaging technique is the Magnetic Resonance Imaging –MRI which is the greatest sensitive method fashionable detecting an abnormalities of the brain. It is the well-known method to record brain images with much greater contrast between different soft tissues than CT.

Segmentation is mainly used in separation of different tissues from each other, through extraction and identical features. Segmentation of Magnetic resonance imaging, brain image is based on eight categories [1-5] like approach on thresholding, approach on region growing, classifiers, approach on clustering, field model

Level Set Segmentation of Oil Spills from Earth Observatory Images Via Spatial KFCM Clustering

Ramudu Kama, Ganta Raghotham Reddy

Abstract: *In this paper, we present a novel technique called spatial kernel fuzzy clustering with adaptive level set approach for Oil spill image segmentation. The proposed method is diversified into two stages; In the first stage the input is pre-processing by Spatial Kernel Fuzzy C-Means clustering (KFCM) to improve the clustering efficiency and less sensitive to noise. In the second stage, it necessary to use the level set method to refine the previous stage segmentation results. The performance of the level set segmentation is subjected to proper initialization and optimal formation of directing parameters. The controlling parameters of level set evolution are also projected after the results of kernel fuzzy clustering. The proposed method, spatial kernel fuzzy adaptive level set algorithm is enhanced the local minima problem. Such developments enable level set handling and more strong segmentation. The results confirm its effectiveness for oil spill images over the conventional CV model i.e number of iterations, Computational time and PSNR*

Keywords: *Oil Spill Image Segmentation, adaptive Level set Equation, spatial kernel fuzzy clustering.*

I. INTRODUCTION

A well-studied problem in computer vision is the fundamental task of segmenting or partitioning an image into disjoint regions with applications ranging from medical image analysis, quality control, or military surveillance and tracking. Although the general segmentation problem involves separating N distinct partitions, a piecewise assumption of two sets is generally made. That is, the image is assumed to be comprised of two homogeneous regions, often referred to as "Object" and "Background". The goal of segmentation is to accurately capture these regions. Specifically, the use of active contours has been proven to be quite successful in accomplishing this task. [1-6]

to be segmented improperly by a standard region-based algorithm, but correctly by an edge-based algorithm. Heterogeneous objects frequently occur in natural and medical imagery. To accurately segment these objects, a new class of active contour energies should be considered which utilizes local information, but also incorporates the benefits of region-based techniques. Segmentation is to Partition an image into disjoint, connected components that are homogeneous w.r.t. intensity, texture or certain probabilistic measures.

Active contour Method is evolving contours towards boundaries of interest by designed forces (e.g. edge, region Information or prior knowledge). Active contour models have a consistent mathematical description; their solutions satisfy certain minimum principles.

Edge based Rely on edge information (high magnitude of image gradient) Limitation – sensitive to noise, artifacts, may leak through gaps on boundary Region based: Make use of information on regional statistics from image intensities. Limitation – high noise level, intensity homogeneity, complex intensity distribution Combination of edge based and region based.

There are two well-established concepts in image segmentation: pixel classification and tracking variational boundary [7]. The first one assumes that the pixels in each subclass have nearly constant intensities, which is true for the anatomical structures with similar physiological properties. Such algorithms may detect multiple components concurrently, but they are susceptible to environmental noise and image inhomogeneity. In contrast, methods that track variational boundaries make use of both intensity and spatial information. Therefore, a subclass has to be

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2019, ICRTAC 2019

Image Contrast Enhancement by Homomorphic Filtering based Parametric Fuzzy Transform

Syed Zaheeruddin* and Dr. K. Nagendra**

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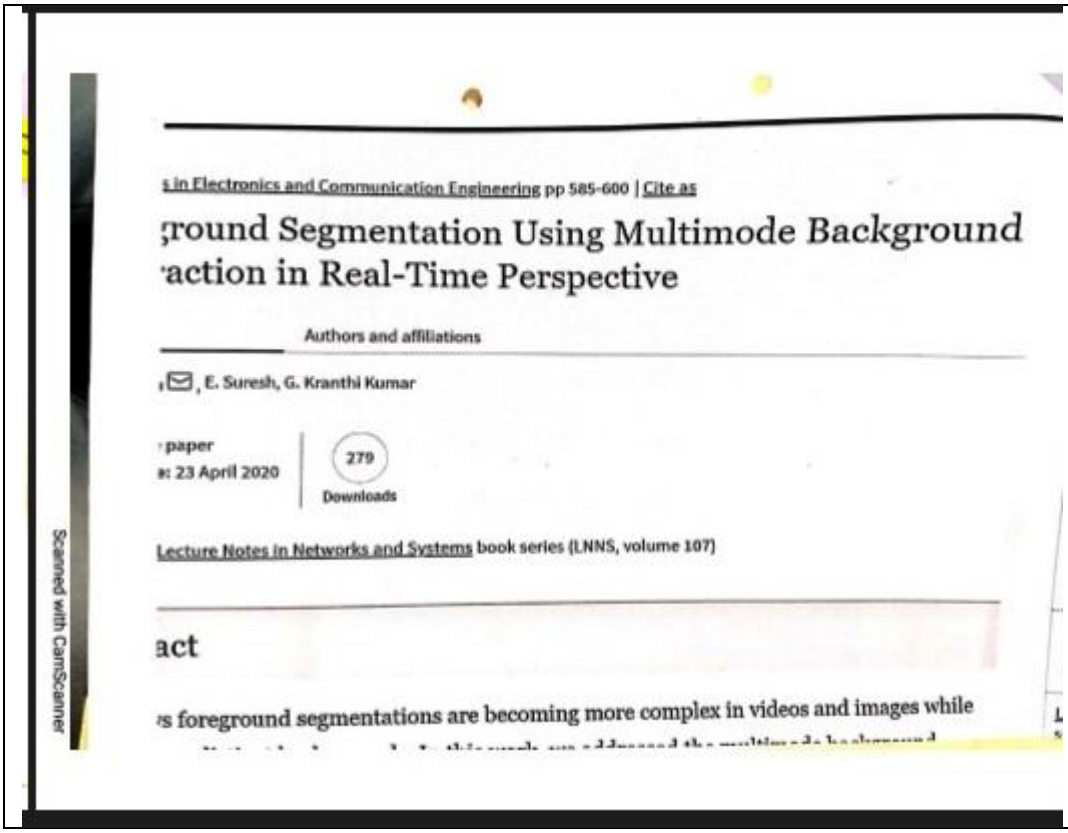
Abstract

