

IcfaiTech Newsletter



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FROM THE DIRECTOR'S DESK

IcfaiTech, Hyderabad is reaching new heights, and achieving milestones as the faculty members, staff, and students continue to exhibit phenomenal commitment. This month, we witnessed students acing placement drives, delighted students rejoicing in the vibrant campus activities, and faculty reflecting determination while further enhancing their skills, as well as conducting relevant research contributing to the overall development of society. Further, this edition of the newsletter highlights several achievements of our students as they continue to make us proud. Amongst such joyous and proud news, with a heavy heart, we inform our readers that we lost two of our beloved and brilliant students last month, whose memories will forever remain etched on all our hearts.

I welcome avid readers to remain with IcfaiTech, Hyderabad, via these snippets of news presented in the October chapter of the newsletter.



~ **Dr. K.L. Narayana**
Director, IcfaiTech, Hyderabad

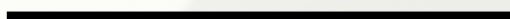
ONGOING PLACEMENT

Placement season continues at IcfaiTech, Hyderabad. This month, 7 of our students have aced the recruitment drive conducted by Grab On.



This company operating in the E-Commerce sector is offering internship cum placement to the selected students for the position of Management Trainee with a CTC of 5 LPA.

This opportunity will be an ideal career head-start for the students, where they are believed to learn, grow, and exhibit exceptional skills.



VIBRANT CAMPUS

Alumni Relationship Cell, IcfaiTech, Hyderabad organized an offline Two Days workshop.

Title: Ethical Hacking and cyber Security

Date: Oct 28-29, 2022

Brief Description: Alumni Relationship Cell (ARC) of IcfaiTech, Hyderabad hosted a two-day workshop on “Ethical Hacking and Cyber Security” inaugurated by Dr. Bidyutt Battacharya, Pro-Vice Chancellor–IFHE, Dr. K. L. Narayana, Director-IcfaiTech, Dr. Movva Pavani, ARC–Incharge, and Dr. Balamurali, Coordinator–Department of CSE. The resource persons for the workshop were the alumni of IcfaiTech, Hyderabad, Mr.Sainath Volma (Batch 2011-2015), and Mr.P.Venu Gopal Shetty (2012-2016). Further, Information security professionals who have worked in multiple countries and in multiple information security roles were also invited to share insights.

The 74 participants were trained in cyber security, google hacking, social media, windows hacking, and security (keyloggers).



The students benefited from the workshop in the following ways: (i) Firstly, the workshop gave students an insight into the Ethical Hacking i.e compromise of email hacking DOS attacks SQL Injection, etc



(ii) Hands-on session along with Theory sessions step by step (iii) The workshop also provided the resource person own Ethical Hacking Toolkit and HackIN Handouts, which consists of all the Tools and Techniques covered in the Workshop

(iv) Students got to work with the Working Professionals in Digital Security Field and get to match up their Knowledge and Experience

Further, competitions were arranged including Website Hacking, Mobile Hacking, and Wireless Hacking with prizes worth Rs. 5000, Rs. 3000, and Rs. 2000 for 1st, 2nd, and 3rd position, respectively. Digital certificates, as well as placement guidelines, were also provided to the participants during the workshop.

Dr. G. Suresh Kumar, Associate Dean-Academics, and Dr. Balamurali presented certificates to the winners on the second day of the event. Dr. Movva Pavani, presented the Mementoes to the resource persons of the Workshop.



Department of Computer Science and Engineering organized faculty seminars.

Seminar 1 Title: Improving the Response Time in Cloud Computing Environments Using a Dominant Firefly Approach

Speaker: Dr. S. Kaushik

Date: 6 October 2022

Abstract: Cloud computing is one of the recent advancements in the computing field that makes Internet access easy to end users.



