AICTE Sponsored

6th International Conference on

Intelligent Computing and Communication

ICICC-22

SOUVENIR

Jointly Organized by
Department of Computer Science and Engineering, GNITS and
E&ICT Academy, National Institute of Technology, Warangal

GNITS

G. NARAYANAMMA INSTITUTE OF TECHNOLOGY & SCIENCE (FOR WOMEN)

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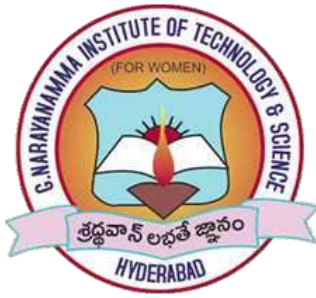
Shaikpet, Hyderabad - 500014, Telangana

https://icicc.gnitscollege.in

AICTE Sponsored

6th International Conference on Intelligent Computing and Communication (ICICC-22)

18th & 19th November, 2022

**Department of Computer Science and Engineering,
G Narayanamma Institute of Technology & Science**
(Autonomous)   (For Women)
Shaikpet, Hyderabad – 500104, Telangana, India

Jointly Organized with
E&ICT Academy, National Institute of Technology, Warangal

OUR INSPIRATION

Founder Chairman
G. Pulla Reddy Charities Trust

Late Sri G. Pulla Reddy and Late Smt. G. Narayanamma

A Visionary, an Eminent Entrepreneur
and Philanthropist with Values

Message from Chairman

Sri.P. Subba Reddy

Hon'ble Chairman,

GNITS, Hyderabad, Telangana,

India.

MESSAGE

I am honored to welcome all the delegates to the AICTE-sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-2022) on 18th and 19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations of GNITS, Hyderabad. I extend my warm greetings and best wishes to all the delegates. It is a matter of great pleasure and at most satisfaction that the amazing progress that our institute has made over the glorious period of 25 years. Since its inception, G. Narayanamma Institute of Technology and Science (GNITS) has strived hard and evolved to be the best destination for the finest quality education with its state of art infrastructure and excellent human resources for engineering education.

GNITS takes a keen interest in updating its infrastructure that stimulates intellectual thinking and academic interaction to meet the technological revolution and new challenges of the modern era. In GNITS students are given support and encouragement to take up the internships and training programs offered by the companies and project works in collaboration with the expertise provided by the corporate and industries.

The conference aims to provide a common platform for researchers, industry personnel, academicians, and participating professionals to interact and discuss the advances made in the areas of Intelligent Computing and Communications. Scientific advancements must yield benefits for the peaceful coexistence, progress, prosperity, and welfare of people everywhere. This type of conference not only brings all the researchers and students to one platform but also inculcates the research culture among the entire fraternity of education, thereby contributing to the development of society. I hope that through this conference, the participants will have a fruitful discussion and come out with innovative ideas to bring advances in the field of Intelligent Computing and Communications under the aegis of GNITS. I wish to congratulate the organizing members of ICICC-22, and faculty members of GNITS, Hyderabad for making the event a success.

Best wishes.

P. Subba Reddy

Message from Vice Chairman

Smt. G. Srividya Reddy
Vice Chairman,
GNITS, Hyderabad,
Telangana, India

MESSAGE

I am extremely delighted to welcome all the delegates to the AICTE-sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-2022) on 18th and 19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations at G. Narayanamma institute of technology (GNITS), Hyderabad. This conference aims to highlight the advanced research outcomes in the field of Intelligent Computing and Communications.

The rapid expansion of technology and the revolution in information technology have created a new set of difficulties and opportunities. Today, society, academia, and industry must work together to share their dedication, enthusiasm, and experience in order to foster a responsible, progressive, and skilled community.

GNITS has thrived and advanced in the field of Women empowerment through engineering education and has carved a name for itself. The utilization of the talents of women should not be viewed only from the perspective of gender equality. Full involvement of women in scientific and technological efforts is today essential for rapid economic development.

Innovation flourishes in an environment that encourages problem-solving and has an integrated approach to procreating ideas. At GNITS, Hyderabad, we have nurtured an excellent learning environment and have created an academic ambiance to develop scientific temperament to women in STEM.

It is my great pleasure to wish all the delegates considerable achievements in their pursuits in their respective fields. Collectively all our efforts should make society progress with prosperity and peace for everyone. I have great confidence in stating that, this conference will certainly be a step towards that objective.

In this connection, I convey my best wishes to the organizing committee for their laudable effort and also wish them grand success in conducting the event.

With Best Wishes.

Smt.G. Srividya Reddy

Message from Chief Patron

Prof. N. V. Ramana Rao
Director
NIT Warangal.

MESSAGE

It gives me immense pleasure that GNITS, Hyderabad is organizing an AICTE Sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-22) during 18th - 19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations of GNITS, Hyderabad.

G. Narayanamma Institute of Technology & Science (GNITS), Hyderabad, has embarked as a leading Engineering college for women, in the field of technical education since 1997 and celebrating 25 years of glorious years in the service. The college has graduated hundreds of engineers who continued to excel in the industry, academic institution, and beyond. Inspiring "great engineers" was the goal and we proudly strive to do this every day. It's a time to celebrate introspect, consolidate and plan for the future.

The central theme of the conference is to provide an opportunity for a meeting of International Researchers, Engineers, Scientists, and specialists in the various research and development fields of Engineering and Technology in all aspects of Intelligent Computing and Communication together with their applications in the contemporary world. The conference offers a premise for global experts to gather and interact intensively on the topics of Electrical and Electronics, Electronics and Communication, Computer Science, and Information Technology. I wish talks of eminent speakers will benefit the delegates of the conference.

I am privileged to say that this conference will offer suitable solutions to many global issues. The success of this Conference is solely on the dedication and efforts of innumerable people who started working on the preparations for almost a year in many ways to make this Conference become a reality. Eventually, I express my special thanks and appreciation to all. I wish ICICC-22 all the best for its success.

Best Wishes

Prof N V Ramana Rao
Director
NIT Warangal.

Message from General Chair

Prof. R. B. V. Subramanyam,

General Chair
Chief Investigator, E&ICT Academy
NIT Warangal.

MESSAGE

Human History is ample with daring and inspiring scientific investigations and accomplishments that kindle one's heart and mind. In this century, humankind faces new challenges for the better quality of life on this planet. What seems to be a more thought-provoking and formidable source of optimism and enthusiasm is the fact that new technologies will provide real global opportunities for all but those who may fail to recognize its potential, may therefore miss the revolution! Right choice of themes- Intelligent Computing and Communications have been chosen and deliberation will be held to transcend newer pathways to solutions.

G. Narayanamma Institute of Technology & Science (GNITS), Hyderabad, has embarked as a leading Engineering college for women, in the field of technical education since 1997 and celebrating 25 years of glorious years in the service. The college has graduated hundreds of engineers who continued to excel in the industry, academic institution, and beyond. Inspiring "great engineers" was the goal and we proudly strive to do this every day. It's a time to celebrate introspect, consolidate and plan for the future.

The GNITS, Hyderabad organizing the AICTE-sponsored 6th edition of "the 6th International Conference on Intelligent Computing and Communication (ICICC-22) from 18th - 19th November 2022 in Collaboration with E&ICT Academy, NIT Warangal.

I feel confident that the academia, research scholars, and scientists at both institutes and industry will benefit from the conference outcomes as well as from the expected academic interactions. The programme in the convention includes scientific contributions from participants across the globe in the form of Plenary, keynote, invited, oral, and poster presentations that will play a profound role in exchanging novel ideas both in virtual and in-person mode and interacting with a fairly larger audience. I am sure that, the Conference, will play a strategic role in enhancing the profile of GNITS, Hyderabad and greatly contributes to academic exposure of the participants.

I extend my warm greetings to all conference delegates and I am sure that they find it academically work rewarding. I thank all the speakers and the organizers for making the conference a grand success.

Best Wishes

Prof. R. B. V. Subramanyam,
General Chair
Chief Investigator, E&ICT Academy
NIT Warangal.

Prof. Suresh Chandra Satapathy
General Chair
Prof. and Dean-Research
School of Computer Engg
KIIT Deemed to be University, Bhubaneswar
Odisha, India

MESSAGE

It's my great honour to be associated with 6th International Conference ICICC 2022 and GNITS, Hyderabad. I appreciate the efforts taken by the team from GNITS to plan and execute the Conference in such a spotless manner. Association with NIT Warangal has added lots of value to the ICICC and in the future this will be a benchmark. I am confident all stake holders of this conference will derive maximum benefits from the deliberations on cutting edge technologies. It is heartening to know that conference shall be conducted in hybrid mode giving the opportunities to participants to experience the same in convenient way. The souvenir which is planned to be released surely would highlight the technical contents of all talks and deliberations for the benefit of all.

I appreciate the efforts of each one involved in the conference and congratulate the Management, Principal and other team members once again showcasing the great intentions to encourage quality conglomerations.

With best Wishes

Prof. Suresh Chandra Satapathy
General Chair
Prof. and Dean-Research
School of Computer Engg
KIIT Deemed to be University, Bhubaneswar
Odisha, India

Message from Conference Chair

Dr. S. Ravi Chandra

Conference Chair
Head, Dept. of CSE,
NIT-Warangal.

MESSAGE

I am happy to learn that GNITS, Hyderabad is organizing an AICTE Sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-22) during 18th - 19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations.

In my view, the topic chosen for the conference is timely and pertinent. With the emergence of new information and communication technologies, knowledge in each domain is growing at an astounding pace. Further, we should be aware of the changes that are happening in these two areas with the intention of updating the latest technologies. I hope that this conference will lead to a new awareness of the possible changes in information and communication technologies.

I extend my sincere wishes for the success of this conference and a prosperous future for the college. My congratulations to the Principal and colleagues for organizing this event.

With best wishes

Dr S Ravi Chandra
Conference Chair
Head, Dept. of CSE,
NIT-Warangal.

Prof. Katta Narasimha Reddy
Ph.D, FWIF, FAPAS, FTAS
Vice-Chancellor

Message

It is indeed very heartening to learn that the GNITS, Hyderabad is organizing an AICTE Sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-22) during 18th - 19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations of GNITS, Hyderabad. It is my pleasure to write this message for the ICICC-22.

G. Narayanamma Institute of Technology & Science (GNITS), Hyderabad has embarked as a leading Engineering college for women, in the field of technical education since 1997. The college has graduated hundreds of engineers who continued to excel in the industry, academic institution, and beyond.

I fervently believed that this conference will boost the quality of the research and collaborations more in the future. Research plays a crucial role in the development of the country. Research institutions including universities and industrial firms located nationally and internationally should initiate and perform more research studies to address and find solutions to the problems faced by modern India as well as the world. The outcome of the research studies must be discussed critically, and suitable solutions have to be taken based on constructive arguments. I have confidence that this International Conference ICICC-22 is the best platform to discuss the research outcomes critically and come up with effective solutions as well as establish a good collaboration between universities and industrial firms located nationally and internationally to address the current world issues.

The theme of the conference is "Intelligent Computing and Communication" which is the most suitable topic for the current globe. Although changes happening in the world are considered as new normalcy, the responsibility of the successful engineer is to uplift human life standards while preserving them for future use as well. This theme should be discussed critically as well. Finally, I would like to thank distinguished keynote speakers, reviewers, and participants. I also wish the organizing committee of the conference and all staff members of the GNITS, Hyderabad for organizing the conference successfully.

Prof. Katta Narasimha Reddy
Vice-Chancellor, JNTUH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
(Established by Govt. Act No. 30 of 2008)
Kukatpally, Hyderabad – 500 085, Telangana, India.

Dr. A. GOVARDHAN
B.E (CSE), M.Tech., Ph.D, PGDL.
FIE, FCSI, C.Eng, FIETE, FIFERP, FISDS, FCSRC.
Professor of Computer Science and Engineering &
RECTOR

MESSAGE

I am happy to know that the GNITS, Hyderabad is organizing an AICTE Sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-22) during 18th-19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silver Jubilee Celebrations of GNITS, Hyderabad.

Over the last few decades, advancements in computing and communication technologies have reached an impressive level of exponential growth. These technologies improve not only very common areas of our daily lives, but also areas of education, science, engineering, healthcare, production industries, smart cities etc. The feasibility of future developmental exploration strongly relies on the existence of key technologies and their relevance and contributions to the society. Analyzing global trends in intelligent computing and communications including all its services reveals cornerstone fields of various multidisciplinary domain research. The outcome of the research studies must be discussed scientifically, and suitable solutions have to be taken based on the constructive deliberations of the conference.

I am sure this international conference will create new enthusiasm among researchers, technocrats, industries and ICT professionals. I congratulate GNITS, Hyderabad Leadership the Organizing Chairs, the members of the Organizing Committee and entire team of the conference. I am happy to know that the Conference Proceedings are published in Springer Nature.

I wish *ICICC-2022* a grand success.

Prof. A. Govardhan
RECTOR
JNTU Hyderabad

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by Govt. Act No. 30 of 2008)

Kukatpally, Hyderabad – 500085, Telangana (India).

Dr. M. Manzoor Hussain

M.Tech., Ph.D.,
Professor of Mechanical Engineering &
REGISTRAR

MESSAGE

It is a matter of immense pleasure and honor for me to extend a very warm welcome to all dignitaries and delegates for the AICTE Sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-22) during 18th - 19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations of GNITS, Hyderabad.

Since 1997, G. Narayanamma Institute of Technology & Science (GNITS), Hyderabad has evolved as a leading higher technical educational institute for women. The GNITS has always been focused on Academics, Research, and innovation and is today actively engaged in creating an eco-system to promote quality of education with a strong application focus in multidisciplinary areas.

In the current era, the growth in computing and communication is encouraging the researchers and industry to provide suitable solutions and interfaces for genuine state-of-the-art applications. This leads to tremendous opportunities for all the stakeholders to come together, collaborate, complement, and supplement the efforts of each other. The recent advances related to "Intelligent Computing and Communication" to be discussed at the conference will provide an excellent opportunity for the delegates to identify some new research areas in Computing and Communications to undertake interdisciplinary initiatives that will be fruitful in their future research endeavors.

I appreciate the overwhelming response that this conference has generated throughout India & abroad and hope that it enriches all with many contemporary ideas, revolutionary thoughts, and an understanding of the best practices from around the globe.

I look forward to seeing more technical talks among academicians, researchers, and industry under the aegis of the ICICC-22 and to promoting the exchange of ideas, culture, and knowledge domains in various disciplines. I wish the ICICC-22 success in all its endeavors.

REGISTRAR

Dr. K. Ramesh Reddy
Principal,
GNITS, Hyderabad,
Telangana, India

MESSAGE

It is my great privilege to welcome you to the AICTE-sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-2022) on 18th and 19th November 2022 at G. Narayanamma Institute of Technology and Science GNITS (Autonomous), Hyderabad, in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations.