In this paper, a new image contrast enhancement technique by taking the advantages of Homomorphic homogenization with fuzzy transform is been employed. For increasing the clarity of the image generally, histogram or Retinex based algorithms were used. These procedures worked on enhancing the reflectance layer by ignoring illumination, which is not a better strategy and leads to poor results. Fuzzy based image enhancement approach makes use of illumination by avoiding reflectance in the proposed algorithm. Homomorphic decomposition is used for getting the exact illumination image from the value layer of HSV (Hue, Saturation, Value) image. First, the parametric fuzzy transform is employed to enhance the image by updating its membership functions and thereby smoothing the luminance layer. Finally, a weighted image is generated by good enhancement property for preserving the image details. The results show the predominance of the algorithm in terms of its quality with



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;round Segmentation Using Multimode Background 'action in Real-Time Perspective

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, E. Suresh, G. Kranthi Kumar

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s foreground segmentations are becoming more complex in videos and images while

Performance Analysis of Double Gate Junctionless Tunnel Field Effect Transistor: RF Stability Perspective

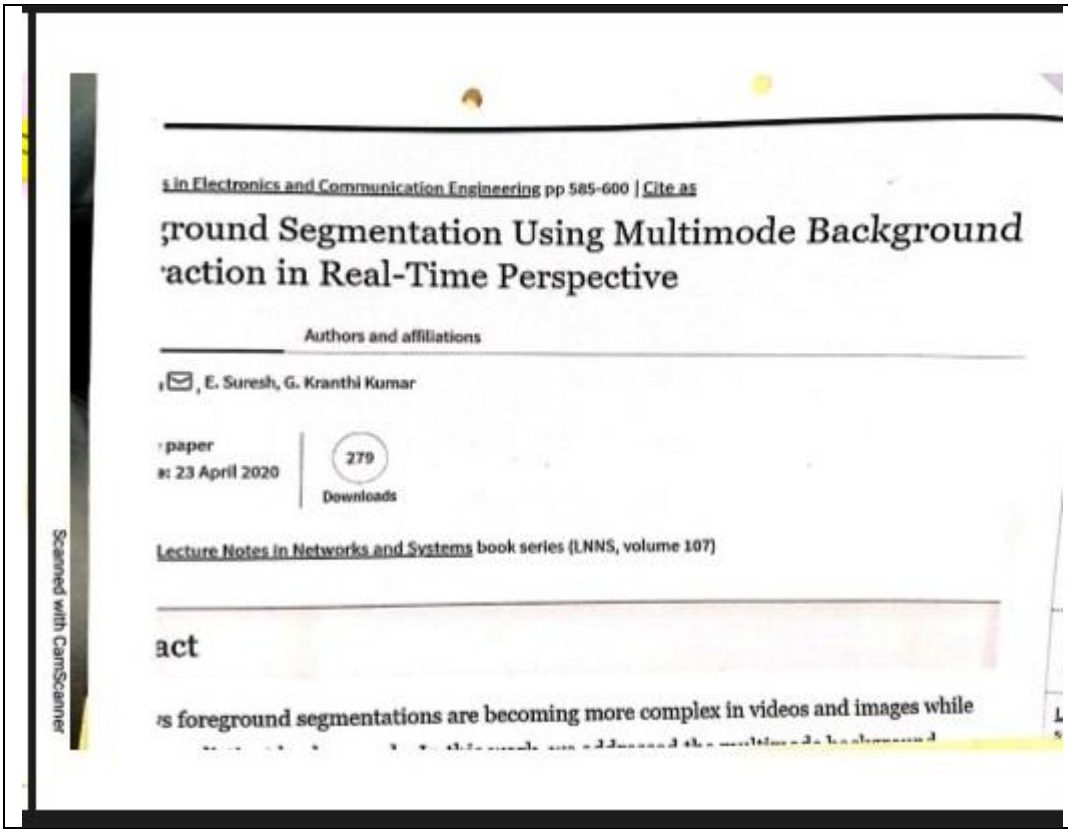
Veerati Raju[1], Sivasankaran K*[2]
School of Electronics Engineering
VIT University, Vellore-632014, India