Many Cloud services rely on Cloud users for mapping Cloud software using virtualization techniques. Usually, the Cloud users' requests from various terminals will cause heavy traffic or unbalanced loads at the Cloud data centers and associated Cloud servers. Thus, a Cloud load balancer that uses an efficient load balancing technique is needed in all the cloud servers. We propose a new meta-heuristic algorithm, named the dominant firefly algorithm, which optimizes load balancing of tasks among the multiple virtual machines in the Cloud server, thereby improving the response efficiency of Cloud servers that concomitantly enhances the accuracy of cloud systems. Our methods and findings are used to solve load imbalance issues in Cloud servers, which will enhance the experiences of cloud users, and also this method would improve the response time in mobile and cloud environments.

Seminar 2 Title: Metaverse:
Contribution of Blockchain in
Development of Metaverse

Speaker: Dr. Dileep Kumar



Date: 13 October 2022

Abstract: Metaverse is becoming the new standard for social networks and 3D virtual worlds when Facebook officially rebranded to Metaverse in October 2021. Many relevant technologies are used in the metaverse to offer 3D immersive and customized experiences at the user's fingertips. Despite the fact that the metaverse receives a lot of attention and advantages, one of the most pressing concerns for its users is the safety of their digital material and data. As a result of its decentralization, immutability, and transparency, blockchain is a possible alternative. Our goal is to conduct a comprehensive assessment of blockchain systems in the metaverse to properly appreciate their function in the metaverse. To begin with, the paper introduces blockchain and the metaverse and explains why it's necessary for the metaverse to adopt blockchain technology. Aside from these technological considerations, this article focuses on how blockchain-based approaches for the metaverse may be used from a privacy and security standpoint. There are many possible possibilities for future development and research in the application of blockchain technology in the metaverse.

Seminar 3 Title: Mitigating the worst parent attack in RPL based internet

Speaker: Dr. Rashmi Sahay

Date: 27 October 2022



Abstract: The Low Power and Lossy Networks (LLNs) in the Internet of Things environment comprising constrained embedded devices have particular routing requirements that are well satisfied by the IPv6 Routing Protocol for Low Power and Lossy Networks (RPL). However, RPL is susceptible to several routing attacks. Worst Parent Attack (WPA) is an attack against RPL in which a malicious node intentionally chooses a sub-optimal path to the root node to forward its data packets. The result of which is sub-optimized performance and improper utilization of network resources of the IoT-LLNs.

This paper proposes an efficient enhancement of the existing RPL protocol to make it resilient to the Worst Parent Attack. The proposed Enhanced RPL builds upon RPL and is henceforth named ERPL. The proposed ERPL achieves its objective by reducing the candidate set of parent nodes to an optimal parent set in the topological construction process. Thus, ERPL ensures that nodes choose a parent from a set of optimal nodes and makes IoT-LLNs resilient to WPA. We compare ERPL and RPL under normal and WPA scenarios.

The comparison proves that ERPL, apart from providing security against the Worst Parent Attacks, also outperforms RPL in terms of energy consumption, packet delivery ratio, network convergence, and overall network overhead.

STUDENT ACHIEVEMENT

Research paper authored by **Prameshwar Joga, and Harshini B, final year students**, Department of CSE, under the guidance of Dr. Rashmi Sahay, has been accepted for presentation.

Title: Comparative Analysis of Machine Learning Models for Customer Segmentation

Conference: CORE ranked 22nd International Conference on Intelligent Systems Design and Applications 2022 (online)

Publisher: Springer Verlag

Organizer: Machine Intelligence Research Lab, USA

Date: Dec 12-14, 2022

FACULTY ACCENTUATING RESEARCH

Dr. Thokala Soloman Raju,
Assistant Professor,
Department of Physical Science
published a research paper.



Title: Dynamics of nonautonomous matter waves in a waveguide with an external source

Journal: IEEE Journal of Quantum Electronics

Impact factor: 2.318

Indexed: Web of Science, SCIE Journal, Scopus

Abstract: We explore explicit Lorentzian-type matter wave solutions of nonautonomous nonlinear Schrödinger equation (NLSE) with an external source and a harmonic trap. We explicate the mechanism to control the dynamical behaviour of these waves of Bose-Einstein condensate (BEC) for different sets of nonlinearity and trapping modulations. Our results raise the possibility of some experiments and potential applications related to BEC in the presence of an inhomogeneous external source.