ICICC-22 aims to bring together Researchers, scientists, Engineers, Scholars, and students in the areas of computing, communication, and electrical engineering to exchange ideas and present their research works. In addition, it is a venue for interaction and establishing all-important contacts with each other. **ICICC-2022** is a multidisciplinary peer-reviewed international conference on computing, communication, and electrical engineering that provides a forum for the exchange of the latest technological information. We all understand the need to rejuvenate ourselves to further expand our frontiers in facilitating quality education for the research community, particularly the growing young generation to enhance technical understanding of the current scenario.

I wish the conference would be able to deliberate on current issues of national and international relevance, particularly in the field of intelligent computing and communications. The various thematic sessions will showcase important technological advances and highlight their significance and challenges in a world of fast changes. I hope the participants of the conference will have a great experience while attending the keynote sessions and paper presentations and will get an opportunity to interact with the conference participants. This conference will enrich your innovative and research ideas.

I am sure that this occasion will provide an affable environment for researchers and academicians to freely exchange their views and ideas with others. I convey my warm greetings and felicitations to the organizing committee and the participants and extend my best wishes for the success of the conference.

With best wishes

Dr.K.Ramesh Reddy

Message from Conference Chair

Dr. M. Seetha
Conference Chair
Professor and Head,
Dept. of. CSE,
GNITS, Hyderabad

MESSAGE

On behalf of the Conference board, I would like to welcome all the delegates, research scholars, and faculty members to the AICTE-sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-2022) on 18th and 19th November 2022 organized by G. Narayanamma institute of technology (GNITS), Hyderabad in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silver Jubilee Celebrations. The overwhelming response to ICICC-22 indicates the importance of this conference and confirms that ICICC-22 will become a good platform for discussing the latest technological trends and development in "Intelligent Computing and Communications". The ICICC-22 will facilitate young researchers, industries, and research organizations, especially those who are carrying out their research work in the aforesaid domains with valuable discussions to make the outcomes more realistic. The conference theme will focus on captivating new ideas, self-innovation, and acquiring knowledge from experts in different fields.

It is a privilege and honor to introduce you the organizing department, Computer Science and Engineering which has progressed on a large scale since its inception and established state-of-the-art infrastructure, Centre of Excellence (COE) in IOT& Analytics and AI&ML. Several MOUs are established with eminent industries, and academic institutions and extending services in successfully running different professional bodies like ISTE, CSE, and CSI. The faculty members published several reputed research publications and are recognized supervisors under different universities like JNTUH, NIT-Warangal, and K L University.

The conference itself starts with keynote speeches scheduled during the 18th and 19th of November 2022 and will be delivered by distinguished experts. All selected papers of the conference will be published in Springer Nature in its book series Lecture notes in Advances in Intelligent Systems and Computing. Keynote lectures by experts in various fields will inspire the researchers and provide exposure to various aspects and an opportunity for discussions with distinguished experts. I would like to express my sincere thanks to the Director, NIT Warangal, and Chief Investigator, E&ICT Academy, NIT Warangal for their outstanding support and collaboration. On behalf of the organizing team, I am extremely thankful to our Management, Principal, and other college-level committee members for their extensive support in organizing ICICC-22 successfully. I am very much thankful to AICTE authorities for sponsoring to conduct the conference at our institution GNITS, Hyderabad. I wish all the participants to have a successful and gratifying experience from ICICC-22.

With best wishes

Dr. M. Seetha
Conference Chair

Editorial

We cordially invite you to attend the **International Conference on Intelligent Computing and Communication (ICICC-2022)** which will be held on the **18th and 19th of November, 2022**. The main objective of ICICC-2022 is to provide a platform for Researchers, Students, Academicians as well as Industrial Professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering, and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experiences face-to-face, establish business or research relationships, and find global partners for future collaboration. These proceedings collect up-to-date, comprehensive, and worldwide state-of-art knowledge on cutting-edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and relevance to the conference. We hope these proceedings will not only provide the readers with a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes, and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in the review process, and to the authors for contributing their research results to the conference.

Since August 2021, the Organizing Committees have received more than 250 manuscript papers, and the papers cover all aspects of Electronics, Computer Science, Information Technology, Science Engineering, and Technology. Finally, the good-quality papers recommended after review were included in the proceedings of ICICC-2022.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of ICICC-2022. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work of the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

Selected quality papers are published in Proceedings of the Springer series "Advances in Intelligent Systems and Computing". The key feature of these proceedings is short publication time with worldwide distribution and indexed by DBLP, INSPEC, zbMATH, Japnese Science and Technology. The series is submitted for consideration in the Web of Science.

Editorial Board - ICICC-22
Dr. M. Seetha
Dr. Sateesh Kumar Peddoju
Dr. Vishnu Pendyala
Dr. Vedula VSSS Chakravarthy

Acknowledgements

Prof. N. Kalyani,
Professor in CSE
Publication Chair
ICICC-22

Welcome to the Proceedings of the AICTE sponsored 6th **International Conference on Intelligent Computing and Communication (ICICC-2022)** which will be held on 18th and 19th November 2022 organized by G. Narayanamma Institute of Technology and Science (for women) (GNITS), Hyderabad in collaboration with E&ICT Academy, National Institute of Technology, Warangal. The field of our endeavors is related to "Intelligent Computing and Communications" in its broadest sense. This includes, of course, the Emerging Technologies, Artificial Intelligence, Machine Learning, and Autonomous Systems, and Communications Systems with the concerned field of applications. ICICC-22 aims to achieve a scholarly balance between emerging technologies and the direction in which it is being used for developing.

The main objective of ICICC-22 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

We would like to express our deepest appreciation to the authors whose technical contributions are presented in these proceedings. It is because of their excellent contributions and hard work that we have been able to prepare these proceedings. We would like to thank all our keynote speakers who made all the efforts to synthesize the materials and their wide and rich experiences to deliver distinguished talks. We are very grateful to our session chairs for their great efforts in reviewing the papers in their tracks and organizing to assign other volunteer reviewers, the conference technical program committee members, and the designated reviewers.

I express my hearty gratitude to all my Colleagues, staff, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful.
With Regards,

Publication Chair
Prof. N. Kalyani,

6th International Conference on Intelligent Computing and Communication (ICICC-22)

18th & 19th November 2022

Keynote Speakers

Keynote Speaker

Sri Chandrakant Pithawa
Distinguished Scientist,
Former Director, Electronics & Instrumentation Group, BARC, Mumbai
Padma Shri Awardee

MESSAGE

My sincere appreciation to GNITS, Hyderabad for extending their invitation to be a keynote speaker for an AICTE Sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-22) during 18th - 19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations of GNITS, Hyderabad.

In any process industry, the Instrumentation and Control systems have to meet the necessary functional, performance and interface requirements. This is true in case of nuclear power plants too. As nuclear plants use highly radioactive fuels, the instrumentation & control systems performing functions important to safety in nuclear power plants must also be demonstrated to be safe and reliable with appropriate degree of confidence.

The keynote will cover the practice of design and implementation of computer based systems for carrying out functions important to safety for the Indian nuclear power plants and will explain the same with a case study.

I take this opportunity to convey my best wishes from my heart for the success of this conference.

Thanks and Regards

Sri Chandrakant Pithawa
Distinguished Scientist, and
Former Director, Electronics & Instrumentation Group, BARC, Mumbai
Padma Shri Awardee

Keynote Speaker

KC Santosh, PhD
Chair, Department of Computer Science
The University of South Dakota, USA

MESSAGE

It gives me immense pleasure to be a keynote speaker at GNITS, Hyderabad on the occasion of an AICTE Sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-22) during 18th - 19th November 2022 in collaboration with E&ICT Academy, National Institute of Technology, Warangal on the occasion of Silber Jubilee Celebrations of GNITS, Hyderabad.

I'm an academician, and in my talk, you hear me how responsible on academician should be for the better state, nation, and the world. My talk covers #AI for healthcare, need of multimodal learning and representation, active learning, and responsible AI. The following is the quick synopsis of the talk.

When we consider AI for healthcare, infectious disease outbreak is no exception. The use of machine learning models helps in not only predicting but also detecting abnormalities due to infectious diseases such as Pneumonia, TB, and Covid-19. So, there is a need to identify potential applications of machine learning in the field of infectious diseases. This keynote will discuss the infectious disease prediction models and unexploited data, where we will learn that predictive analytical tools are close to garbage-in garbage-out (at least for Covid19). A detailed discussion on multimodal learning and representation based on both shallow learning (handcrafted features) as well as deep learning (deep features) that typically apply to medical imaging tools. In computer vision, the size and quantity of data will be a predominant factor in addition to common techniques of data augmentation and transfer learning. Since the fact is that most models are limited to education and training, there is a need to focus on "ML innovation should not be limited to building models." To address these issues, we need Explainable AI in an Active Learning framework.

I'm excited to see you in-person at GNITS, Hyderabad.

With Best Wishes.

KC Santosh, PhD

Keynote Speaker

Sreenivasa Reddy
Senior Director - Engineering
Mixed Reality (Devices & Technology)
Microsoft India (R&D) Pvt. Ltd.
Hyderabad

MESSAGE

I am delighted to hear that GNITS, Hyderabad, is organizing the AICTE-sponsored 6th International Conference on Intelligent Computing and Communication (ICICC-22) during November 18–19, 2022, in collaboration with the E&ICT Academy and the National Institute of Technology, Warangal, on the occasion of the Silver Jubilee Celebrations of GNITS, Hyderabad. I am very happy to be associated with this conference as a keynote speaker.

As an evangelist of technology, my keynote address will focus on "Future Technology Trends: Career Opportunities in Metaverse/Web3.0/AI/AR/MR," i.e., the next frontier of computing, and one that will have a greater impact than any other generational shift to date.

The following is a quick synopsis of the talk. The evolution of technology is a story of convergence. There was a time when cameras, maps, phones, calculators, and the internet were seemingly unrelated; today, all can fit in the palm of our hands. Now we're approaching the convergence of physical and digital experiences, known as the "Metaverse."

The Metaverse is a vision of the future, a new era of belonging. It's about the merging of digital and physical worlds—a transformation of our world into a virtual canvas. Everyone can share and shape the metaverse together. In the Metaverse, you can be anyone, anywhere. Every person shall be empowered to participate, build, and create. This is a golden opportunity for young India.

The Metaverse offers endless possibilities to reimagine learning and skilling. We should have a blueprint for building inclusive experiences that enable metaverses for the world. Together, we can seize this opportunity. Let's connect the dots and discover the distance we can go on this journey.

This keynote will also discuss futuristic aspects of the metaverse, which comprises various building blocks such as Digital Twins, Web 3.0, AI, Cloud, AR/VR/MR, NFTs, Blockchain, 3D modelling, and game design and development, with multiple service layers under each of these blocks, including edge computing and 5G. The future of learning is likely to look very different from what the industry had expected two years ago. The pandemic caused a sea change in the workplace, and skilling is no exception. While we may not know exactly what the future holds, the prospect of the Metaverse is exciting because it leads to digitalization and economic incentives.

I'm so glad to be a part of this conference, and I wish the future deliberations great success.

With Best Wishes

Sreenivasa Reddy

AICTE Sponsored
6th International Conference on
Intelligent Computing and Communication
(ICICC-22)

18th and 19th November, 2022

ADVISORY BOARD MEMBERS

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- **Smt. Srividya Reddy Gunampalli,**Vice-chairman, GNITS, Hyderabad, Telangana
- **Prof.N.V.Ramana Rao,** Director, NIT Warangal, Telangana

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Program Schedule

18.11.2022 (Friday)		
09:00 AM – 10:00 AM	Registration of Participants	
10:00 AM – 11:00 AM	Inauguration (Souvenir Release) & Group Photo	
11:00 AM – 11:15 AM	**HIGH TEA**	
11:15 AM – 12:30 PM (Parallel Sessions)	Topic	Resource Person
	Keynote Address on "AI for Infectious Diseases : #Pneumonia, #TB and #Covid-19" (Main Seminar Hall)	Prof. KC Santhosh Chair, Dept. of CS, University of South Dakota, USA
	Keynote Address on "Implementation and Control for Nuclear Power Generating Plant" (Main Seminar Hall)	Sri Chandrakant Pithawa Former. Director & Nuclear Scientist, BARC Mumbai, India (Padma Shri Awardee)
12:30 PM – 01:30 PM	**LUNCH BREAK**	
01:30 PM – 03:15 PM (Parallel Tracks)	Track-I : Offline (Main Seminar Hall) Track-II: Online (CL-11 @CSE Block)	Track-III : Offline (IT Seminar Hall) Track-IV : Online (CL-3 @CSE Block)
03:15 PM – 3:30 PM	**HIGH TEA**	
03:30 PM – 04:00 PM	Cultural Activities	
19.11.2022 (Saturday)		
9:30 AM – 10:15 AM	Keynote Address on "Computational Intelligence: A New Approach of Problem Solving" (Main Seminar Hall)	Dr. Suresh Chandra Satapathy Professor & Dean (Research) KIIT (Deemed to be University) Bhubaneshwar, Odisha, India
10:15 AM – 11:15 AM (Parallel Tracks)	Track-V: Offline (Main Seminar Hall)	Track-VI: Online (CL-11 @ CSE Block)
11:15 AM – 11:30 AM	**HIGH TEA**	
11:30 AM – 12:15 PM	Track-V: Offline (Contd..) (Main Seminar Hall)	Track-VI: Online (Contd..) (CL-11 @ CSE Block)
12:15 PM – 01:15 PM	Panel Discussion on "Explainable AI for Sustainable Society"	
01:15 PM – 02:00 PM	**LUNCH BREAK**	
02.00 PM – 02:45 PM	Keynote Address on "Future Technology Trends – Career Opportunities in Metaverse/Web 3.0/AI/AR/MR" (Main Seminar Hall)	Mr. Sreenivasa Reddy Senior Director, Mixed Reality, Microsoft, India
02.45 PM – 03:00 PM	**HIGH TEA**	
03:00 PM – 04:00 PM	Valedictory & Best Paper Awards	

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(ICICC-2022)