***Abstract*—This paper investigates the RF Stability performance of the Double Gate Junctionless Tunnel Field Effect Transistor (DGJL-TFET). The impact of the geometrical parameter, material and bias conditions on the key figure of merit (FoM) like Transconductance (g_m), Gate capacitance (C_{gg}) and RF parameters like Stern Stability Factor (K), Critical Frequency (f_k) are investigated. The analytical model provides the relation between f_k and small signal parameters which provide guidelines for optimizing the device parameter. The results show improvement in ON current, g_m, f_t and f_k for the optimized device structure. The optimized device parameters provide guidelines to operate DGJL-TFET for RF applications.**

Keywords*—Junctionless tunnel FET; band to band tunnelling; High-k; RF stability; critical frequency

I. INTRODUCTION

For the past four decades, the semiconductor industry is supplemented with CMOS devices due to the continuous growth of Semiconductor Technology. During this regime, the silicon device physical dimensions were reduced to nanometre domain and further scaling (Tens of Nanometre) is limited by Short Channel Effects (SCE) posed by CMOS devices [1-6]. To overcome such challenges, Multi-gate devices are proposed, which shown excellent immunity to SCE and yielded better scalable operations [7-9]. Beyond 30nm, these type and P-type Double Gate junction and Junctionless TFET [20-21]. Impact of geometrical variability's on the performance of JLTFET and Junctionless hetero structure TFETs (HJLTEFT) is investigated and proposed pocket oxide narrower source side HJTFETs (PNS-HJTFETs) for better performance [22]. The effect of the gate dual material (DMG) and gate engineering approach on the performance of DGJL-TFET is studied [23-25]. Comprehensive analysis on the 20nm HJLTFETs with high-k gate oxide material is presented [26]. The authors have investigated the influence of spacer on ION/IOFF ratio and gm of a DG JLTFET [27]. Impact of dual k spacer on the digital and analogue performances of JL TFET, formed with different substrates is analyzed [28-29]. Influence of parameter fluctuations caused by process variations on the RF stability of Double Gate Tunnel FET (DG-TFET) is reported by k.sivasankaran.et.al [30]. Influence of high-k material on the RF stability performance of Double Gate Junctionless FET is studied [31] and proposed an optimized structure for the better RF performance [32]. The impact of the high-k gate dielectric and dual spacer on the RF stability Performance of JLTFETs is not been studied before. Most of the studies [18-27] focused on analyzing the behaviour of JL-TFETs with and without high-k materials for improving the DC and analogue performance but not on the stability aspects of the device.



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s foreground segmentations are becoming more complex in videos and images while

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Segmentation of Low Contrast Satellite and Medical Images Based on Level Set Function with Harmony Search Optimization Algorithm

Rangu Srikanth, Kalagadda Bikshalu

Abstract: *The main aim of digital image segmentation for portioned the image in to its constituents parts for getting information regarding features of image also used to get pathological details from medical images. The literature available from last two decades the important scheme for image segmentation is with Level Set technique, multilevel thresholding of gray scale on histogram of image is also a traditional method of image segmentation, In this paper low contrast images from medical and satellite images considered for image segmentation to extract features. This paper puts forward a novel image segmentation method via Level Set Function along with Bi-Histogram Equalization based on Harmony Search Algorithm(LSFBHEHS). The Selective Binary and Gaussian Filtering Regularised Level Set (SBGFRLS) is efficient novel region based Active Contour Model, it uses a novel region-based signed pressure force (SPF) function, it can adeptly halt the contours at blurred edges and weak edges. Other important advantage is internal and external boundaries can be distinguished by fixing the initial contour may be anyplace in the considered image. This method is resourceful but requires more time and inefficient for segmentation of low contrast images. This problem is rectified by applying bi-histogram equalization(BHE) image enhancement method prior to Level Set, it can be treated as pre-processing. In BHE technique of image enhancement, the image histogram is partitioned into two divisions based optimized gray level threshold , and equalize each part of histogram separately and combined later. To find the optimized threshold level to slice the histogram into two parts, Otsu's multilevel thresholding method used to find threshold level, to find optimized thresholding level Harmony Search Algorithm(HSA) is implemented to maximize inert class variance as objective function. For evaluating the proposed method and SBGFRLS, the qualitative measured used like Dice similarity index, Measure of Enhancement(EME) and time required, for experimentation numerous low contrast satellite and medical images are considered, results clarified that the proposed method is more efficient for low contrast and inhomogeneous images.*

Keywords: *Digital Image Segmentation, Otsu's method, Bi-Histogram Equalization, Harmony Search level set function, signed pressure force,.*

I. INTRODUCTION

The digital image segmentation is important image processing scheme which can be for division of digital image into numerous number of regions; a region can be defined as which is a homogeneous areas by satisfying criteria of some similarity[1]. Abstractly methods for image segmentation can be separated into two groups (i) edge-based segmentation based on discontinuity of intensity levels (ii) region based image segmentation search for homogeneity[2] within a region.

Revised Manuscript Received on October 30, 2019.

Rangu Srikanth B Tech in Electronics & Communication Engineering from JNTUCE, Kakinada, JNTU, Hyderabad,

Dr. Kalagadda Bikshalu Ph.D degree in Electronics & Communication Engineering from JNTUH, Hyderabad.

