

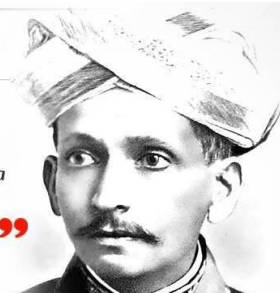


INSIDE OUT

Department of Information Science & Engineering

“No one person can shape the life of another. Your success and happiness depends upon your own self. Think for yourself and have a plan of life.”

SIR M. VISVESVARAYA



2022 - 2023

Vision

Vision and Mission of the Institute

- Become a premier institution imparting quality education in engineering and management to meet the changing needs of society

Mission

- Create environment conducive for continuous learning through quality teaching and learning processes supported by modern infrastructure
- Promote Research and Innovation through collaboration with industries
- Inculcate ethical values and environmental consciousness through holistic education programs

Vision

Vision and Mission of the Department

- To excel in teaching and research in the field of Information Science & Engineering to meet emerging challenges of society

Mission

- To inculcate strong academic foundation in the Information Technology domain for successful career and lifelong learning
- To strengthen research and development activities through interaction with industry
- To instill professional ethics and social values with the concern for environment



This Issue

“INSIDE OUT

from the Department of Information Science and Engineering is dedicated

“Falguni Sanjay Nayar “

(born 19 February 1963) is an Indian billionaire businesswoman, who is the founder and CEO of the beauty and lifestyle retail



GLOBAL ACADEMY OF TECHNOLOGY

Ideal Homes Township, Rajarajeshwari Nagar, Bengaluru - 560 098

Editor's Message

Dear Readers,

It is our pleasure to introduce the Inside Out Newsletter, which we hope you will enjoy reading. We would like to thank everyone who has contributed to this problem. The support provided by the Editorial Committee is greatly appreciated. Here is "INSIDE OUT", GAT's long-awaited NEWSLETTER for the academic year 2022-2023. This is a forum where students and teachers may showcase their skills and new ideas. The editing staff has worked hard to coordinate with the Department to put out this Newsletter. These contributions required a significant amount of time and work. This newsletter is made possible by the willingness to share knowledge, concern, and unique perspective with others who have similar interests.

Editorial Team

Department Profile

The Department of Information Science & Engineering that started in the year 2001 is known for imparting quality education and carrying out cutting edge research. In addition to the strong UG program and research facilities for M.Sc (Engg) and Ph.D courses are also offered. The Department has a well-equipped R&D Centre and is currently headed by Dr. Kiran Y C.

The Department is associated with professional bodies like Computer Society of India and Indian Society for Technical Education. Major areas of specialization of the faculty include Machine Learning, Image Processing, Computer Vision, Pattern Recognition, Data Mining, Wireless Sensor Networks and Network Security. The Department has attracted some of the brightest students and faculties into its portal. Faculties are involved in Campus Connect Program of Infosys and they are reviewers of reputed National and International Journals and have chaired National and International Conferences.

The Department regularly organizes Faculty Development Activities, workshops, technical talks and industrial visits for students as well as faculties so that they are abreast with recent trends. The students are placed in leading IT companies with handsome pay packages. They also pursue higher studies in reputed universities across the globe.

Principal's Desk

It's indeed a matter of great satisfaction and pleasure to inscribe few lines as Preface of the Inside Out, the newsletter of Dept. of Information Science and technology at Global Academy of Technology. Inside Out truly portrays all the flavors of the department encompassing academic, co and extra-curricular outcomes and achievements of both students and faculty members. ISE Dept @ GAT is galloping with zeal to uplift the department. Students get ample opportunities and platforms to exhibit their talent, sharpen their skills and acquire new ones. The research indices of the team also call for appreciation. The high placement record and the earned university ranks in recent times are testimony to the commitment, dedicated inputs and strategic outcomes by the students and the faculty members of the department. I hope Inside Out continues to capture happenings, highlight achievements, and brings out creativity in the team members behind the good show. Wishing the team and the newsletter all the success in future endeavors. Keep rolling the good work!

“The technology you use impresses no one. The experience you create with it is everything.”

– Sean Gerety

5G



The globe will be enthralled with fast internet connections and all the benefits that come with them in the upcoming years, according to technology trends 2022 and other forecasts.

One of the top ten upcoming technologies, 5G, will soon be available on the market and offer advantages like fast internet, reduced latency, and more capacity.

The advantages would allow wireless VR and driverless cars to function with the least amount of technological hesitation. There would be two benefits to 5G. The latency argument comes from the fact that it will not only improve the user experience by providing a greater data range when we converse via VR or AR, but it will also be considerably safer.

However, how quick would 5G be? If a video takes 26 hours to download over a 3G network, it should only take 3.6 seconds over a 5G network.

Edge Computing

Businesses are already operating happily in their Cloud setup; however, things will change shortly with edge computing.



Edge computing, one of the top ten emerging technologies, combines compute and data storage on the collecting device rather of relying on a single primary point that may be miles away.

It is a computer element in which everything, including information processing, content collecting, and delivery, is located near the source of information. Latency and connectivity issues, bandwidth constraints, and increased functionality are just a few of the advantages that come with being embedded at the source edge.