INDEX

09	ICICC_2022_65	**PERSONALIZED E-LEARNING SYSTEM USING LINEAR REGRESSION FOR INTELLIGENT TUTORING SYSTEMS** • Anupama Vijaykumar • Vindhya P Malagi	09
10	ICICC_2022_68	**NUCLEUS SEGMENTATION USING K – MEANS CLUSTERING FOR ANALYSIS OF MICROSCOPY IMAGES** • Sourabh Singh, • Vikrant Bhateja, Sparshi Gupta, • Siddharth Verma, • Shabana Urooj, • Dac-Nhuong Le	10
11	ICICC_2022_70	**A NOVEL DYNAMIC LATCH COMPARATOR DESIGN AND ANALYSIS FOR ADC'S** • Kasi Bandla • Dipankar Pal	11
12	ICICC_2022_71	**A DUAL STOPBAND FREQUENCY SELECTIVE SURFACE AT 2.57 GHZ AND 5.40 GHZ** • Athira G Krishna • Lalithendra Kurra	12
13	ICICC_2022_80	**POST COVID EFFICIENT AND RELIABLE CARDIO VASCULAR DISEASE PREDICTION USING RANDOM FOREST & GA WITH KNN** • R. Suresh • Dr. Nagaratna Parameshwar Hegde*	13
14	ICICC_2022_84	**ESTIMATION OF DOUBLY-SELECTIVE CHANNELIN FBMC-OQAMAND OFDM SYSTEMS** • K. Pranathi • Dr. A. Naveena	14
15	ICICC-2022_89	**STRESS DETECTION IN CLASSROOM ENVIRONMENT USING PHYSIOLOGICAL DATA** • Sharada • Bhageshwari Ratkal • M.Lalitha • K.N.V.Samhitha • A. Rishika Reddy	15
16	ICICC-2022_96	**PREDICTION OF NEXT WORD USING SEQUENCE GENERATORS AND DEEP LEARNING TECHNIQUES** • P.Sunitha Devi • Chepuri Sai Tejaswini • Modem Keerthana • Manusree Cheruvu • Minati Srinivas	16
17	ICICC-2022_97	**NATURAL SCENE TEXT DETECTION IN VIDEO WITH HYBRID TEXT AUGMENTATION AND FUSION TRANSFERRED LEARNING** • Mortha Manasa Devi • M Seetha*	17

		• S.Vishwanadha Raju	
18	ICICC-2022_100	**QUALITY PRODUCED AGRICULTURAL CROP PRICE PREDICTION USING MACHINE LEARNING** • Tumma Susmitha • Talla Prashanthi • Rupesh Kumar Mishra	18
19	ICICC-2022_103	**AN OPTIMIZED CONTROL ON DELAY AND TRANSMISSION RATE OVER WIRELESS VIDEO STREAMING CHANNELS** • K.Maheswari • N.Padmaja	19
20	ICICC-2022_106	**CLASSIFIER-FREE GUIDANCE FOR GENERATIVE ADVERSARIAL NETWORKS** • Ananya Chakravarthi • Gururaja H S	20
21	ICICC-2022_109	**SEGMENTATION OF LUNG REGIONS FOR THE DETECTION OF JUXTA-PLEURA NODULES IN CT SCAN** • Sasidhar Bola*	21
22	ICICC-2022_115	**ANALYSIS OF SERIAL-IN PARALLEL-OUT FINITE FIELD MULTIPLIER USING VARIOUS DOMINO LOGIC STYLES** • Bhavana Majji • Dr. K. Ragini	22
23	ICICC-2022_119	**A DEEP LEARNING PARADIGM FOR CLASSIFYING PERSONALITY** • Raghavender K V • S. Ravi Kumar Raju • S. Alankruthi • M.Ashritha • G. Poojitha • B. Avyaktha	23
24	ICICC-2022_122	**ART GENERATION USING SPEECH EMOTIONS** • Rishabh Patil • Bhagavatiraj Yadav • Omkar Narvekar • Sanober Shaikh	24
25	ICICC-2022_123	**IMAGE FORGERY DETECTION SYSTEM USING CONVOLUTION NEURAL NETWORKS** • G. Sreenivasulu • B.Sujatha • K. Venu Madhav • Selvaraj Rajalakshmi • N. Thulasi Chitra	25
26	ICICC-2022_137	**APPLICATION OF MACHINE LEARNING ALGORITHMS FOR POWER THEFT DETECTION IN ELECTRICAL DISTRIBUTION SYSTEM** • P.Tejaswi • Dr. O. V. Gnana Swathika	26

27	ICICC-2022_138	**COMPARATIVE ANALYSIS OF ML ALGORITHMS APPLICATION IN SAPV GENERATION SYSTEMS** • Aadyasha Patel • O. V. Gnana Swathika	27
28	ICICC-2022_141	**IOT BASED PROTECTION OF PV-WIND INTEGRATED MICROGRID SYSTEM FAULT ANALYSIS USING WAVELET APPROACH** • K.V. Dhana Lakshmi • P.K.Panigrahi • G.Ravi Kumar	28
29	ICICC-2022_145	**EARLY PREDICTION OF HEALTHCARE DISEASES USING MACHINE LEARNING TECHNIQUES** • O. Obulesu∗ • N. Venkateswarulu • Sri Vidya M, • Manasa S • Pranavi K • Brahmani C	29
30	ICICC-2022_149	**PTS WITH PHASE FACTOR BASED REPTILE SEARCH ALGORITHM AND HYBRID CODING APPROACH FOR PAPR AND BER REDUCTION IN MIMO-OFDM** • G. Krishna Reddy • G. Merlin Sheeba	30
31	ICICC-2022_155	**G-EYE : SMARTPHONE COMPATIBLE PORTABLE INDIRECT OPHTHALMOSCOPE FOR GENERATING QUALITY FUNDUS IMAGES** • N. Kalyani • M. Seetha • Y Sravanidevi • G. Sasirekha	31
32	ICICC-2022_161	**RIVER NETWORK IDENTIFICATION FROM SATELLITE IMAGERY USING MACHINE LEARNING ALGORITHMS** • M.Seetha*, • D.V. Lalitha Parameswari • G.Malini Devi	32
33	ICICC-2022_165	**IMPLEMENTING OF DIGITALIZATION IN SQUARE BLOCK CHAIN TECHNOLOGY USING HDS METHODOLOGIES** • Aruna Rao S.L, • P.S.Latha Kalyampudi • D.Suguna Kumari • Aruna Jyothi • B.Srinivasulu	33
34	ICICC-2022_166	**COMIC CHARACTER RECOGNITION(CCR): EXTRACTION OF SPEECH BALLOON CONTEXT AND CHARACTER OF INTEREST IN COMICS** • R. Baskaran • M.S. Karthika Devi	34

35	ICICC-2022_168	**COVID-19, NORMAL AND PNEUMONIA CLASSIFICATION BASED ON DEEP FEATURES USING TRANSFER LEARNING** • Bipin Bihari • JayaSingh • Talapaneni Jyothi	35
36	ICICC-2022_169	**ATTENTION BASED APPROACH FOR ENGLISH TO HINDI TRANSLATION** • Gururaja H S • M Seetha • Niranjan Hegde • Ankit Das	36
37	ICICC-2022_171	**A DEPENDABLE AND SECURE COMMUNICATION INFRASTRUCTURE FOR SENSOR NETWORKS** • A.Vijaya Krishna • I.Ravi Prakash Reddy • A.Anny Leema[*] • Dinesh M	37
38	ICICC-2022_176	**IMAGE CAPTIONING FOR ASSISTING THE VISUALLY IMPAIRED** • S Sandhya • T Aarthika • M Manaswini	38
39	ICICC-2022_179	**IMPLEMENTATION OF 64-BIT INEXACT SPECULATIVE HALF UNIT BIASED FLOATINGPOINT ADDER** • Vani Dasu* • K. Ragini	39
40	ICICC-2022_180	**INTERVIEW SUPPORTING SYSTEM USING FACIAL FEATURES** • A.Sharada, • Kondur Datha Vaishanavi, • Kokkonda Ranee Prathyusha, • Nenavath Sowmya • Sahithi Kalluri*	40
41	ICICC-2022_181	**DRAGON FRUIT STEM DISEASE DETECTION USING IMAGE PROCESSING** • Y Rakesh Kumar* • P Satyanarayana Goud, • V Radha Krishna • Chandra Shaker Arrabotu • V.Samhitha Reddy • Sahithi G	41
42	**ICICC-2022_185**	**IOMT ASSISTED MONITORING AND VOICE BASED FOOD RECOMMENDATION SYSTEM USING DEEP LEARNING MODEL** • Shridevi Soma • Sushmita Dyapur	42
43	ICICC-2022_186	**FRAMING OF QUALITY QUESTIONS FOR QUALITY CODE SNIPPETS**	43

		• Divya Kumari Tankala • T. Venu Gopal	
44	ICICC-2022_187	**DOMESTIC IOT SMART HOME ITS FUTURE ROLES AND HUMAN BEHAVIOR THROUGH HUMAN INTERACTION** • Suresh Kallam* • C. Sreedhar • Nayan Rai • Moturi Sirisha • Sadu Venkatesu • P Srinivasa Rao	44
45	ICICC-2022_190	**COMPARATIVE ANALYSIS OF CRUDE OIL PRICE PREDICTION USING VARIOUS MACHINE LEARNING MODELS** • Shubh Gupta • Aayush Jadhav	45
46	ICICC-2022_193	**GLAUCOMA RETINAL IMAGE SYNTHESIS USING THE GAN** • Yerrarapu Sravani Devi • S Phani Kumar	46
47	ICICC-2022_197	**IDENTIFYING POWER LINE FAULTS USING FUZZY-BASED INTELLIGENT CONTROL** • K. Shravani M.Tech (Ph.D) • Srinivasula Reddy • Prof.S.S. Tulasiram	47
48	ICICC-2022_200	**ROBOTIC ARM FOR EFFECTIVE ENVIRONMENTAL CLEANING** • P. Sunitha Devi • Suma K • Srujana Reddy K • Ch.Mandakini, • R.Pallavi Reddy	48
49	ICICC-2022_204	**COMPUTING WORKSPOT INFECTION VULNERABILITY FOR SANDBOXING A BUSINESS PROCESS** • Supriya Vaddi • Kollapalli Ramesh Babu • Hrushikesha Mohanty	49
50	ICICC-2022_207	**ELECTRONIC SUPPLY CHAIN: A BIBLIOGRAPHIC AND DESCRIPTIVE LITERATURE REVIEW** • Susmita Bandyopadhyay • Mukesh Suthar	50
51	ICICC-2022_217	**SYNTHESIZING REALISTIC ARMD FUNDUS IMAGES USING GENERATIVE ADVERSARIAL NETWORKS (GAN)** • Sesha Sai Aneeswar Kalisapudi • Vavilala Divya Raj • Shubhasri Vanam • Jasvith Chand Anne	51

52	ICICC-2022_221	**INTERPRETATION AND ASSESSMENT OF IMPROVED DEEP NETWORKS FOR THE CLASSIFICATION OF GLAUCOMA USING EXPLAINABLE GRAD-CAM APPROACH** • Srikarthik Kalisapudi • Rohini Palanisamy	52
53	ICICC-2022_227	**DEEP LEARNING MODEL WITH PROGRESSIVE GAN FOR DIABETIC RETINOPATHY** • Vinay Mathukumalli • Y Vaishnavi • B Shreya • M Seetha • N Kalyani	53
54	ICICC-2022_229	**CHANNEL ESTIMATION IN MASSIVE MIMO USING BS IDENTIFICATION CODE.** • Bhagya Bharathi Padavala • G. Krishna Reddy • G.Merlin Sheeba	54
55	ICICC-2022_231	**IMPROVEMENT OF MODIFIED SOCIAL GROUP OPTIMIZATION (MSGO) ALGORITHM FOR SOLVING OPTIMIZATION PROBLEMS** • Sai Shaktimayee Sahu • Suresh Chandra Satapathy	55
56	ICICC-2022_232	**FACIAL RECOGNITION SYSTEM WITH SECURED DYNAMIC IMPLEMENTATION AND TIME-RESTRICTION** • Abhilash Budharapu • Mohammed Amaan • Poojith Ramagiri • Krishnaveni Kondreddi	56
57	ICICC-2022_233	**MODELLING AND SIMULATION OF THE ELECTRIC POWER TRAIN OF A HYBRID ELECTRIC VEHICLE** • K.V.Dhanalakshmi* • A.N. Venkateswarlu • Mahaboob Shareef Syed • S.S. Tulasi Ram	57
58	ICICC-2022_234	**A SIMPLE POLICY UPDATE METHOD FOR THE SHARING OF PRIVATIZED PERSONAL HEALTH INFORMATION** • Shaik Anwar Basha • S. RAJANAND • P. Nirupama., M.E.(Ph.D).	58
59	ICICC-2022_235	**PERFORMANCE EVALUATION OF ML BASED AWS SECURITY EVALUATION MODEL FOR CLOUD COMPUTING** • Dr.B.L.Malleswari • Rakshitakolachalama • Voruganty Sesha Srivallii	59

60	ICICC-2022_236	**ANALYSIS OF RADIATION INDUCED IN MULTIPHASE FLOW OF A VISCOUS CONDUCTING HEAT AND MASS TRANSFER FLUID IN A VERTICAL POROUS MEDIUM** • Pamula Raja Kumari • Jaladi Rajendra • Polaiah Bojja • C Madhusudana Rao • P Govardhan	60
61	ICICC-2022_237	**OTSU BASED DIFFERENTIAL EVOLUTION METHOD FOR IMAGE SEGMENTATION** • Afreen Shaikh • Botcha Sharmila • Murali Krishna • Dr. Sushil Kumar	61
62	ICICC-2022_238	**EMOTION DETECTION USING MACHINE LEARNING AND DEEP LEARNING** • Gunupudi Rajesh Kumar* • Dammavalam Srinivasa Rao • Ch Ramesh Babu, • Ch. Rohini	62
63	ICICC-2022_239	**OBJECT DETECTION USING DEEP LEARNING APPROACHES** • Gunupudi Rajesh Kumar* • Dammavalam Srinivasa Rao	63
64	ICICC-2022_240	**TELUGU TWEETS SENTIMENT ANALYSIS BASED ON ORDINAL REGRESSION** • G. Balakrishna Priya • Prof. M. Usha Rani	64
65	ICICC-2022_INV_01	**IMAGE STYLE TRANSFERRED TO GRAPHICAL USER INTERFACES** • Karim Hammoudi • Adnane Cabani • Halim Benhabikes • Mahmoud Melkem	65

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18th & 19th November 2022

ABSTRACTS

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CROSS-SITE SCRIPTING RECOGNITION USING LSTM MODEL

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Abstract: Cross-Site Scripting (XSS) is one of the most prominent types of web application assaults. It is one of the most serious hazards to online applications and one of the top vulnerabilities, according to the Open Web Application Security Project (OWASP). As a result, detecting and countering this attack is crucial. As a result, we've demonstrated how to leverage the LSTM (Long Short Term Memory) model to detect the XSS Attack Script in this paper. First, we acquired several scripts for the dataset from the XSS vulnerability archives, and then we preprocessed the data by generalizing it, tokenizing it, and changing text to the sequence. The processed data then is trained and tested using the LSTM Model, a Recurrent Neural Network. With a precision rate of 99.57 percent and an f1 score of 99.78 percent, the proposed approach can yield a substantial outcome.