Different algorithms are devised in last two decades for the segmentation. A partial differential equation(PDE) and variational model based techniques are used, for detecting regions and boundaries in image, curve evolution procedures are used as active contour models(ACM) as [3]-[6]in this paper. The concept of this way is, a closed line or curve termed initial curve *C* is exposed on the image, this curve progresses or evolves to reach the boundaries and objects of image with the help of certain properties of digital image like dissimilarity of gray levels, colours and curvature etc, there are various methods of evolution of curve is available in literature. Initially contour evolution is devised by Kass, Witkin and Terzopoulus[7]- [8] reformed by Caselles with help of Level Set Function(LSF), the first technique is Geometric active contour [13] model depends on geometric flow of curve and Caselles et al. [9]-[10] devised the Geodesic active contour model (GAC), this technique is a supervised model given by Paragios [11], Chan and Vese presented the new ACM for images which are not having edges [12].

II. INTRODUCTION TO ACM

Kasset developed that snake [14] of active contour model(ACM) for segmentation, initially as shown in Fig.1 intial level set or zero level set fixed on the image to cover specified are then propagate into entire are of image to identify different regions. In this process there are two forces anticipated (i) internal force is to keeping the model additional smoothly for evolution period (ii) external force depends on intensities specified to moving the contour nearby boundaries. The simple method utilised for trace the curve on the image using level set is likewise as used in snake model, initially splitting or merging of curve faces difficulty for of parametric form of methods. The remedy for above shortfall mentioned above, the implicit ACM used as alternate to explicitly. LSF is more effective in the propagation or execution of active contour.

Fig.1: Zero LSF of Initialization of Contour

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OPTIMIZED RAMP PATTERNS FOR TRACKING APPLICATIONS

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[1]Asst.Professor

Abstract:
The essential intention of this paper is to generate the ramp common radiation pattern from an array of isotropic radiating elements using Real coded Genetic Algorithm. It is targeted to recognise the patterns and also used in meeting its demand and requirements in radar and satellite for pc conversation structures for tracking applications. In-order to synthesize a preferred area sample, primary beam with sidelobes, element amplitude excitations and phase excitations are optimally determined. There are many analytical techniques for beam shaping, but GA acquires its significance as it uses random search variables seeking for techniques which are proved to study and capable of solving complex search issues. The proposed approach is maximum dependable and accurate optimization technique. Results are received for finite ramp width with the aid of various detail range. All the results are simulated with the usage of matlab software, which are more close to the preferred radiation patterns. The optimized information and radiation styles are extraordinarily useful for array designers.

keywords: *Antenna array pattern synthesis, Ramp pattern, Real Coded Genetic Algorithm.*

I.INTRODUCTION

Antenna arrays offer the particular capability of electronic scanning of the principle beam. By controlling the phase and amplitude excitation of every radiating element, the radiation beam route and the form of the beam radiated by means of the array may be dynamically controlled.In antenna

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A Compact Integrated Small Disk Monopole Antenna with DGS for Wireless Applications

M. Chandrasekhar, M.Suneel Raja

Abstract: The structure of a compact Micro strip feed circular monopole antenna working in the frequency range of (2.5GHz-4GHz) and wideband of frequency ranging from 4.9GHz to 19.93GHz is proposed in this paper. Using a circular radiating monopole with terrible ground wideband frequency operation is possible. Two frequency bands can be accomplished by separating the middle part of the patch and further engraving a circular arc with radius λ/2 from it. An FR4 substrate with ε=4.4 and a loss tangent of 0.02 was utilized to realize and simulate this antenna. It can be operated in both the frequency bands 2.5-4GHz and 4.9-19.93GHz [wideband] possessing less than -10dB reflection coefficient. The whole WB and also in the low-frequency band as mentioned above shows a sturdy radiation pattern.

Keywords: *Disk monopole MPA, Dual band, Radiation pattern, gain.*

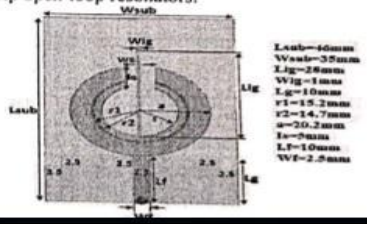
I. INTRODUCTION

For antenna designers, the task of modeling a simple and small size antenna that can be used for multiband communication is difficult. High gain, increased impedance bandwidth, and good radiation patterns are the required qualities of a multiband antenna. Many researchers have designed a huge number of antennas employing different shapes of defects in the ground plane [1-4]. Apart from existing extra resonant modes utilizing the concept of defected ground structures has been an eminent technique in limiting the dimensions of the antenna. Various patch antenna designs with different shapes of slits and slots have been proposed for dual-band applications. Slot loading techniques band which encompasses UWB range.

In this paper, a compact micro-strip feed circular monopole with operating frequency (2.5GHz -4GHz) and wideband (4.9-19.93GHz) frequency bands for wireless applications was designed. A modified circular radiating monopole with the destructive ground plane was used to achieve WB frequency operation. Further, with aid of slotting the vertical portion of the patch and then etching λ/2 round arc from the patch, a dual-frequency band is accomplished. The proposed antenna is realized on FR4 with dielectric constant 4.4, loss tangent 0.02 and simulated using HFSS. Dual-band operation with frequency range (2.5GHz-4GHz) and wideband range (4.9GHz-19.93GHz) was achieved using this antenna whose reflection coefficient <-10dB. It also provides stable radiation patterns for the above frequency bands.