United States patent has been awarded to **Dr. A. Manmadha Chary**, Assistant Professor, Department of Mechatronics.

Device: Implantable Device for Temporomandibular Joint and Method of Production Thereof



Brief Description: Exemplary embodiments of the present disclosure are directed towards an implantable device for complete replacement of the temporomandibular joint comprising of a condyle component to reconstruct a mandibular end of the temporomandibular joint designed for movement within the implantable device with a plate; and a condyle surface where the plate is configured to mechanically secure the condyle component to a ramus surface of a patient undergoing implant with the aid of screws; and the condyle surface polished to generate a mirror effect to reduce the friction in the implantable device and infection rate; a zygomatic arch component to reconstruct a temporal bone (glenoid fossa) of the temporomandibular joint comprising at least one of a plate;

a plurality of multiple threaded counter sinkholes; a plurality of conically tapered holes and a zygomatic arch surface, whereby the multiple threaded counter sink holes are structured within the plate; and a fossa component configured to be positioned between the condyle component and the zygomatic arch component to anchor the movement of the temporomandibular joint and the fossa component comprising of a low-density biocompatible material made of a polycarbonate which is utilized in the additive manufacturing for the synthesis of an implantable device for temporomandibular joint.

Dr. Anjanna Matta, Assistant Professor & Coordinator, Department of Mathematics received an appreciation certificate for his contribution as coordinator in supporting an FDP



FDP Title: Mathematical Models for Machine Learning and its applications

Organizer: Electronics & ICT Academy, NIT Warangal

Funded by: Ministry of Electronics and Information Technology (MeitY), Govt. of India

Dr. P. Rohini, Assistant Professor, Department of DS&AI, presented her research work at International Conference



Conference title: 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)

Paper Title: A study on the adoption of Wireless Communication in Big Data Analytics Using Neural Networks and Deep Learning

Date of Conference: 28-29 April 2022

Date Added to IEEE Xplore: 18 July 2022

Publisher: IEEE

Abstract: The study explores Wireless communication, one of the most rapidly evolving and active technology fields in the communication world. Wireless communication transmits data from one point to another without using wires, cables, or another physical medium. As a result, commercial network operators have risen at an accelerating rate, bringing in the era of big data. Machine learning has been applied in a range of corporate and academic research contexts as one of the most promising artificial intelligence (AI) methods for deciphering this deluge of knowledge.

This study presents a high-level introduction to big data handling and technological advances, as well as their potential applications in next-generation wireless networks (NG). Following that, we employ advanced analytics to estimate mobile users' demands and then use that knowledge to improve the efficacy of “community wireless communication channels.” Specifically, a unified, huge data-aided computer learning framework comprised of feature extraction, data modelling, and prediction/online refinement is provided. The primary benefits of the proposed framework are that we could create the logic, problem formulations, and method of powerful computational models inside the frame of wireless networks by depending on vast data that reflects both the spectrum and other hard demands of users. Generally, information is conveyed from sender to receiver across a certain distance in a communication system. The transmitter may be located anywhere within a few meters using Wireless Communication. We examined currently known approaches and explored their benefits and drawbacks in order to identify new research avenues for future advancements in underwater sensor networks.

Dr. Sudheer Hanumanthakari

Assistant Professor, Department of ECE published two research papers.

Paper 1 Title: A novel and comprehensive mechanism for the energy management of a Hybrid Micro-grid System

Journal: Energy Reports

Indexed: Scopus indexed

Impact Factor: 4.937

Paper 2 Title: Machine Learning Strategy to Achieve Maximum Energy Harvesting and Monitoring Method for Solar Photovoltaic Panel Applications

Journal: International Journal of Photoenergy

Indexed: SCI and Scopus Indexed

Impact Factor: 2.535



Dr. Syed Quadir Moinuddin,

Assistant Professor, Department of Mechanical Engineering published research paper.