Keywords: Deep Learning · Long Short Term Memory · Cross -Site Scripting · XSS Detection · Cyber Security

DEVELOPMENT AND IMPLEMENTATION OF EFFICIENT RECRUITMENT PORTAL USING BLOCKCHAIN

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Abstract: Blockchain is an immutable and distributed ledger that can be used to create decentralized applications or Dapps. Dapps are the applications where the data is not centrally stored at a single source rather are stored in a decentralized network. Our data is sensitive and its safety is crucial when we put it on the internet so, by creating records in blockchain data access can be controlled and prevent fraud as all the data in the blockchain is end-to-end encrypted. In this paper, we present a Recruitment Portal developed using blockchain. The current recruitment process is long and hectic as most of the work has to be done manu-ally. Using blockchain for this can eliminate the time-consuming and paper-heavy traditional process. The proposed method is developed using the Ethereum blockchain where candidates and recruiters can register to the blockchain. Recruiters can upload their job openings with all job-related details and job descrip-tions and candidates interested can read job details and apply for them with their resumes.

Keywords: Block chain, Decentralized Application, Ethereum, IPFS, Smart Contracts, Web3.js.

MACHINE LEARNING CLASSIFIERS PERFORMANCE COMPARISON FOR BREAST CANCER DETECTION

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Abstract: The leading cause of mortality for women globally is breast cancer. Early diagnosis can help reduce breast cancer mortality and enhance the probability of survival with a reduced cost of treatment. This study evaluates the performance of machine learning classifiers on the Wisconsin (original) breast cancer (WBC) dataset and recommends the top classifier with evaluation criteria for breast cancer diagnosis. The machine learning classifiers K-nearest neighbour, Naïve Bayes, Random Forest, Neural Network, Support vector machine and Logistic regression have been selected for comparative study on WBC dataset. The Neural Network classifier achieved the highest accuracy score of 0.989, and Logistic regression achieved the highest AUC score of 0.9943.

Keywords: Breast cancer, Wisconsin breast cancer dataset, machine learning, K-nearest neighbour, Naïve Bayes, Random Forest, Neural Network, Support vector machine, Logistic regression

COMPARISON OF POLLARD'S RHO ALGORITHM BASED ON CYCLE FINDING METHODS

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Abstract: The cryptosystems which require small key size to implement a public key cryptosystem, and which are more efficient and secure are Elliptic curve cryptosystems. Many public key schemes such as Diffie-Hellman and El Gamal schemes solve the Elliptic Curve Discrete Logarithm Problem (ECDLP). The security of the Elliptic Curve Cryptographic System depends on the difficulty of the Elliptic Curve Discrete Logarithm Problem (ECDLP). The major attention of any public key systems is the problem to solve ECDLP. Best way to solve ECDLP is to have an exponential time complexity of within the underlying field size. This study shows Comparison of Pollard's rho algorithm based on cycle finding Methods and parallelization. There are several attacks for solving discrete logarithms like Baby Step Giant Step, Pollard rho etc., One of the most well-known algorithms for solving discrete logarithms is Pollard's rho. Elliptic curves are very important in the field of cryptography. The main use of ECC is in small devices like smart cards as it provides high level of security. In reasonable amount of time ECC will solve ECDLP. To reduce the time complexity, Pollard's original algorithm has undergone a number of modifications. This paper presents the enhancements to the original Pollard's rho algorithm. Pollard's rho method uses an iterative function of a random walk to form a series of random terms. The idea behind the algorithm's iterative functions is that the generated terms are random, like a random walk. Pollard's kangaroo technique can use the stack-based cycle detection approach. Compute the discrete logarithm using the kangaroo method in the cyclic group, given that the value must fall inside a specific interval.

Keywords: Elliptic Curves, ECDLP, Pollard's rho, Floyd, random walks, kangaroo method.

SMART STREET PARKING SYSTEM FOR SMART CITIES BASED ON THE IOT PROTOTYPE

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Abstract: The Internet of Things (IoT), which provides selected sub-categories of data with free access to a wealth of digital services, is able to seamlessly incorporate a wide range of heterogeneous end systems. Smart City is a vision aimed at integrating people residing in the cities with services that are essential and affect everyday life. Smart parking within all streets with multiple information and communications solutions is one such example of essential service. The Internet of Things (IoT) is a new and unique step forward to manage efficiently and effectively the parking system through its ability of smart compute intelligent parking systems. The most important reason for using IoT for parking is to collect the data on vehicle occupancy and use free parking spaces effectively. This paper proposes a prototype IoT-based Real Time Smart Street Parking System, with easy accessibility to appropriate data and provide solution to the people to locate free parking spot easily and effectively.

Keywords: Smart cities, Smart parking, IoT, Waiting time.

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A HYBRID PSO-FUZZY TRUST ENERGY AWARE DRP IN WIRELESS SENSOR NETWORK

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Abstract: Minimization of consumption of energy, improving transmission of data in a secure manner and enhancing the lifespan of the network is the main objective of Wireless Sensor Network (WSN).Trust is the feature that is utilized in day to day life and helps in decision making during complex issues. A trusted network can compute via applications of fuzzy logic in neighbouring nodes. An important heuristic algorithm is Computer programme for Shuffled Frog Leaping (SFLA) belongs to the category of swarm intelligence optimization and triggers novel heuristic research in finding an optimal solution for a mathematical function. The movement of swarms and social behaviour of fishes and birds are mimicked in the population-based Particle Swarm Analysis (PSA).This work presents a hybrid PSO-Fuzzy Trust Energy Aware Directed Random Propagation (DRP) routing.

Keywords: Wireless Sensor Network (WSN), Trust, fuzzy logic, Computer programme for Shuffled Frog Leaping (SFLA) and Particle Swarm Analysis (PSA).

ONLINE ADVERTIZING DATASET USING ANN AND LR TECHNIQUES

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Abstract: Online sentiment digital advertisers' insights about advanced showcasing about their sales. Sales playing vital role in order to increase the business by applying sentiment digital marketing strategies. The sentiment digital marketing is one of the approaches to publishing about their business, products and gadgets. Business Members can utilize our particular time span to increase their business by using web-based promoting measurements such as aggregation, pointed toward saving you time when you need the most recent details for a show or report you're dealing with against a cut-off time. The existing system having drawbacks are less business, less business visualization strategy, high error rating and high time complexity. There have been numerous applications of artificial intelligence (AI) technologies to online sentiment digital advertising, especially to optimize the reach of target audiences. Past investigations show that further developed computational force fundamentally propels granular crowd focusing on capacities. This examination researches and characterizes different AI procedures that are utilized to upgrade designated web-based publicizing. AI based online designated promoting techniques are recognized and grouped to a great extent into three classes such as television, radio, newspaper and mouth promotion, client driven and content driven methodologies. The proposed AI calculation predicts information with accuracy is 94.50 by applying neural network and linear regression techniques.

Keywords: TV, Newspaper, online advertising, Sentiment digital Marketing Data, Machine Learning, ANN and Linear Regression.

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ARTIFICIAL INTELLIGENCE AND DEEP LEARNING BASED AGRI FOOD QUALITY AND SAFETY DETECTION SYSTEM

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Abstract: Deep learning (DL) has shown to be an effective method for analysing vast volumes of data in a variety of domains, including image recognition, speech recognition, facial identification, and others. In recent years, researchers in the domains of food science and mechanical engineering have begun making use of it. In all of our years of experience, we have never come across a study that used food as the major research medium. This paper provides an introduction to deep learning (DL), as well as complete descriptions of the structure of any common convolutional neural network (CNN) architecture, artificial intelligence (AI), and internet of things (IOT) data training approaches. We combed through a large number of studies to find answers to food-related issues such as food identification, calorie calculation, fruit, potato, meat, aquatic product safety detection, food supply chain, and even food contamination by using deep learning as a computational technique. These issues include: fruit, potato, meat, aquatic product safety detection, food supply chain, and even food contamination. In each of the studies, various datasets, pre-processing methods, networks, and systems were analysed, and the results were compared to those of other studies. The inquiry that we conducted into the use of big data in the regulation of food standards found some unexpected tendencies. DL has the potential to become a new tool for the inspection of food safety since, according to our findings, it performs better than traditional techniques such as manual attribute extractors or traditional machine learning algorithms.

Keywords: Convolution Neural Network (CNN), Artificial Intelligence, Deep Learning, Food Safety, IOT and Big data.

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PERSONALIZED E-LEARNING SYSTEM USING LINEAR REGRESSION FOR INTELLIGENT TUTORING SYSTEMS

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Abstract: An e-Learning system allows the learners to attend courses online from any geographical location, at any time using the internet. The standard e-Learning system does not give learners an individualistic model as it is not personalized and is inappropriate for all users. Hence, the satisfaction level of learning a course online is low for many users. This problem can be solved by applying an adaptive learning model for E-learning systems. This type of learning combines intelligent teaching with machine learning techniques to personalize the learners' learning experience. In adaptive e-Learning, the learning content is delivered based on the learner's knowledge level, experience level related to the course, interests, and background. This kind of learning favors an effective way to deal with the self-paced learning. A framework for developing an adaptive system is explored here, based on the core concepts of adaptive/personalized E-learning systems or the so called Intelligent Tutoring Systems (ITS).

Keywords: Personalized Learning, E-learning, Active Learning, Adaptive Learning, Machine Learning, Linear Regression, Intelligent Tutoring Systems (ITS) Architecture.

S.No: 10   **Paper ID:** ICICC_2022_68

NUCLEUS SEGMENTATION USING K – MEANS CLUSTERING FOR ANALYSIS OF MICROSCOPY IMAGES

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Abstract: Analysis of Microscopy Images involves scanning of information related to color and texture. The color levels of nucleus and its neighbors specially in Blood Smear Images helps to identify malignancy of the cells. The motive of this work is to perform Color based Segmentation on the Blood Smear Images. Primarily, these images are subjected to Contrast Stretching using Dark Contrast Algorithm (DCA). This enhancement of the image increases the contrast of the nucleus and its adjoining components. To perform Color based Segmentation on this Enhanced Microscopic Images, K – Means Clustering is used. It is a type of Iterative Hard Clustering where the segmentation criteria are dependent upon the Similarity Error which further depends on Euclidean Distance and position of centroids. The segmented image obtained in the form of color-based clusters is evaluated using Overlap Ratio (OR) which is beneficial in analysis of Microscopic Images.

Keywords: Blood Smear Images, Centroid, DCA, Iterative Hard Clustering, K– Means, OR, Similarity Error.

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A NOVEL DYNAMIC LATCH COMPARATOR DESIGN AND ANALYSIS FOR ADC'S

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Abstract: Comparator is a critical building block in Analog to Digital Converters (ADC's), since ADC's performance is depending upon the comparator. This paper presents a novel dynamic latch comparator topology for ADC design, in which cascode transistors are stacked on the top of differential input section. The proposed topology achieves significant improvement in speed (33%), power delay product (43% improvement) as compared to conventional topologies. Even though offset cancellation techniques are not used, proposed comparator offers a very low offset (55% reduction) and kickback noise (33% reduction) as well. The design and simulations are carried out on standard UMC 180nm technology, for 100 MHz Clock, at 1.8V supply using Cadence Virtuoso EDA tool for the sake of reasonable-comparison.

Keywords: Dynamic Latch, Cascode, Speed, Power Delay Product (PDP), Kickback Noise and Offset Voltage.

A DUAL STOPBAND FREQUENCY SELECTIVE SURFACE AT 2.57 GHZ AND 5.40 GHZ

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Abstract: A dual stopband single layer Frequency Selective Surface (FSS), covering the Wi-Fi frequency bands for mobile communication applications is proposed in this paper. It is meant to stop the desired Wireless Fidelity frequencies and pass signals that lie out of the Wi-Fi bands. It employs concentric loops of square shaped patches for the unit cell. The presented FSS occupies 20dB bandwidths of 378-MHz (2380-2758 MHz) and 474-MHz (5178–5652 MHz), at frequencies 2.57 GHz and 5.4GHz, correspondingly. The FSS unit cell structure has a size of 14.7 mm x 14.7 mm ($0.126 \lambda_0$ x $0.126 \lambda_0$), where λ_0 signifies the free-space wavelength of the first resonant frequency at 2.57GHz. The purported design can be tweaked into the preferred resonance frequencies by varying the dimensions of each square ring resonator. All simulation parts are modeled by using Computer Simulation Technology (CST) Microwave Studio. Key factors for the proposed design are ease of manufacturing, a low reliance on the angle of incidence of plane wave and the polarization direction.

Keywords: Frequency selective surface, FSS, Dual band, Stopband

S.No: 13   **Paper ID:** ICICC_2022_80

POST COVID EFFICIENT AND RELIABLE CARDIO VASCULAR DISEASE PREDICTION USING RANDOM FOREST & GA WITH KNN

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Abstract: Machine Learning uses Data Mining techniques to efficiently predict a Cardio Vascular Disease based on training provided from health records of various hospitals. COVID predominantly a lung disease, in some cases the heart is also affected. Corona causes swelling and lympatic substance in air sacs of lungs, which lessens the oxygen to reach bloodstream as a result heart need to work more to pump blood through the body, effects people with preexisting heart disease. Due to in sufficient oxygen the heart attack can be caused by overwork. Previous research on heart disease prediction was based on a dataset obtained by the UCI repository. The model has validity issues that resulted in risk overestimation or risk underestimation because data is collected from a limited set of the population in a country. The present research overcomes the drawback by considering locally generated data and the dataset from UCI repository. The medical records are from various hospitals with prior consultation of experts in cardiology. The medical records are converted and inserted into a dataset to localize the prediction of CVD for the people in Telangana. To use feature selected attributes from Random Forest & Genetic algorithm, as an input dataset to KNN algorithm as there is a need to dynamically add medical test attributes without effect on the accuracy of prediction. The proposed research concluded that Random Forest & Genetic algorithm used for feature selection increased the accuracy of KNN algorithm by 37.56 %.

Keywords: Random Forest, K –Nearest Neighbor Algorithm, Cardio Vascular Disease.

ESTIMATION OF DOUBLY-SELECTIVE CHANNELIN FBMC-OQAMAND OFDM SYSTEMS

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Abstract: The aim of MCM (multicarrier Modulation) is to transmit data by splitting the stream into many bit streams, each with a much lower bit rate, and using sub-streams to modulate several carriers. Multicarrier modulation schemes such as FBMC and OFDM systems are used. The spectral efficiency of the FBMC system is higher than that of the OFDM system. The simulation results are used to examine the framework, argumentation, and evaluation of FBMC-OQAM (Filter bank multicarrier and Offset QAM) and its comparison with OFDM (Orthogonal Frequency Division Multiplexing) system is observed. A doubly selective channel estimation is implemented, which is a basic time-selective and frequency-selective channel estimation. The channel estimation process indicates which is similar to have full channel availability, the expectation and maximization based strategies are used twice. In comparison, it considers the current state of channel prediction processes. The SNR and measured BER are calculated using estimated (recovered) data and input data sources for both FBMC and OFDM systems.

Keywords: Channel Estimation, Doubly Selective Channel Estimation, FBMC-OQAM, Multipath carrier, OFDM.