II. ANTENNA CONSTRUCTION

The constructed antenna is a circular disk monopole as shown in fig.1. A frequency band notch was generated using microstrip open-loop resonators.



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MEDICAL IMAGES AND ITS SECURITY USING CHAOTIC AGORITHM

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ABSTRACT: Medical images are most an important role of many diseases to proper diagnosis. Medical images are essential for many diseases diagnosis, disease progress monitoring, injuries identification, etc. The medical images are recorded by using X-ray images, CT-scan images, MRI- scan images, etc. Therefore, the security of medical images is important and inferior. However, the importance of security of medical images is paramount to avoid mishandling moreover: the conventional cryptographic algorithms are unable to provide robust security. Hence, an innovative algorithm has been developed to provide robust security to medical images to avoid mishandling. Further security improvement for medical image to developed an algorithm of making a simple and effective chaotic system by using a difference of the output sequences of two same existing one-dimension (1D) chaotic maps. Simulations and performance evaluations show that the proposed system is able to produce a one-dimension (1D) chaotic system with better chaotic performances and larger chaotic ranges compared with the previous chaotic maps. The innovative algorithms have been addressed several conventional methods limitation.

Key words: Medical images, CT- scan, MRI-scan, chaotic map and Security.

INTRODUCTION:

Conference Proceedings		
S.NO	**Name of the faculty**	**Conferences**
1	**Dr. G. Raghotham Reddy**	Kalyani Chinegaram, Kama Ramudu, Azmeera Srinivas, **Ganta Raghotham Reddy,** "*Optimized Segmentation of oil spills from SAR Images using Adaptive* ***fuzzy K-Means clustering via Level Set Evolution,*** page no.***51, Conference proceedings of the International conference on*** Innovations in Electronics and Communication Engineering (ICIECE) GNI, Hyderabad, Aug 2-3rd ,2019.
2	**Smt S.P. Girija**	**S.P.Girija** and RameshwarRao "Robust Adaptive Auto Regressive Weighted Constant Modulus Algorithm for Blind Equalization in MIMO-OFDM system". International Conference on Inventive Computation Technologies(ICICT)-2020, **IEEE ISBN: 978-1-7281-7283-5 (**online) , Silicon Valley, CA, USA, March 9-12th 2020.
3	**Sri E. Suresh**	**E. Suresh,** G.Kranthi Kumar,V. Raju, **"**Foreground segmentation using Multimode background subtraction in real time perspective", 8th International Conference on Innovation in Electronics and Communication Engineering (ICIECE-2019),ISSN: 978-981-15-3172-9, GNI Hyderabad, August 2-3rd 2019.
4	**Smt A. Vijaya**	**AVijaya** "Compact High Gain Hexagonal Fractal Antenna for 5G applications"(1570579843 pp,1-7 DoI: 10.1109/ANTS47819.2019.9118053, IEEE International Conference on Advanced Networks and Telecommunications(ANTS)", ISSN; 978-1-7281-3715-5,Goa, India, December 16-19th, 2019.
5	**Sri Ramudu Kama**	**Ramudu Kama,**Kalyani Chinegaram, Azmeera Srinivas, Ganta Raghotham Reddy, "Optimized Segmentation of oil spills from SAR Images using Adaptive fuzzy K-Means clustering via Level Set Evolution ", page no.51, Conference proceedings of Innovation in Electronics and Communication Engineering (ICIECE 2019) , ISBN 978-981-15-3171-2,Guru Nanak Institutions Technical Campus, Hyderabad, August 2-3rd, 2019
6	**Sri V. Raju**	**V. Raju,** E. Suresh, G.Kranthi Kumar "Fore ground segment Using Multimode Background in Real time Perspective, pp 585-600 ", 8th International conference on Innovations in Electronics and Communication Engineering (8th ICECE19),ISSN:978-981-15-3172-9,Guru Nanak Institutions Technical Campus,

		Hyderabad,August 2-3rd, 2019
7	**Sri D.Venu**	**D.Venu,** "Compressed Sensing Based Mixed Noise Cancellation in Passive Bistatic Radar ",International Conference on Information, Communication and Computing Technology ICICCT 2019: Intelligent Computing Paradigm and Cutting-edge Technologies pp 389-404,ISBN 978-3-030-38500-2,Online ISBN 978-3-030-38501-9, Istanbul
8	**Sri Dr M. Chandrasekar**	**Dr M. Chandrasekar,** "Design Of C-shaped Rectangular Microstrip Antenna With DGS For Wireless Applications", International Conferences on Advances in Science, Engineering and Technology,KSRM College, Kadapa, AP,19th & 20th December 2019
9	**Sri S. Pradeep Kumar**	**S. Pradeep Kumar,** "Heart Beat sensoring using IoT ",4th International Conference on Innovations in Electrical& Electronics Engineering (ICIEEE-2019)-2019 GNI, hyderabad.(Springer Conference Proceedings – SCOPUS INDEXED), ISBN:978-93-85101-58-8, 26th & 27th July, 2019
10	**Smt Dr K.Sowjanya**	**Dr K.Sowjanya,** "Pareto Optimal Approach for Contrast Adjustment in Gray Level Images using Improved Differential Search Algorithm,p no:25 ",IC2SV2019,ISBN:978-81-928314-7-3,NIT Warangal, 23rd-24th October 2019
11	**Sri G.Kranthi Kumar**	**G.Kranthi Kumar,** E. Suresh , V. Raju,"Foreground segmentation using multimode background subtraction in real time perspective", 8th international Conference on Innovations in Electronics & Communication Engineering(ICIECE-2019), ISSN:978-981-15-3172-9, GNI Hyderabad, August 2-3rd 2019.