Title: Characterization of Microstructural Anisotropy in 17-4

PH Stainless Steel Fabricated by DMLS Additive Manufacturing and Laser Shot Peening



Publisher: Springer

Journal name: Transactions of Indian Institute of Metals

Journal type: SCIE

Impact Factor: 1.499

Abstract: The present study aims to produce the additive manufacturing of precipitation-hardened 17-4 PH stainless steel with isotropic microstructure using direct metal laser sintering (DMLS). The deposits' microstructure and surface properties were modified to improve their physical properties. The required surface modification has been obtained by applying shot peening strain-hardening effect on the deposited layers. Microstructure and mechanical properties were enhanced by using shot peening. Results revealed that the microstructure of the DMLS deposits was strain hardened and modified with the presence of a fine grain structure. The grain size analyses by electron backscattered diffraction (EBSD) indicated the nearly isotropic microstructure in the deposits along with the build-up direction (Z-axis) and transverse direction (XY directions) with the presence of equiaxed microstructure. The mechanical properties of the DMLS deposits were evaluated to determine the hardness, tensile strength, yield strength, and elongation. The results revealed that the properties obtained for both directions are nearly the same. The strength of the deposits was further improved by applying heat treatment techniques.

FACULTY ACHIEVEMENT

Dr. Chandrashekhar A, Assistant Professor, Department of Mechatronics has been appreciated for reviewing the research papers submitted at an international conference.



Conference Title: IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI-2022)

Organizer: IEEE MP Section and ABV-IITM Gwalior, India

Dr. Rohini P, Assistant Professor, Department of DS&AI successfully completed PhD.

Title: Image Reconstruction Frameworks Using Deep Learning for Content Based Medical Image Retrieval

University: JNTUA University , Anantapuramu

Abstract: Content-based medical image retrieval (CBMIR) aims at retrieving the medical images which are having similar content to that of input query medical image. In recent times, CBIR has become a supportive tool in the diagnosis of any disease. Content-based medical image retrieval (CBMIR) aims at retrieving the medical images which are having similar content to that

of input query medical image. Researchers proposed many methods of image retrieval. Majority of them are hand-crafted feature extraction methods. But they have their own limitations. As these algorithms rely on hand-written assumptions, they are not effective in encoding robust and complex features. Accuracy of such systems depends on the assumptions. The convolution neural networks (CNN) are being utilized to overcome this issue due to their efficient feature learning ability.

Recently, deep-learning based approaches gained much attention due to their capability to reconstruct robust features. Most of these methods are used in image processing and computer vision applications. Motivated by the success of image reconstruction models, four types of image reconstruction frameworks are introduced.

Enriched deep residual framework uses residual blocks, Refined Res-UNet uses transfer learning, Image Reconstruction Network employs skip connections and bridge network while Adversarial Image Reconstruction Network uses inception-attention blocks. Medical image datasets are used to evaluate the performance of all the proposed methods. Significant improvement in performance is observed. These methods can be extended to the field of computer vision and video processing.

HEARTFELT CONDOLENCE

With a heavy heart, we inform you that we have lost two of our beloved, brilliant students.

Our deepest prayers and sympathy are with the family members of Ms. Keerthi, a final-year student and an innocent soul whom we lost to Dengue fever on 4th October 2022.

While recovering from the shock, we received the harrowing news of yet another loss of a student, Mr. N Bhanu Teja as he met with an unfortunate accident on 30th October 2022.

The prodigious young minds we lost enriched everyone with their beautiful hearts and vibrant personalities, spreading happiness in their wake. While words fail to describe our emotions, we hope their beautiful souls are at peace and remain as happy as ever.



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<https://www.ifheindia.org/icfaitech/>

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