STRESS DETECTION IN CLASSROOM ENVIRONMENT USING PHYSIOLOGICAL DATA

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Abstract: In current scenario, mental stress has detrimental impacts on one's health. To mitigate detrimental ramifications, high-level stress must be detected early on. Following the introduction of wearable devices that could become a part of our daily lives, researchers have started detecting extreme stress in people who used them during their daily routines. An automatic stress detection system is developed by incorporating physiological signals obtained from unobtrusive smart wearable devices that can be carried during individuals' daily life routines. Using different machine learning methods, successfully differentiated contest stress, relatively higher cognitive load (lecture), and relaxed time activities using heart activity, skin conductance and accelerometer signals, and skin temperature. Main objective is to develop a wrist band which identifies whether the student is under stress or not based on various parameters like heart rate and temperature of human body. This information can be obtained by employing various sensors such as an electrocardiogram (ECG), galvanic skin response (GSR).

Keywords: Electrocardiogram (ECG), Galvanic Skin Response (GSR), RFID (Radio Frequency Identification), healthcare, stress, anxiety.

PREDICTION OF NEXT WORD USING SEQUENCE GENERATORS AND DEEP LEARNING TECHNIQUES

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Abstract. Wouldn't it be cool for your device to predict what could be the next word that you are planning to type? The next word prediction for a particular user's texting or typing can be very useful. It would help people be more productive as it would save a lot of their time. Predictive text is an input technology that facilitates typing on a mobile device by suggesting words the end user may wish to insert in a text field. Predictions are based on the context of other words in the message and the first letters typed. We intend to bring this prediction to the next level. Predicting the next word is a neural application that uses Recurrent neural networks. But it can be difficult to train standard RNNs to solve problems that require learning long-term temporal dependencies. To overcome this difficulty LSTM networks are used. We aim to predict the next possible words that suit the sentence by improving the existing technology and build an application for user implementation.

Keywords: Word Prediction, LSTM.

NATURAL SCENE TEXT DETECTION IN VIDEO WITH HYBRID TEXT AUGMENTATION AND FUSION TRANSFERRED LEARNING

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Abstract: We propose a robust approach of region proposal network though graph based approach and hybrid text augmentation for detecting and recognizing the video text with different languages, fonts, complex background and natural scene patterns. First, we use diverse regions using region proposal network (RPN) to identify the text that positioned in different location in the video with different sizes and scales. The locations are identified by segmenting the regions with similarity measure through graph based approach that adds ability to find the correctness of the text locations. Then, along with the text augmentation, the ability of RPN is improved in locating and classifying the text by finding the bounding box coordinates. Second, a classification network though transfer learning from VGG19 is adopted to eradicate the false positives. Finally, we developed the fusion technique to obtain a clean scene text layer and verified the correctness of text by optical character recognition techniques.

Keywords: Scene Text, Video Text, Text, Detection, Transfer learning, Fusion, RPN, VGG19.

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QUALITY PRODUCED AGRICULTURAL CROP PRICE PREDICTION USING MACHINE LEARNING

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Abstract: Agriculture is India's backbone. It is a key sector of the Indian economy, contributing roughly 17% of the country's overall GDP and employing over 60% of the population. We can use technology to improve product production in a variety of ways, but in the end, a farmer can only benefit if he makes money selling his crops. The Indian government has passed three legislation to promote agricultural produce trade throughout the country. Today, however, we can see farmers across the country battling for their rights against these rules. Farmers fear that they will be used as puppets by major retailers, and that their products would be sold at a reduced price. After analysing the situation, we came up with the idea of developing an agricultural produce application that predicts the price of agricultural produce based on the quantity produced and previous years' sales rates, allows farmers to interact directly with retailers, and allows for product review and crop yielding rate prediction.

Keywords: KNN, GPS Navigation, Decision Tree, Regression Algorithm

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AN OPTIMIZED CONTROL ON DELAY AND TRANSMISSION RATE OVER WIRELESS VIDEO STREAMING CHANNELS

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Abstract: The quality of video data transmitted in real-time over internet is often affected with an end-to-end delay. It further burdens the video data transmission in addition with data rate distortion. Hence it is necessary to optimize the delay and rate behavior using a diagnostic optimistic mechanism. In this paper, we develop a machine learning mechanism that considers the delay and data as an important factor in delivering the video to the destined user without delay or buffering. The machine learning using artificial neural network (ANN) based Markov Chain maintains the trade-off between the delay and data rate and considers both the factors as a severe constraint in affecting the performance of data delivery over wireless channels. The machine learning offers scheduling of data packets that tends to reduce the data minimization, increases the transmission rate and reduce the delay. The scheduling sets the priority of each data and avoids retransmission of data. The experimental verification shows the efficacy of the model over existing state-of-art mechanism in terms of transmission errors and delay.

Keywords: Video data, Streaming, Transmission rate, Delay, Distortion.

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CLASSIFIER-FREE GUIDANCE FOR GENERATIVE ADVERSARIAL NETWORKS

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Abstract. : Classifier-free guidance is a recently discovered technique to enhance the images generated by diffusion models. This paper aims to use the same technique in the context of Generative Adversarial Networks (GANs) and contrast and examine the images produced. Its main focus is determining if classifier-free guidance is unique to diffusion models or if can it be applied to GANs too, and if the answer was found to be affirmative, in what manner. Previous research has shown that classifier-free guidance in diffusion models produces better images with a minimal impact on conditional modelling performance. With a guidance scale above the value of unity, the images shown are better in quality than those produced conditionally or unconditionally. Classifier-free guidance has yielded considerably better results for diffusion models. The images generated after performing classifier-free guidance show promise for generating high-quality images after sufficient training. Some images are already more photorealistic than those produced just conditionally. This shows that classifier-free guidance can be made conducive for other image generation models as well. It opens doors for further research on enhancing the image generation quality of models other than diffusion models as well and helps in making models like GANs successfully tackle the Generative Learning Trilemma.

Keywords: Classifier-free guidance, Diffusion models, Generative Adversarial Network, Conditional GANs, Generative Learning Trilemma, Convolutional Network, Dynamic Thresholding.

SEGMENTATION OF LUNG REGIONS FOR THE DETECTION OF JUXTA-PLEURA NODULES IN CT SCAN

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Abstract: Extraction of lung fields helps in reducing the time taken for the recognition of pleura-tail lung nodules. The previous methods were not able to segment lungs with pleura-tail nodules. In this paper, border repair is used to extract lungs with juxta pleural nodules based on active contour, region growing, morphological operations, convex hull, XOR operations and morphological operations. The border repair algorithm is evaluated on 50 images and 99.0% of average overlap measure (AΩ) is calculated.

Keywords: Border Repair, Lung Regions, Morphological Operations, Threshold, active contour, region growing, Convex Hull;

ANALYSIS OF SERIAL-IN PARALLEL-OUT FINITE FIELD MULTIPLIER USING VARIOUS DOMINO LOGIC STYLES

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Abstract: Digital privacy and authenticity are the main factors that have developed as a result of migration from paper to electronic media. Effective cryptographic solutions are necessary to preserve digital privacy. Reordered Normal Basis (RNB) is used for cryptographic solutions. In this paper, a 11-bit Serial-In Parallel-Out (SIPO) RNB multiplier is implemented using various domino logic styles. The XOR-AND-XOR (XAX) module is implemented using various logic styles like domino, domino keeper, and NP domino logic in the Tanner EDA tool utilizing the 45nm technology. The design parameters like area, power dissipation, multiplication delay, CPD, Area-Delay Product, and Power-Delay Product of the multiplier implemented using these logic styles are evaluated and compared. When compared to other domino logics, the delay and area of the multiplier employing NP Domino logic are lower, whereas the power dissipation is similar to other domino logics. Hence, NP domino logic is best suited for high-speed applications.

Keywords: Reordered Normal Basis, Finite Field Multiplier, Domino keeper Logic, NP Domino Logic, 45nm Technology.

A DEEP LEARNING PARADIGM FOR CLASSIFYING PERSONALITY

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Abstract: Personality refers to a person's distinctive ways of thinking, feeling, and behaving in a variety of contexts. These traits are what consistently characterize a person's behavior. It influences how we come to decisions, work through issues, resolves disputes, and handle stress. The Myers-Briggs type indicator is currently the most popular psychological type assessment in use worldwide. This dataset was obtained via Kaggle. It enables us to positively deal with people's diversity by allowing us to anticipate certain personality traits in specific individuals. Many IT businesses are employing candidates with strong interpersonal communication abilities in today's society. To measure these, we developed a method to determine their personality, which can help in decision-making. Using different machine learning approaches like SVM, DT, and LR, several past research has attempted to categorize people into different personality types. LSTM, a deep learning model, is now being used to help classify people's personalities. In contrast to more conventional feed forward neural networks, LSTMs feature feedback connections. This property allows LSTMs to process entire data sequences without taking into account each point in the series individually, instead maintaining useful information about earlier data in the sequence to help in the processing of incoming data points to effectively classify the user texts. Finally, this supports the management, selection, and advancement of policies within organizations.

Keywords: Long Short-Term Memory (LSTM), Myers-Briggs Type Indicator (MBTI)

ART GENERATION USING SPEECH EMOTIONS

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Abstract: Translation of speech to image directly without text is an interesting and useful topic due to the potential application in computer-aided design, human to computer interaction, creation of an art form, etc. So we have focused on developing a novel Deep learning and GANs based model which will take speech as an input from the user, analyze the emotions associated with it and accordingly generate the artwork which has been demanded by the user which will in turn provide a personalized experience. Concept of convolutional VQGAN is used to explore codebook consisting of context-rich visual parts, and the entire composition is modelled with autoregressive transformer architecture. Concept of CLIP- Contrastive Language Image-Pre-Training, also uses transformers a model which is trained to find which particular caption from a collection of captions will best fit with the given image is used in our project. The input speech is classified into 8 different emotions using MLP classifier trained of RAVDESS emotional speech audio dataset and this acts as a base filter for the VQGAN model. Text converted from speech plays an important role in producing the final output image using CLIP model. VQGAN+CLIP model together utilizes both emotions and text to generate a more personalized artwork.

Keywords: VQGAN, CLIP, Art generation, Speech emotions.

IMAGE FORGERY DETECTION SYSTEM USING CONVOLUTION NEURAL NETWORKS

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Abstract: In the current digital era, Images have got high impact to convey our expressions. Close to copy picture discovery needs the matching of a piece changed pictures to the first picture. This will help in the recognition of manufactured pictures. A lot of exertion has been devoted to visual applications that need proficient picture closeness measurements and mark. Digital pictures can be effectively altered and controlled inferable from the extraordinary usefulness of picture handling programming. This prompts the test of matching to some degree changed pictures to their firsts, which is named as close to copy picture discovery. This paper examines the writing looked into on the advancement of a few picture matching calculations. Picture re-shading is a procedure that can move picture tone or subject and result in a vague change in natural eyes. Despite the fact that picture re-shading is one of the main picture control procedures, there is no extraordinary technique intended for distinguishing this sort of fabrication. In this paper, we propose a teachable start to finish framework for recognizing re-shaded pictures from normal pictures. The proposed network takes the first picture and two determined inputs in view of brightening consistency and between channel connection of the first contribution to thought and results the likelihood that it is re-shaded. Our proposed algorithm adopts a CNN-based profound engineering, which comprises of three element extraction blocks and a component combination module. To prepare the profound brain organization, we incorporate a dataset involved re-hued pictures and comparing ground truth utilizing different re-shading techniques. Broad trial results on the recolored pictures created by different techniques show that our proposed network is all around summed up and much powerful.

Keywords: Image Forgery Image Detection, Convolution Neural Networks

APPLICATION OF MACHINE LEARNING ALGORITHMS FOR POWER THEFT DETECTION IN ELECTRICAL DISTRIBUTION SYSTEM

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Abstract: The non-technical losses are prominently due to power theft in the distribution system, which results in profits reduction, energy costs are also increased to other consumers, huge revenue loss to power utilities. Electric Utility companies are facing problems in providing electricity to their consumers in an efficient way. The accurate detection of power theft is a challenging issue due to the overfitting issues, improper classification on the imbalance power consumption data, and the High False Positive Rate of the conventional techniques. Therefore, Machine learning algorithms plays a crucial role to detect the power theft and to restore huge revenue loss for utility companies. Random Forest, Support vector machine learning algorithms are applied to detect power theft. The performance metrics of this Machine learning algorithms are evaluated and compared for accurate prediction.

Keywords: Machine learning, Random forest, Support vector machine, Train data, Test data.

COMPARATIVE ANALYSIS OF ML ALGORITHMS APPLICATION IN SAPV GENERATION SYSTEMS

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Abstract: Electricity is in excessive demand in both the developing and developed countries. To meet this ever-increasing demand, the supply of electricity needs to be sufficient. For meeting this requirement, prior knowledge of monthly/daily/hourly energy consumption data is necessary so that adequate energy can be generated. Machine Learning (ML) algorithms are used to forecast energy usage data. Forecast is obtained using pre-recording, training and testing the data using ML algorithms. Sometimes there are discrepancies in logging the data, like erroneous or missing values. Those can also be filled-in using various ML techniques. In this chapter, a stand-alone photovoltaic (SAPV) system is setup whose input and output parameters are recorded. Any missing values here is forecasted using three algorithms - Multiple Imputation using Chained Equations, Case-Based Reasoning with and without interpolation. The output is analyzed and compared using error metrics such as MAD, MSE, RMSE and MAPE. The %MAPE of Case – I, Case – II and Case – III are 10.065%, 13.979% and 15.472% respectively. On comparing all the three cases, the values forecasted by Case – I yields better results.

Keywords: Machine Learning, Forecast, Multiple Imputation using Chained Equations, Case-Based Reasoning, Interpolation, Stand-alone, Photovoltaic.

IOT BASED PROTECTION OF PV-WIND INTEGRATED MICROGRID SYSTEM

FAULT ANALYSIS USING WAVELET APPROACH

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Abstract: Now a days micro grid comprising of Wind and solar is most widely used in power network to reduce system 5 losses as well as improve the reliability in the field of electrical systems. Combination of power projects add new energy 6 sources to an existing power system network. So, there is a need to develop new protection scheme due to changes in 7 the topology and dynamic behavior of the system. Fast fault detection algorithmic approaches are necessary to merge 8 different types of generating sources and loads under smart environment. The protection scheme should allow physical 9 monitoring as well as para-metrical with the help of new technologies. Internet-of-things (IoT) is one of the source to 10 monitor electrical systems under various environmental conditions of the system. Wavelet (WT) basically explore the 11 fault transient signals of different frequency and splits the waveform into different approximate and detailed coefficient 12 values, which provides the important information about the classification and location of fault. The detection of faulty-line 13 by execution of wavelet detailed coefficients of Bior1.5 mother wavelet and for location of transmission line fault using 14 Artificial neural network technique. This proposed method provides condition monitoring Analysis of IoT based protection 15 of Micro grid With Grid-Connected and Islanded mode Using Wavelet Approach under various types of faults. 16

Keywords: Wavelet Transform, PV-Wind source, Fault detection, Idle mode, Internet of things (IoT)

EARLY PREDICTION OF HEALTHCARE DISEASES USING MACHINE LEARNING TECHNIQUES

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Abstract: Machine learning (ML) can bring an effective solution for decision making and accurate predictions. Classification models like Logistic Regression, Random Forest Classifier, Support Vector Machine, Decision Tree Classifier provide a decision support system to detect and predict these diseases in humans or individuals using various risk factors. The datasets used are classified in terms of medical parameters and are processed using Machine Learning Algorithms. The correlations are found between the different attributes available in the dataset with the help of standard Machine Learning methods and then are used efficiently in the prediction of diseases. They predict the health condition by taking training from natural events whether the patient is likely to be diagnosed with a particular disease or not using the medical history of the patient. This project predicts whether the patient is likely to be diagnosed with any of the above diseases.