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Optimized Segmentation of Oil Spills from SAR Images Using Adaptive Fuzzy K-Means Level Set Formulation

Kalyani Chinegaram, Kama Ramudu, Azmeera Srinivas and Ganta Raghotham Reddy

Abstract With the increasing amount and complexity of remote sensing image data and the difficulties faced in processing the data, the development of large-scale image segmentation analysis algorithms could not keep pace with the need for methods that improve the final accuracy of object recognition. So, the development of such methods for large-scale images poses a great challenge nowadays. Traditional level set segmentation methods which are Chan-Vese (CV), image and vision computing (IVC) 2010, ACM with SBGFRLS and online region-based ACM (ORACM) were suffered with more amounts of time complexity, as well as low segmentation accuracy due to the large intensity homogeneities and the noise. The robust region-based segmentation is impossible in remote sensing images is a tedious task because due to lack of spatial information and pixel intensities are non-homogenous. For this reason, we proposed a novel hybrid approach called adaptive particle swarm optimization (PSO)-based Fuzzy K-Means clustering algorithm. The proposed approach is diversified into two stages: in stage one, pre-processing the input image to improve the clustering efficiency and overcome the obstacles present in traditional methods by using particle swarm optimization (PSO) and Fuzzy K-Means clustering algorithm. With the help of PSO algorithm, we get the "optimum" pixels values that are extracted from the input SAR images; these optimum values are automatically acted as clusters centers for Fuzzy K-Means clustering instead of random initialization from original image. The pre-processing segmentation result improved the clustering efficiency but suffers from few drawbacks such as boundary leakages and outlier's even particle swarm optimization is used. To overcome the above drawbacks, post-processing is necessary to facilitate the superior segmentation results by using

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International Journal of Advanced Science and Technology
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Robust Adaptive AutoRegressive Weighted Constant Modulus Algorithm for Blind Equalization in MIMO-OFDM system

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Abstract

Impulse noise is a major performance degrading factor, as it impairs the communication systems, such as mobile radio system, digital subscriber line system, and power line. Various Constant Modulus algorithms(CMA) were introduced to reduce the average of constant modulus error between the constant modulus and the equalizer output power in the impulsive noise environment. However, the existing blind learning methods generate large mis-adjustment and slow convergence rate in the impulse noise of Multiple Input Multiple Output (MIMO) system. To solve the impulse noise problem, the blind equalization method named Robust Adaptive Autoregressive weighted constant modulus algorithm (RAAWCMA) is introduced in this research work for MIMO system. Due to the feasibility and simplicity of stable convergence property, the proposed Robust Adaptive Autoregressive weighted constant modulus algorithm for blind equalization is utilized to solve the complexity of impulse noise in MIMO system. The proposed blind equalization method increases the performance of equalization by adjusting the weight vector based on the samples of output error. Moreover, the maximum average value obtained by the proposed algorithm is revealed based on the evaluation metrics, like Bit Error Rate, Symbol Error Rate, and Mean Square Error which acquire the values of 0.0005, 0.0005, and 0.0001 with the Rayleigh channel, and 0.0004, 0.0004, and 0.0001 with the Rician channel using six antennas.

Keywords—*Blind equalization, Multiple Input Multiple Output (MIMO), Orthogonal Frequency Division Multiplexing (OFDM), constant modulus algorithm, impulse noise.*

1. INTRODUCTION

In the digital communication system, the signal receives at the receiver are super position, as they linearly distorted from numerous transmitters. This scenario in the communication system is termed as MIMO system. MIMO significantly increases the reliability, service quality, combat fading, and system capacity with the usage of similar spectrum resources [2] [15] [16]. MIMO [24] [25] is broadly categorized into three types, such as spatial multiplexing, beamforming, and diversity technique. Channel model is the challenge in the MIMO application, such that the classical theory assumes the channel model as

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s in Electronics and Communication Engineering pp 585-600 | Cite as

;round Segmentation Using Multimode Background 'action in Real-Time Perspective

Authors and affiliations

, E. Suresh, G. Kranthi Kumar

: paper
e: 23 April 2020

Lecture Notes in Networks and Systems book series (LNNS, volume 107)

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/s foreground segmentations are becoming more complex in videos and images while

Compact High Gain Hexagonal Fractal Antenna for 5G applications

Authors Srivalli Gundala, VSSN SrinivasaBaba, Adepu Vijaya, Soujanya Machanna

Publication date 2019/12/16

Conference 2019 IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS)

Pages 1-7

Publisher IEEE

Description This paper presents a Hexagonal Fractal antenna with a side feed. The proposed antenna is designed for 4.2GHz operating frequency and it can be used for wide band application. The results include parametric variation of substrate and also with different feed positions. This antenna offers 5.98dBi of peak gain. Experimentation is carried out and the results are in good agreement with the simulated results. The proposed antenna is of compact size $23\text{mm} \times 27.5\text{mm}$. VSWR is less than 2 for total performing frequency spectrum of 3.6 to 23 GHz with a Bandwidth of 19.4 GHz. A good radiation pattern and return loss are obtained in simulation and experimentation.