Keywords: Prediction, Diseases, Machine learning and Health.

PTS WITH PHASE FACTOR BASED REPTILE SEARCH ALGORITHM AND HYBRID CODING APPROACH FOR PAPR AND BER REDUCTION IN MIMO-OFDM

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Abstract: Multiple Input Multiple Output (MIMO) antennas are combined with the Orthogonal Frequency Division Multiplexing (OFDM), because of its potential decrease on interference and efficient data transmission. High Peak to-Average Power Ratio (PAPR) and Bit Error Rate (BER) are considered as important issue in MIMO-OFDM. Therefore, an efficient error correction code and Partial Transmit Sequence (PTS) are required to be developed for improving the system performances. In this paper, the PTS with Phase Factor based Reptile Search Algorithm (PFRSA) is proposed to identify the optimal phase factor values for minimizing the PAPR. Moreover, the Hybrid Coding Approach (HCA) includes polar coding and binary Quasi Cyclic Low Density Parity Check (QC-LDPC) code is developed for minimizing the Inter Symbol Interference (ISI) and Inter Carrier Interference (ICI) occurred in the communication. The minimization of PAPR and BER were achieved by using the Turbo Coding (TC) and Enhanced Switching Differential (ESD)-based PTS. Therefore, the proposed HCA-PFRSA-PTS minimizes both the PAPR and BER in the MIMO-OFDM and hence increases its performance. The performance of the HCA-PFRSA-PTS is analyzed in terms of PAPR and BER. The MIMO-OFDM system with HCA-PFRSA-PTS is compared with OFDM, Turbo coding Enhanced Switching differential based PTS(TC-ESD-PTS), Selective mapping PTS with Artificial Bee Colony (SLM-PTS-ABC) and asymmetrically clipped optical PTS (ACO-PTS). The BER of the HCA-PFRSA-PTS for SNR 5 dB with 128 sub-carriers is 0.0058 which is less when compared to the original OFDM, TC-ESD-PTS, SLM-PTS-ABC and ACO-PTS. The PAPR of the HCA-PFRSA-PTS with 128 subcarriers is 3.65 which is less when compared to the original OFDM, TC-ESD-PTS, SLM-PTS-ABC and ACO-PTS.

Keywords: Hybrid coding approach, multiple input multiple output, orthogonal frequency division multiplexing, partial transmit sequence, peak-to-average power ratio, phase factor based reptile search algorithm.

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G-EYE : SMARTPHONE COMPATIBLE PORTABLE INDIRECT OPHTHALMOSCOPE FOR GENERATING QUALITY FUNDUS IMAGES

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Abstract: Retinal imaging remains as challenge using a Smartphone. Fundus imaging through portable device enables fundus examination affordable, which can bring a revolutionary change in eye diagnosing system. This key feature attracts attention of many researchers to explore and design portable devices to capture the best quality of image. This makes it simple to gather a dataset of fundus images that can then be used to train various models linked to eye ailments. The dataset is generated with possible maximum resolution depending on smartphone camera and to train and test deep learning models for the prediction of eye diseases. The portable device can be used to record eye fundus in rural areas where there aren't any slit lamp devices or expensive indirect ophthalmoscopes. The inability to successfully complete computeraided diagnosis has been hampered by the lack of extensive publicly available information. The contributions of this paper is the design details of the portable device G-EYE that is compatible to smart phone and methods adopted to collect quality retinal images for research.

Keywords: Portable fundus camera, 20D lens, Ophthalmoscope, Raspberry pi 3, retinal imaging.

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RIVER NETWORK IDENTIFICATION FROM SATELLITE IMAGERY USING MACHINE LEARNING ALGORITHMS

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Abstract: Over 500 million people live near rivers, which are significant coastal depositional systems. River network identification is needed for hydro logical simulations to improve the understanding of hydro logical processes. They have a great significance to flood assessment and ship navigation. Rivers have a tight connection to ecological, socioeconomic environment, and agriculture. Mapping of rivers and canals networks is very important in applications related to water resources management. It helps us prevent significant loss of life and property by detecting natural disasters like floods. In this project the proposed model enhances and detects the complete river networks. Enhancement and feature extraction can be done using filters such as Gabor, PCA and GLMC. Gabor filter helps in enhancing the river cross-sections and longitudinal continuity. A dataset's dimension (columns) is reduced through PCA (Principal Component Analysis). To acquire statistical texture features, GLCM (Gray level co-occurrence matrix) is developed. The number of pixels that change between two pixel values is counted by GLCM. In other words, the histogram's bin with indices equal to the values of the two pixels is increased. The strategies for classifying from a highresolution multi-spectral satellite image, the river network is mapped using support vector machines and Random Forest. Support vector machine (SVM) and Random Forest are supervised machine learning models that uses classification algorithms for two-group classification problems. These algorithms can provide robust, accurate and effective results for the provided image samples. A comparative study can be done on these classification techniques to evaluate the performance measures like accuracy and kappa coefficients.

Keywords: Machine Learning, Image Processing, Preprocessing, Annotation, Support Vector Machine, Random Forest, Image classification.

IMPLEMENTING OF DIGITALIZATION IN SQUARE BLOCK CHAIN TECHNOLOGY USING HDS METHODOLOGIES

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Abstract: A square chain is a digitized, decentralized, open record of all cryptographic cash trades. Persistently creating as ''completed' squares are recorded and added to it in consecutive solicitation, it licenses exhibit individuals to screen propelled cash trades without central recordkeeping. Each center point gets a copy of the square chain, which is downloaded normally. At first made as the accounting methodology for the virtual cash Bitcoin, square chains – which use what's known as appropriated record advancement. At this moment, the development is chiefly used to affirm trades, inside cutting edge financial gauges anyway it is possible to digitize, code and expansion in every way that really matters any record into the square chain. Doing so makes a perpetual record that can't be changed; in addition, the record's validness can be affirmed by the entire system using the square chain as opposed to a lone united force. The proposed system is trades that are irreversible and assented to by all people in the framework. Django is used to make the structures of the undertaking and python is used to make the classes Block, Chain and Transactions. The correspondence between the center points that are made is practiced by Python-Data Base Communication. The yield of this undertaking makes chains that do a couple of trades and the squares are made. The centers made here are decentralized that is the passageway isn't through only a solitary center point. All the centers are related and the affiliation is through taking care of the past hash an impetus in the current center nearby its hash. The security is given with the objective that the centers can't be changed and the data set aside can't be changed. This endeavor gives security and the lesser worth based charges.

Keywords: Bitcoin, SHA-256, Hashing, Digital Signature, Squares

COMIC CHARACTER RECOGNITION(CCR): EXTRACTION OF SPEECH BALLOON CONTEXT AND CHARACTER OF INTEREST IN COMICS

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Abstract: Document Analysis is an active field of research which can attain a complete understanding of semantics of a given document. Further, digitalization of physical forms of various data has become vital in today's data extraction. Comic digitalization is becoming widespread as it is one of the easily understandable graphic content and is attention seeking from early education readers to middle aged groups. Extracting the Frames, Panels and Speech Balloons from digital comic is crucial for techniques that felicitate comic reading. However, Automatic Panel Extraction for Digital Comic is challenging, largely because of its layout design, visual symbols, speech balloons attached to almost all the panels, throughout the page. In this proposed work, it is proposed to automatically extract panels from digital pages using contour analysis and watershed canny operator. The first method identifies the difference between frames associated with the panels, whereas the second method identifies the difference in the color between the panel and the gutters. Speech Balloons are segmented by methods of K-means clustering and contour analysis. K-means clustering is used to identify the closest related components and contour analysis is used to differentiate the speech balloons from the other components in the comic panel. Text Area Recognition is a subtle approach that is implemented by Optical Character Recognition (OCR). And finally, comic character extraction has three steps of Annotating the object, Training the model and Detection of the comic character. The annotation is performed by bounding box algorithm, followed by training of the custom model using a pretrained YOLOV3 algorithm. Once the custom model is trained, it is provided with comic strips as input to detect the dominant characters with their probability of confidence, which is the correctness of comic character. The implementation considerably serves better in performance when compared to the previous traditional methods of comic component analysis and extraction. Evaluation on the same have also been performed for the trained as well as input dataset.

Keywords: Panel Extraction, YOLOV3, OCR, K-means Clustering, Character of interest

COVID-19, NORMAL AND PNEUMONIA CLASSIFICATION BASED ON DEEP FEATURES USING TRANSFER LEARNING

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Abstract: The coronavirus is not the only virus that can cause pneumonia, but pneumonia caused by severe COVID-19 is more likely to be severe than other types of pneumonia. Pneumonia is a dangerous consequence that arises when the virus invades the lung tissue of the lower respiratory tract. This can happen when the infection is inhaled. The image of the internal organs of the chest that result from an X-ray scan. The classification of the three classes— COVID-19, normal, and pneumonia CXR scans—is the main goal of this study. The set of data used in this study comprises 6432 x-ray images. This study examines several deep features utilizing transfer learning pre-trained CNN models like InceptionResNetV2, InceptionV3, and NasNetMobile. Accuracy, precision, recall, sensitivity, specificity, and AUC are the few metrics that are used to verify the model's efficiency. The InceptionResNetV2 model scored the highest overall accuracy of 92.80% for pneumonia and normal classes. The model's inference is that it accurately categorized the diseases in 92.80% of pneumonia and normal classes. The suggested technique is a useful way to apply it in clinical practice and aids physicians in identifying disorders by using chest X-rays. This enables the doctors to aid patients promptly.

Keywords: COVID-19, Deep Features, Image Classification, Medical Images, Normal, Pneumonia, Transfer Learning and Performance Validations.

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ATTENTION BASED APPROACH FOR ENGLISH TO HINDI TRANSLATION

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Abstract: Artificial Intelligence (AI) is cleverly evolving with time and in large volumes of computational and processing strength and excessive call for the final quarter, greater than a billion dollars. Language Translation creates a connection between humans from all over the world, to share their ideas, collaborate and construct relationships. The intensification of Neural Networks in Machine Learning is making a prime revolution in Machine Translation (MT). Looking at the identical aspect, a Machine Translation for English to Hindi has been proposed using the likes of Neural Machine Translation techniques along with attention mechanisms. Neural Machine Translation (NMT) is a modern approach which gives extremely good enhancements in evaluation of traditional system translation techniques. Neural Machine Translation has been capable of reaping massive development over ancient techniques: Rule primarily based model and Statistical Machine Translation. Aiming on the trouble of managing a lengthy distance dependency, attention mechanism is incorporated into the interpretation model, as a result the pre-processing module, encoder decoder framework and attention module of the system also are adopted.

Keywords: NMT, Attention Mechanism, RNN, LSTM, GRU, Transformer.

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A DEPENDABLE AND SECURE COMMUNICATION INFRASTRUCTURE FOR SENSOR NETWORKS

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Abstract: The military, healthcare, home automation, remote monitoring and many industries that make use of the Internet of Things (IoT), a newer era of WSNs devices. Device security has risen to the top of the priority list as a result of their widespread use and recent significant DDoS (distributed denial of service) attacks involving huge of these devices. Because these wireless devices have limited power resources, the security solution must also be energy efficient. Because both users and attackers have remote management or access capabilities can attack on IoT devices. We created a secured communication system for these LoWPAN devices in this study. We created and implemented a one-of-a-kind security solution for detecting and preventing RPL attacks in IoT. We examined how long the batteries in IoT devices lasted and how much energy they consumed before and after we implemented our suggested repair. Using RSSI (received signal strength indicator) tunnelling, the proposed security technique detects and corrects RPL (routing protocol layer) issues.

Keywords: IoT, WSNs, Attacks.

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IMAGE CAPTIONING FOR ASSISTING THE VISUALLY IMPAIRED

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Abstract: It is a challenging task for the visually impaired to comprehend their surrounding environment. Understanding the road signs while outdoors, knowing what is in their immediate vicinity or even reading and understanding notice boards might be a problem for them. This paper proposes an application mechanism that can assist the visually impaired people in better comprehending their surroundings. Image captioning is the process of generating a suitable textual description of the captured image by using the concept of neural networks and natural language processing. In order to help the visually impaired, the description that is generated is read out as an audio output, along with an OCR module for recognizing text on notice boards and documents. The requirements include a camera and a GPU incorporated system. This makes it easier for visually challenged people to be aware of and have a knowledge about what is present in their immediate vicinity. The audio output can be generated in multiple languages such as English, Hindi, and Telugu, allowing it to adapt to the needs of the vernacular community.

Keywords: Image Captioning, CNN, NLP, Text-To-Speech API, OCR, Sequence Processor, Visually Impaired, Captioning

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E&ICT Academy, National Institute of Technology, Warangal   Page: 38

IMPLEMENTATION OF 64-BIT INEXACT SPECULATIVE HALF UNIT BIASED FLOATINGPOINT ADDER

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Abstract: In recent times arithmetic operations involve very small or large numbers. These operations become easy by using floating point numbers. Generally, the result of these operations is rounded to the nearest value. But while rounding, an error may occur. Half Unit Biased (HUB) representation is useful in avoiding this error. HUB-based numbers are obtained by shifting the represented numbers by half a Unit in the Last Place. For HUB-based adders, speed is restricted by how the carry propagates throughout the adder. An idea to study the effect of inexact speculative techniques on the speed of floating point adders is put forth in this paper. Hence, an Inexact Speculative HUB floating point adder is proposed. In this adder, carry is propagated in shorter paths rather than the entire architecture of the adder. Thus, the addition of increases when an intermediate carry is estimated by using a limited number of previous stages. In this paper, the proposed adder has been implemented on FPGA. The speed of the proposed adder has increased by 81.19% when compared with a conventional 64-bit floating-point adder.

Keywords: Floating point, HUB, unbiasing, rounding, adder, inexact speculative.