Compressed Sensing Based Mixed Noise Cancellation in Passive Bistatic Radar

International Conference on Information, Communication and Computing Technology

ICICCT 2019: Intelligent Computing Paradigm and Cutting-edge Technologies pp 389-404 | Cite as

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Conference paper
First Online: 18 January 2020

Part of the Learning and Analytics in Intelligent Systems book series (LAIS, volume 9)

Abstract

This paper proposes a unique compressed sensing based pathway to improve mixed noise cancellation in Passive Bistatic Radar (PBR). Mixed noise is considered as Additive White Gaussian Noise (AWGN) including Impulse Noise (IN). The proposed technique applies a best sparsifying basis that adapts to the structure of the problem and reduces the size of the measurement matrix drastically. According to simulation results, it has been confirmed that the proposed system gives higher state estimation capabilities as compared to the conventional LMS filtering techniques. Without loss of generality, the testing of the performance metric has been done over the FM signals. The paper explains the simulation methodology and the details.

Keywords

Passive Bistatic Radar (PBR) Mixed noise cancellation Compressed sensing

References

ISSN: 2249 – 8958, Volume-9 Issue-3, February, 2020

A Compact Integrated Small Disk Monopole Antenna with DGS for Wireless Applications

M. Chandrasekhar, M.Suneel Raja

Abstract: *The structure of a compact Micro strip feed circular monopole antenna working in the frequency range of (2.5GHz-4GHz) and wideband of frequency ranging from 4.9GHz to 19.93GHz is proposed in this paper. Using a circular radiating monopole with terrible ground wideband frequency operation is possible. Two frequency bands can be accomplished by separating the middle part of the patch and further engraving a circular arc with radius λ/2 from it. An FR4 substrate with ε_r=4.4 and a loss tangent of 0.02 was utilized to realize and simulate this antenna. It can be operated in both the frequency bands 2.5-4GHz and 4.9-19.93GHz [wideband] possessing less than -10dB reflection coefficient. The whole WB and also in the low-frequency band as mentioned above shows a sturdy radiation pattern.*

Keywords: *Disk monopole MPA, Dual band, Radiation pattern, gain.*

I. INTRODUCTION

For antenna designers, the task of modeling a simple and small size antenna that can be used for multiband communication is difficult. High gain, increased impedance bandwidth, and good radiation patterns are the required qualities of a multiband antenna. Many researchers have designed a huge number of antennas employing different shapes of defects in the ground plane [1-4]. Apart from existing extra resonant modes utilizing the concept of defected ground structures has been an eminent technique in limiting the dimensions of the antenna. Various patch antenna designs with different shapes of slits and slots have been proposed for dual-band applications. Slot loading techniques are used to reduce the size of an antenna and to produce multiband operation.

In recent years, the use of ultra-wideband (UWB) technology in wireless communication has been increased tremendously [5-9] to get increased bandwidth with less power consumption. For UWB applications a frequency band 3.1-10.6GHz was allotted by FCC, United States.UWB system is economical, less complicated and enables short-distance radio communication which offers high data rates.UWB antenna is a component in UWB system. But, at present there is a need for a single antenna with multiple frequency bands. These antennas exhibit an omni-directional high radiation pattern. Because of its huge channel capacity, minimum size and stress-free integration with distinctive wireless requirements. There is an urgent need of a small-sized antenna that may work on more than one radiation band which encompasses UWB range.

In this paper, a compact micro-strip feed circular monopole with operating frequency (2.5GHz -4GHz) and wideband (4.9-19.93GHz) frequency bands for wireless applications was designed. A modified circular radiating monopole with the destructive ground plane was used to achieve WB frequency operation. Further, with aid of slotting the vertical portion of the patch and then etching λ/2 round arc from the patch, a dual-frequency band is accomplished. The proposed antenna is realized on FR4 with dielectric constant 4.4, loss tangent 0.02 and simulated using HFSS. Dual-band operation with frequency range (2.5GHz-4GHz) and wideband range (4.9GHz-19.93GHz) was achieved using this antenna whose reflection coefficient <-10dB. It also provides stable radiation patterns for the above frequency bands.

II. ANTENNA CONSTRUCTION

The constructed antenna is a circular disk monopole as shown in fig.1. A frequency band notch was generated using microstrip open-loop resonators.

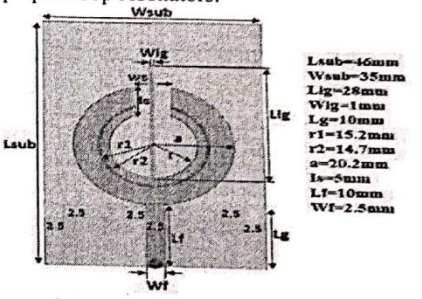

Fig.1.Antenna Construction

The disk and the resonator are etched on foreside and backside of the shape respectively [9-12]. To deliver a band notch, an excessive fine component is designed on the FR4. A Microstrip line is used to feed the monopole, which provides impedance of 50ohms. A range of numerous types of resonator might be used that allows creating the frequency notch band. By developing the gap length, the return loss might be progressed.

A. *Current Distribution:*

Current distribution of small duration disk microstrip patch antenna with c fashioned DGS's are shown in Fig.2.

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Literature Survey on Calculation of Electrical Stress Using FDM

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Abstract: This paper presents the various available mathematical approaches to calculate the electrical stream of an insulator H.V apparatus various technologies like FDM, FEM and CSM are presented with comparison. Insulators are the one main component in the electrical power systems. At transmission line they undergo huge electrical stress. In order to estimate this stress numerical methods are used. Their benefits and disadvantages are listed.

Key Words: Electrical stress, voltage gradients, FDM, FEM, CSM.

Heart Beat Sensoring Using IoT

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Abstract: Heart attack results in death before the patients get any treatment. Because the traditional healthcare mode is passive, by which patients call the healthcare service by themselves.The patients cannot call the health care services because they will be in unconsious mode when the heart attack occurs. The Internet of Things (IoT) techniques will solve the problem of heart disease patient care as they can change the service mode into a pervasive way, and trigger the healthcare service based on patients' physical status rather than their feelings. In order to realize the pervasive healthcare service, a remote monitoring system is essential. In this paper, the developed system is a pervasive monitoring system will send the patient's status and symptoms to other applications on medical based applications. The developed system mainly consist of two categories: the data acquisition part and the data transmission part. The scheme of monitoring for each parameter is the main point to design it. Several physical signals are (blood pressure, ECG, SpO2, heart rate, pulse rate, blood fat and blood glucose) as well as an environmental indicator (patients' location) are well developed and designed to be illustrative at different rates continuously. There are four data data transmission modes are introduced in taking patients' status, medical detailed examination, demands for communication and computing resources into consideration. Finally, a hardware kit is developed to apply the monitoring scheme to patients to analysis purpose

Keywords: iot,heart beat, heart attack, medical, sensor, arduino, prototype

Pareto Optimal Approach for Contrast Adjustment in Gray Level Images using IDS Algorithm

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Abstract. Image enhancement/contrast adjustment plays an important role in almost every image processing system. The main aim of the contrast adjustment is to enhance image quality by maximizing the information content in the image. Many researchers implemented heuristic approaches for image enhancement using maximization of objective function based on image quality metrics. And such objective function may fail to yield proper enhancement for a given image (either under enhanced or over enhanced). Because, the parameters of the image transformation function have selected based on overall value of the objective function but not individual objectives in the objective function. That means the parameter values so chosen may not satisfy all the objectives of the objective function and this may lead to improper enhancement of the image. In this context, this paper presents a Pareto optimal approach based gray level contrast adjustment using Improved Differential Search Algorithm (IDSA) named as Multi Objective Improved Differential Search Algorithm (MOIDSA). Image enhancement is treated as a three-dimensional optimization problem and MOIDSA is used to solve it. The input image quality is enhanced by simultaneous objectives which is blend of image performance measures and quality metric as a three-dimensional optimization approach will yield best compromised solution by satisfying all the individual objectives. This algorithm is tested on some standard test gray level images, and results compared with well existing algorithms have proven its superiority.

Keywords: Image contrast adjustment, parameter estimation, Pareto optimal approach, improved differential search algorithm, image quality evaluation

1 Introduction

Image processing is a wide and dynamic region of research in processing. It has numerous applications in regular day to day existence undertakings, for example industrial, transportation and medicine, and so on. Image enhancement is one of the most significant methods, which may be treated as changing an image to other image to enhance the discernment or interpretability of data for human watchers, or to give better contribution to other computerized techniques in contrast adjustment. GA (Genetic Algorithm) for image improvement has been proposed through utilizing a multi-objective (weighted total) work comprising four non-linear mapping functions. It utilizes the hereditary calculation to search for ideal mapping of the dark degrees of the information picture into new dim levels offering better complexity for the image

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Foreground Segmentation Using Multimode Background Subtraction in Real-Time Perspective

Authors | Authors and affiliations

Veereti Raju ✉, E. Suresh, G. Kranthi Kumar

Conference paper
First Online: 23 April 2020

Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 107)

Abstract

Nowadays foreground segmentations are becoming more complex in videos and images while capturing at distinct backgrounds. In this work, we addressed the multimode background suppression in video change detection, where it has many challenges to handle like illumination changes, different backgrounds, camera jitter and moving cameras. The framework contains different inventive systems in background modeling, displaying, order of pixels and use of separate shading spaces. This framework firstly allows numerous background scene models that are pursued by an underlying foreground/background used to estimate the probability for each pixel. Next, the image pixels are merged to form megapixels which are used to spatially denoise the underlying probability assessments to generate paired shading spaces for both RGB and YCbCr. The veils formed during the processing of these information pictures are then merged to separate the foreground pixels from the background. A comprehensive assessment of the suggested methodology on freely available test arrangements from either the CDnet or the ESI dataset indexes shows prevalence in the implementation of our model over other models.