INTERVIEW SUPPORTING SYSTEM USING FACIAL FEATURES

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Abstract: In this era of technology, recruiting candidates to fit a particular job profile is a crucial task to all the companies. The traditional way of recruiting has changed over time. Determining the confidence of a person in an interview, acts as a major factor in the recruiting process. A typical human recruiter can handle up to 20-50 candidates at a given time, but a machine can perform the same task more effectively in a short amount of time. The Interview Supporting System in the field of education acts as a helping hand for students and improves their performance based on the utterances and facial features. The main goal is to develop a system which determines the confidence level of the interviewee based on the number of filler words in their answers and their emotions using HOG features. The confidence levels are classified into very confident, neutral, and poor. This Supporting System helps students to estimate and enhance their skills before attending the interview.

Keywords: emotion recognition, confidence, HOG.

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Department of Computer Science and Engineering, GNITS, Hyderabad
E&ICT Academy, National Institute of Technology, Warangal   Page: 40

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DRAGON FRUIT STEM DISEASE DETECTION USING IMAGE PROCESSING

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Abstract: Dragon fruit is generally tolerant to major diseases concerned but due to improper knowledge and poor climatic conditions there might some diseases which effect the growth of the dragon fruit. Detection of these diseases is more significant to avoid any loss to the farmer. Detection of dragon fruit stem diseases manually for large scale farming is difficult and depends on expertise of the farmer on diseases; so a computer aided method like image processing technique is required. A colour features based multi threshold segmentation method is proposed and diseases classification is done based on the statistical features like entropy, contrast, energy and homogeneity.

Keywords: Dragon fruit stem diseases, Segmentation, Classification, Multithresholding, Statistical Features.

IOMT ASSISTED MONITORING AND VOICE BASED FOOD RECOMMENDATION SYSTEM USING DEEP LEARNING MODEL

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Abstract: In this modern world various people suffer from different types of diseases and illnesses. It is generally very difficult to suggest a diet as quickly as possible. Artificial Intelligent automated medical cloud system can increase longevity, protect against further disease, and improve the overall health quality of people. This paper proposes a deep learning solution to build an IOMT assisted health information system that automatically detects which food should be given to people by considering blood pressure, heart rate, temperature and body hydration level of a person and the real time data collected through biomedical sensors from 50 patients. Collected data given to the cloud and the cloud will notify the user about user health conditions. Considering current health status of a patient, system creates a voice based food recommendation to enhance the optimal usage of the food recommendation system. Deep learning algorithms like Recurrent Neural Network (RNN), Multilayer Perceptron (MLP), and Long Short-Term Memory (LSTM) methods help to outperform the proposed method. The performance of various deep learning techniques was carried and the result proves that LSTM technique performs better than other scheme with respect to accuracy, recall, precision, and F1-measures. We achieved 89.9% accuracy using LSTM deep learning model. Similarly, 0.89 precision, 0.87 recall and 0.86% F1-measure for allowed class is achieved.

Keywords: Food recommendation, IOMT, Deep Learning, Neural networks, LSTM, and MLP.

FRAMING OF QUALITY QUESTIONS FOR QUALITY CODE SNIPPETS

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Abstract: Nowadays, developers or programmers depend on the reusability of code to implement software as it reduces time and effort. Therefore, most developers depend on code bases or to Question and Answers (Q&A) sites to reuse the existing code. They look for exact code snippets by simply giving questions to Q&A websites. One of the popular Q&A sites is Stack Overflow, which is mostly used by software developers. But the problem is when programmers give code snippets with low-quality question titles leads to retrieving irrelevant answers. Hence, our approach helps developers (who are providing code snippets to Q&A sites) in the forming of high-quality questions by automatically generating question titles for a code fragment using LSTM deep neural network model with 96% accuracy. Our model evaluated three programming languages (eg. Java, python, c#) datasets collected from GitHub.

Keywords: Question generation, Quality Question, Code Snippet, LSTM, Deep Learning.

DOMESTIC IOT SMART HOME ITS FUTURE ROLES AND HUMAN BEHAVIOR THROUGH HUMAN INTERACTION

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Abstract: Although objects can be abstract in their meanings, they will be referred to in their physical sense, i.e., physical objects or material objects. Also, the objects described here are inanimate. An object is a "thing consisting of matter". Objects have physical representations that enable human beings to experience them through the senses; to see them, touch them, taste them, smell them, and hear them. Interpretations of objects are often limited to their views as equipments or instruments to fulfill tasks like work or survival .However, objects are more than that. This paper shall present some important roles of objects. Physical inactivity has increased significantly over the past years, and the advancement of technology has contributed to it. Paradoxically, domestic IoT shapes human behavior through human interaction. As everyday objects become a part of the Internet of Things (IoT), this paper aims to investigate how the IoT devices and everyday objects can collaborate with humans to address growing physical inactivity.Using a speculative and critical design approach, design proposals in the form of physical and video prototypes are constructed and discussed in a series of workshops. Participation in the workshops moves the participants from being passive consumers of technology to citizens that actively debate and design their own future.The outcomes of the paper are themes that critically address the implications of domesticating technology and its future roles and functions. Also, a set of characteristics is outlined to illustrate desirable, undesirable, and preferred characteristics of networked technologies that may encourage physical activity.

Keywords: domestic Internet of Things, smart objects, speculative design, physical activity, motivation, domesticating technology.

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E&ICT Academy, National Institute of Technology, Warangal   Page: 44

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COMPARATIVE ANALYSIS OF CRUDE OIL PRICE PREDICTION USING VARIOUS MACHINE LEARNING MODELS

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Abstract: Crude oil is arguably the most important resource on the planet right now. Fluctuations in its prices affect every commodity due to the direct effect on transportation. Getting ahead of the uncertainty around crude oil prices can prove to be a game changer for businesses. It is extremely challenging to predict the price of crude oil because of its high volatility and its dependence on several external factors. People have been trying to make models using different machine learning algorithms and appropriate datasets to make the best price predictions. This is a survey paper which does a comparative analysis between three models available for crude oil price prediction, namely SVM, ANN and GARCH-GED. The vital information from the WTI unrefined petroleum market dataset is used in all these models and they are evaluated on the basis of the RMSE value obtained.

GLAUCOMA RETINAL IMAGE SYNTHESIS USING THE GAN

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Abstract: The human eye is an organ which reacts to light and pressure. There are many diseases, disorders and age-related changes that may affect the eyes and surrounding structures. One of the eye diseases is glaucoma. Glaucoma is a condition in which fluid pressure rises within the eye. Without treatment, it can damage the optic nerve and lead to vision loss. The early detection of glaucoma minimizes the risk of vision loss. The proposed model synthesizes highly realistic controllable fundus images to obtain precision in detecting glaucoma through a deep learning model. Generative adversarial network (GAN) is an unsupervised machine learning technique which can be used to augment datasets and yield the collected images to be indistinguishable from the real-world data. The Deep Convolutional GAN (DCGAN), another variant of GAN, suggests the architectural constraints on the model required to effectively develop high-quality generator models. The enhanced dataset which is obtained from data augmentation as well as the original ACRIMA dataset of fundus images are separately given to CNN classification model for detection of glaucoma disease. The proposed research provides effective high-resolution processing of fundus images. The synthesized data using DCGAN improves the performance of the model in detecting the glaucoma disease at the earliest.

Keywords: Glaucoma, GAN, Data Augmentation, DCGAN, ResNet, Transfer Learning, eye disease.

IDENTIFYING POWER LINE FAULTS USING FUZZY-BASED INTELLIGENT CONTROL

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Abstract: The research article details a new method used for fault classification in real-time in a system comprising power transmission following a multi-criteria-based method based on fuzzylogic. Only a three-line current detects faults like LLG,LL andLG. Thisdocument alsopresents a combination of wavelet fuzzy real-time approaches for digital forwarding. This proposed fault location algorithm uses wavelet transforms with fuzzy logic, unlike conventional algorithms based on deterministic computations on well-defined models, which must be protected. Next, identify the type of fault by comparing the sudden swings of the 3-phase MRA. The effects of obstacle distance, obstacle initiation angle, and obstacle impedance were studied, and a fault classification routine was designed to overcome those effects. The wavelet transformsuse wavelet MRA coefficients to capture dynamic properties of non-stationarytransient fault signals and define fault lines.

Keywords: Wavelet transform; Fuzzy inference system; Fault location, Fault classification; MRA

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ROBOTIC ARM FOR EFFECTIVE ENVIRONMENTAL CLEANING

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Abstract: This Project is aimed to make the task of GHMC workers easy. Often Workers find it difficult to clean the places where heavy objects are dumped. In the present situation, many dump yards are found with heavy material which humans can't lift, in such scenarios these robotic arms can be used to clean up the place. These robotic arms are controlled by humans sitting in a central hub station manually. A manual operator in the central hub can view the place through the camera fixed to robotic arm, which helps him to control the arm. With this method, there is no need to go to each place to clean it. By sitting in the central station, we can clean up the city. UART communication protocol is used to establish communication between the central hub and robotic arms. By using this protocol wireless communication can be established, where the central hub acts as a server and the robotic arm acts as a client. These robotic arms can be further updated and used for cleaning sewage blocks and underground drainage pipes. As robotic arms can work well under extreme conditions, it helps in reducing manpower and ensures the safety gear of workers.

Keywords: Raspberrypi, UART communication, Servomotor, Degree of freedom, Wireless communication, Gripper.

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COMPUTING WORKSPOT INFECTION VULNERABILITY FOR SANDBOXING A BUSINESS PROCESS

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Abstract: Pandemic COVID has brought world to standstill and so also business. While business continuity plan is for strategic handling of adverse business situations, sandboxing is a proactive strategy to avoid such situations to happen. This is possible by identifying workspots having low immunity or high possibility to an infection and sandboxing those workspots by applying spread containment protocol like social distancing, hand hygiene and measures proposed by the identified centre for disease control. This is a different kind of BCP: Business Continuity Plan that also needs to be researched by the business and faculty. This paper takes on the problem in Computing Science perspective and proposes a computing technique to quantify the vulnerability of a workspot based on its degree of contacts, number of items in average transacted at and the number of people work on the spot. In order to model a unit distance spread, five workflow patterns viz. sequential, concurrent, n-merge, n-split and on-spot-n are considered and the spread due to each is computed. The basic idea proposed here has potential to usher a plethora of research in both theory and application.

Keywords: sandboxing, workspot, business process engineering, business continuity plan, pandemic, n-split, n-merge, on-spot-n, Contact Vulnerability

ELECTRONIC SUPPLY CHAIN: A BIBLIOGRAPHIC AND DESCRIPTIVE LITERATURE REVIEW

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Abstract: The There is an ever-increasing awareness and use of electronic supply chain (eSC) as evident from the existing literature. The reason for such growing interest in eSC lies in the increased complexity and continuously increasing demands for more and more quality service and automation. The existing literature shows not-so-significant number of research studies in eSC on the varieties of aspects of it. However, the need for a review of what has been done in this field is a necessity in order to show what are to be done. This paper, thus, reviews the existing literature on the various aspects of eSC in a classified fashion. The paper also shows the gap of research in the existing literature so that the researchers can endeavor to fill the identified research gap.

Keywords: Electronic Supply Chain, Diffusion, Eco-efficiency, Resilience, Risk, Performance.

SYNTHESIZING REALISTIC ARMD FUNDUS IMAGES USING GENERATIVE ADVERSARIAL NETWORKS (GAN)

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Abstract: Age-related macular degeneration (ARMD) is an eye disease that can result in blurred or no vision in the central vision. It happens when aging causes damage to the macula and is a leading cause of vision loss for older adults. Deep learning techniques are widely used in ophthalmology, such as diagnosing age-related macular degeneration (ARMD), which requires a huge image dataset. But the existing datasets are unclear and insufficient for building the training models and requires more pre-processing time. Also Indian datasets are not used prominently for the leading causes of blindness and eye diseases. Therefore, this paper emphasizes on synthesizing new large datasets of artificial retinal images from the existing datasets by a deep learning approach Generative Adversarial Networks (GAN). Generative Adversarial Networks (GAN) will be trained with fundus images from the Age-Related Eye Disease Study (AREDS), generating synthetic fundus images with ARMD. The performance of ARMD diagnostic DCNNs will be trained on the combination of both real and synthetic datasets. Images obtained by using Generative Adversarial Networks (GAN) appear to be realistic, and also increase the accuracy of the model. The performance of the deep learning model which uses the synthesized dataset should be close to the real images, suggesting that the dataset can be used for training humans and machines.

Keywords: Age-Related Macular Degeneration, Generative Adversarial Networks, Deep Convolutional Neural Networks.

INTERPRETATION AND ASSESSMENT OF IMPROVED DEEP NETWORKS FOR THE CLASSIFICATION OF GLAUCOMA USING EXPLAINABLE GRAD-CAM APPROACH

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Abstract: The human eye is a sensory organ that responds to light and pressure. Many illnesses, ailments, and age-related changes can harm the eyes and their surroundings. Glaucoma is one such eye disease caused majorly by age-related changes in which fluid pressure within the eye increases, causing optic nerve damage. According to the statistics provided in Epidemiology of Glaucoma, it is estimated that more than 70 million people worldwide are affected by glaucoma each year. Glaucoma can damage the optic nerve and cause vision loss if not treated, but it can be reduced if detected early. In this work, 1000 fundus images from the Rotterdam EyePACS AIROGS train set are analyzed using deep learning approaches such as EfficientNet and ResNet-152 to achieve precision in detecting glaucoma in the early stages. The classification of glaucoma was studied using various methods such as train accuracy, validation accuracy, train loss, validation loss, and Grad-CAM visualization. The results show that the EfficientNet model has a validation accuracy of 0.84, while the ResNet model has a validation accuracy of 0.89. The model is analyzed using post hoc attention methods such as Grad-CAM. Grad-CAM visualization is used to identify the region of the fundus image that is important in classification. It was found that the high intensity in the heat maps of Grad-CAM was present near the optic disc and optic cup regions when trained using the EfficientNet model. From this, it is inferred that the EfficientNet model classifies the images more accurately than the ResNet-152 model on the used train set.

Keywords: Glaucoma, Early Prediction, EfficientNet, ResNet, Grad-CAM

DEEP LEARNING MODEL WITH PROGRESSIVE GAN FOR DIABETIC RETINOPATHY

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Abstract. In the healthcare field, the treatment of diseases is more effective when detected at an early stage. Diabetic retinopathy is an eye disease which is a complication of diabetes and it constitutes a leading cause of blindness, worldwide. Regular check-ups via DR (Diabetic Retinopathy) screening programs are essential for detecting the disease as early as possible and for determining the adequate treatment. If this is not detected early, it leads to blindness and hence to be prevented from causing further damage or reducing the risk of vision loss. A fundamental factor limiting the effectiveness of deep learning algorithms, especially in the medical imaging domain, has been an insufficient quantity of relevant class-specific data. So, the main challenge for developing deep learning models is the limited amount of data. Although datasets are available from different resources, they are not sufficient for developing deep learning models. To overcome this challenge the dataset is enlarged by generating different versions of a real dataset artificially through data augmentation techniques like GAN (Generative Adversarial Technique). The results show that the GAN data augmentation technique helps to generate new samples from the existing dataset and the accuracy of the deep learning models is increased to develop a best fit model for the existing dataset.

Keywords: Diabetic Retinopathy, Generative Adversarial Networks, Deep Learning. .

CHANNEL ESTIMATION IN MASSIVE MIMO USING BS IDENTIFICATION CODE.

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Abstract: Massive Multi-Input Multi-Output (MIMO) systems plays an important role in 5G communications. In massive MIMO, a base station with large antennas simultaneously uses the same frequency and time slots by multiple users, due to this pilot contamination may occur. In order to avoid the pilot contamination in LTE-TDD Massive MIMO systems, a technique is to be considered which uses an orthogonality property of Hadamard code. The pilot signal needs to be modulated with the Hadamard code in order to identify the base station in the cellular network. The identification of base stations can be done by applying the low computational complexity suboptimal linear LS criterion and also the mitigation of the effect of pilot contamination in case of full pilot reuse in multi cell scenarios can also be performed.

Keywords: Massive MIMO, LS, LTE, Channel estimation, OFDM, TDD.

IMPROVEMENT OF MODIFIED SOCIAL GROUP OPTIMIZATION (MSGO) ALGORITHM FOR SOLVING OPTIMIZATION PROBLEMS

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Abstract: Social Group Optimization (SGO) is a class of evolutionary optimization technique which is having many applications recently. There have been few modifications to SGO so far. Modified SGO (MSGO) is a new variant suggested by original developer of SGO. In both SGO and MSGO the individual is chosen based on the better fitness between its past value and current value. However, the change in dimensional values is not been considered when both past and current fitness remains same. In this work, the check is done dimension-wise and the individual having different dimensions is retained even though the fitness remains same between past and current values. This improvement is incorporated in MSGO and simulation experiments are carried out with benchmark functions and comparisons are done with MSGO.

Keywords: Function Optimization, SGO, MSGO

FACIAL RECOGNITION SYSTEM WITH SECURED DYNAMIC IMPLEMENTATION AND TIME-RESTRICTION

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Abstract: In today's era there is an increasing need for improved security measures as privacy and security are significant issues in information systems. Security plays an important role in everyday life examples in offices, institutions, laboratories, houses, Banks, ATM's, and others. With the increase in prominence of automation and security, facial recognition systems are widely being used at entrances for human identification and access particularly for security functions. The already existing facial recognition system can be improved by making it dynamically implementable and time-bound by adding additional security and operative measures which has been focused in this journal. Facial recognition system captures human images to compare with stored database images to give authorization to the user to pass through the door. However, in most of the systems creating the database images of people needs to be done in advance before being implemented. The proposed system has secured dynamic face storing, where the images of a new user can be stored on-site without any security complications, which is secured using WhatsApp and OTP request to the authorized person(s).

Keywords: Face Recognition, Secured, Dynamic Implementation, Time-bound.

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MODELLING AND SIMULATION OF THE ELECTRIC POWER TRAIN OF A HYBRID ELECTRIC VEHICLE

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Abstract: Hybrid Electric Vehicles (HEVs) are more in demand in the recent times as the fuel prices are high and also the vehicles operating with the fuels result in environmental pollution which has adverse effects on the living things. So, it has become significant to analyse the working of the thorough electric power train to achieve the required efficiency using HEV. The E-motor which has been selected has features suitable for HEV application and its modelling in electric power train of the HEV is been described in this paper. The E-motor in this case,Permanent Magnet Synchronous Motor (PMSM) is controlled by a 3 phase 2 level Voltage Source Inverter (VSI) whose switching is controlled by SVPWM technique. An error signal has been created and passed through the PI controller by which the speed and torque are controlled by the speed and current feedbacks. The magnitude and reference angle is estimated from the dual voltage references, which are the results of the PI controllers and it is given to the SVPWM module. The required voltage as expected is done through appropriate pulses produced by SVPWM module to the VSI. The modelling and simulation were carried out using MATLAB Simulink and the planned electricpower train is unpolluted and effective for possible application in hybrid electrical vehicles.

Keywords - Electric power-train, PMSM, 3phase 2 level VSI, SVPWM control.

A SIMPLE POLICY UPDATE METHOD FOR THE SHARING OF PRIVATIZED PERSONAL HEALTH INFORMATION

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Abstract: Several healthcare providers use electronic personal health records (PHRs) to enable individual patients to handle their own health data in a robust and scalable environment, especially with the high flexibility and accessibility of data outsourcing environments like cloud computing. PHRs, on the other hand, contain extremely sensitive information about which security and privacy are major concerns. Furthermore, PHR owners should be able to create their own access policy for their outsourced data in a flexible and secure manner. Existing commercial cloud systems often include symmetric or public key encryption as an optional feature to ensure data confidentiality for its users in addition to basic authentication. However, due of the high key management overhead of symmetric encryption and the high maintenance cost of maintaining multiple copies of ciphertext for public key encryption solutions, such classical encryption algorithms are not ideal for data outsourcing environments. In this research, we design and construct a safe and fine-grained access control method for outsourced PHRs, as well as a lightweight access policy update. The ciphertext policy attribute-based encryption (CP-ABE) and proxy re-encryption are the foundations of our proposed method (PRE). We also provide a policy versioning approach to allow full policy change tracing. Finally, we conducted a performance evaluation to show that the suggested strategy is effective.

Keywords:-PHRs, access control, CP-ABE, policy update, proxy re-encryption, policy versioning performance evaluation.

PERFORMANCE EVALUATION OF ML BASED AWS SECURITY EVALUATION MODEL FOR CLOUD COMPUTING

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Abstract: As there is a great increase in demand for cloud services, the number of companies that provide cloud services have been increased in number. Cloud based web services wholly depends on the service provides by the companies. Hence, it is very essential to choose the cloud service provider for obtaining best services. API consistently gives access to different cloud services. In this paper a quantifiable security evaluation system for various clouds is analyzed. A set of evaluation elements are present in the security evaluation model which compresses of various sectors via .storage,computing, maintenance, application security etc. The major aim of this paper is to deal with the issues related and exhibits the comparison of Amazon Work Space (AWS) and International Business Machines (IBM) cloud. Either of the cloud service platforms are compared with each other under some situations for respective instances. A machine learning based CNN method is used for developing the proposed cloud computing. This mechanism calculates the score for each field and gives the total score as result in order to create one secured pattern. Dynamic security scanning is done for single or multiple clouds by using visual graphs and cloud users are guided for improvement of cloud operations, changing the configuration and to provide protection against vulnerabilities. This ultimately results in the enhancement of security in cloud resources.

Keywords: Cloud Computing, Security Evaluation, Quantifiable evaluation, AWS, Cloud Security, Security visualization.

ANALYSIS OF RADIATION INDUCED IN MULTIPHASE FLOW OF A VISCOUS CONDUCTING HEAT AND MASS TRANSFER FLUID IN A VERTICAL POROUS MEDIUM

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Abstract: In this paper, presently a Multiphase model discusses the effect of radiation and radiation absorption on free convective heat and mass transfer flow of a viscous conducting fluid through aporous medium in a non-uniformly heated vertical channel. The walls are maintained at a non-uniform temperature and a uniform concentration is maintained on the walls. Such problems are care characteristically induced multi-physic, with mixed of various fluids with radiation absorption. heat and mass transfer, Porous medium, non-uniform temperature. Observing the change of phase, and chemical reactions and their phenomenal influence in the porous medium. In the analysis of various composition fluid systems, the model which has proposed to observe on a microscopic scale by applying the attributes of fluid dynamics constrained averaging theory which gives appropriate results that satisfy the applicable law of fluid dynamics for all constituents both at micro and macro visual observance level. In addition, to some important observances of fluid dynamics some of the flow parameters and their attributes while flowing through the porous medium, describe the mechanism of multi fluids transfer and its temperature in the vertical channel walls of the porous medium. The coupled equations governing the flow and heat transfer are solved by using the perturbation technique and 3D numerical simulations aimed at proving the validity of the proposed adopted method are carried out results, and analysis presented. The expression for the velocity, the temperature, and the rate of heat and mass transfer are derived and are analysed for different variations of the governing parameters.

Keywords: Radiation, Radiation absorption, Heat and Mass transfer, Porous medium, Non-uniform temperature, 3D numerical simulations.

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E&ICT Academy, National Institute of Technology, Warangal   Page: 60

OTSU BASED DIFFERENTIAL EVOLUTION METHOD FOR IMAGE SEGMENTATION

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Abstract: This paper proposes an OTSU-based differential evolution method for satellite image segmentation and compares it with four other methods as Modified Artificial Bee Colony Optimizer (MABC), Artificial Bee Colony (ABC), Genetic Algorithm (GA), and Particle Swarm Optimization (PSO) using the objective function proposed by Otsu for optimal multilevel thresholding. The experiments conducted and their results illustrate that our proposed DE+OTSU algorithm segmentation can effectively and precisely segment the input image, close to results obtained by the other methods. In the proposed DE+OTSU algorithm, instead of passing the fitness function variables, the entire image is passed as an input to the DE algorithm after obtaining the threshold values for the in- put number of levels in the OTSU's algorithm. The image segmentation results are obtained after learning about the image instead of learning about the fitness variables. In comparison to other segmentation methods examined, the proposed DE+OTSU algorithm yields promising results with minimized computational time compared to some algorithms.

Keywords: Image Segmentation, Computer Vision, Differential Evolution, Otsu thresholding, Swarm Intelligence Methods.

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EMOTION DETECTION USING MACHINE LEARNING AND DEEP LEARNING

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Abstract. The interaction between human and computer for some real application like driver state surveillance, personalized learning, health monitoring etc. Most reported facial emotion recognition systems, however, are not fully considered subject-independent dynamic features. The main objective of the Emotion detection model is to detect the emotions of the people by scanning their pictures in the model. The model detects the emotion of the person in the photograph. The emotions that can be detected in the model proposed by us is sad, angry, happy, shocked, surprised, neutral, disgust etc. This project is focusing on detecting the emotion based on input human face images. The system can also be integrated as a part of video streaming. In the video stream some random pictures are taken to classify the emotion.

Keywords: Emotion detection, Image Processing, Classification, Convolutional Neural Networks (CNN)

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E&ICT Academy, National Institute of Technology, Warangal   Page: 62

OBJECT DETECTION USING DEEP LEARNING APPROACHES

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Abstract. Computer vision is the field of science that studies how computers and software can recognise and understand images and scenes. Computer vision has many different parts, such as recognising images, finding objects, making images, making images bigger, and more. Object detection in real time is a big, busy, and hard area of computer vision. Object Detection is when more than one object needs to be found in an image. Image Localization is when there is only one object to find in an image. This finds the objects of a class that make sense in digital pictures and videos. Real-time object detection can be used for many things, such as tracking objects, video surveillance, recognising pedestrians, counting people, self-driving cars, recognising faces, following a ball in sports, and many more. As deep learning grows quickly, more powerful tools that can learn semantic, high-level, and deeper features are made available to solve problems in traditional architectures. The network architecture, training strategy, and optimization function of these models are all different. Convolution Neural Networks is an example of a Deep Learning tool that can be used to find objects with OpenCV, which is a library of programming functions that are mostly used for real-time computer vision. Most accidents happen because of things that get in the way, like other people, cars, people, fire hydrants, traffic signs, and so on. This is mostly about finding these kinds of problems that can lead to disaster.

Keywords: OpenCV, Object Detection, CNN, Computer Vision, Machine Learning.

TELUGU TWEETS SENTIMENT ANALYSIS BASED ON ORDINAL REGRESSION

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Abstract: Now-a-days twitter is a platform where users can share their opinion on specific topic that occurring in the society. To analyse their opinions sentiment analysis is a technique to exact the user's sentiment on a particular topic. Much research has done on machine learning and deep learning algorithms for analysing the tweets. In world human tweets are in a different language likes Persian, Urdu,Hindi, Telugu, and Tamil. The current work is focused on analysis of telugu language tweets. Here the comprehensive data set that consists of telugu tweets has been prepared for sentiment analysis by using deep learning approaches. For estimating the sentiment polarity & emotions the deep long short-term memory modules were used and the findings shows the best results in terms of accuracy.

Keywords: Twitter, Sentiment Analysis, Ordinal Regression, Deep Learning

IMAGE STYLE TRANSFERRED TO GRAPHICAL USER INTERFACES

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Abstract: This paper presents an approach for permitting the restyling of an application by automatic analysis of a considered image. The approach relies on the analysis of color distribution from a query image and a color-to-component mapping in order to perform its style transfer to the GUI. No deep learning technique is used, e.g. making the approach applicable without investigating image style learning through training stages. We show how our approach can i) be used to directly and dynamically restyle GUI of applications, ii) be adopted as an end user functionality towards the restyling of mobile app, desktop app, web app and so on, iii) serve to developers e.g. for facilitating the selection of appropriate reference graphic charter during the design stage of their applications by exploring GUI appearances from a list of considered query images. Experimental results show the efficiency of the approach and its high potential of generalization.

Keywords: Image Style Transfer, Visual Computing, GUI, Graphic Charter, Design Pattern, UX, HCI.

About GNITS

G. Narayanamma Institute of Technology & Science (GNITS), Hyderabad, a leading Engineering college for women, was founded by the late Sri. G. Pulla Reddy in 1997, to provide excellent learning facilities for women to pursue education in Engineering. The aim is to promote Technical Education among women to buildup a new generation of thinkers, innovators, and planners in the realms of Science and Technology. The first college in India with MAC Lab, sponsored by M/s APPLE Inc and inaugurated by Mr. Tim Cook, CEO of M/s APPLE Inc. in 2016 enabled GNITS to secure a unique place among all other Engineering Colleges in South India.

GNITS received UGC Autonomous status for 10 years in 2018 and is affiliated with Jawaharlal Nehru Technological University (JNTU-H), Hyderabad. It offers 8 UG and 5 PG programs including three new programs on emerging technologies viz. B.Tech. CSE (AI & ML), B.Tech. CSE (Data Science) and B. Tech. in Computer Science and Technology. The college has research centers in the departments of CSE, ECE, and EEE which are recognized by JNTUH. It is approved by the All India Council for Technical Education (AICTE), accredited by NAAC & NBA, and is an ISO 9001:2015 Certified Institution. The college is ranked in the rankband of 251-300 in NIRF-2022.The college received distinct awards and recognitions from professional bodies as mentioned for its quality of education and achievements in placements and sports.

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The department of CSE was started in the year 1999. From its inception, the department has progressed on large scale and excel in technical education. The department has state-of-the-art infrastructure and established a Centre of Excellence (COE) in IOT& Analytics and AI&ML. The department of CSE has several MOUs with eminent industries, and academic institutions and extends services in successfully running different professional bodies like ISTE, CSE, and CSI. The faculty members are supervising different research programsat JNTUH, NIT, and KL University. Students of CSE are competent and are placed on par with IITs, NITs with a pay package of 40 Lakhs+ in top MNCs like Adobe, Twilio, and Amazon, etc.

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