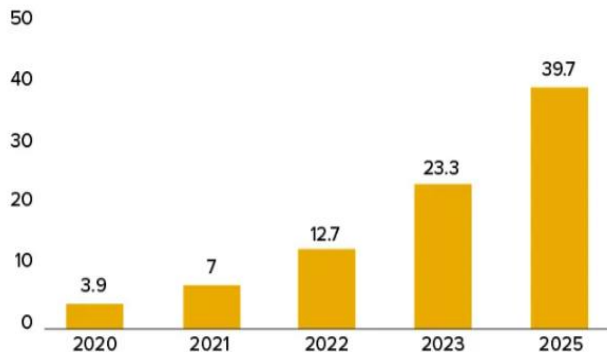
To be a part of future technology trends, organizations should begin employing edge-based design patterns in infrastructure architectures, particularly those that include significant IoT features. To accomplish this, the beginning point can leverage edge-specific and co-location networking capabilities.

As IoT becomes a more prominent part of new technology trends in 2022, IoT app development companies can expect to see increased attention paid to edge computing for enabling intelligent networks, in which connected devices perform the necessary analytics right at the location and use the results to perform specific actions.

It will all happen in a few milliseconds, as opposed to the several hundred milliseconds it takes now with cloud computing. Edge computing's promise makes it a valuable addition to the top ten technology trends.

Blockchain

Global Blockchain Technology Market Size
in USD billions



Given its rapid growth, Blockchain stands at a critical juncture in terms of current technological trends. Although widely used in cryptocurrency right now, blockchain technology will become widely accepted in the next years, and developments in blockchain technology will undoubtedly continue.

The crucial component of the blockchain, cryptocurrencies, will likewise be split up into several currencies and traded on the market similarly to fiat currencies. People will begin using blockchain technology and cryptocurrencies for regular transactions if they are currently uninformed of what these terms mean and where they can be used. Blockchain development options will be investigated in the future for purposes other than cryptocurrencies.

The newest technology developments will keep pace with upgrades and improved smart contract implementations in 2022–2023 and the years to come. The latest developments in blockchain technology could make it possible to use the technology for safe, immutable data exchange anytime, anywhere. To take advantage of this technology, consumers might choose blockchain development businesses for that.

The blockchain-powered learning management system (LMS) platform Nova, created by Appinventiv professionals, has revolutionized the education industry.

With its blockchain-powered capabilities, Nova is the perfect solution to real problems facing the education industry today.

Digital Twin Technology



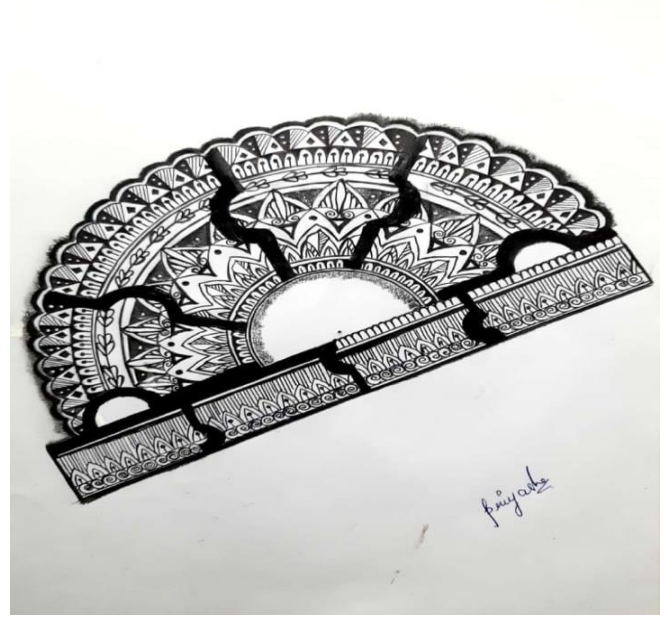
A digital twin is an interactive digital depiction of an actual object or process that is shown in the virtual or digital context of its surrounds or operational setting.

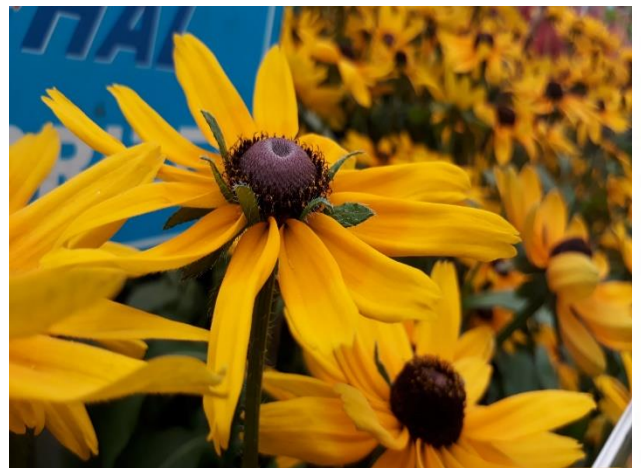
In short, digital twins exist only to enable artificial intelligence and sophisticated data analytics in their quest for better decision-making by replicating real-world outcomes, structures, and situations. Technology also makes it possible for firms to virtually test new projects before beginning or investing in them, as well as to fix any issues or design changes.

Applications for digital twins can be found in many areas of the industrial complex, such as consumer packaged goods, food and beverage, heavy industries, and mining."

Digital twins provide real-time data about a product's life cycle stages, from initial design to finished functionality. Examples include Google Maps, an electronic replica of Earth's surface, which links real-time traffic information for improved journey effectiveness.

ISE Gallery





Departmental Activities

Industrial Visit @ IISc Open Day



Student group during IISc Open Day, Volunteers demonstrating our students



3D models depicting building of Houses



DRDO models for Launch Pad, ISRO Rocket and Satellite models

Industrial Visit @ ISRO, U.R. Rao Satellite Centre



Good insight to the students on the quality of research happening in the area of space technology





The event on “Yoga” organized for 4th Semester ISE students to know the benefits of yoga. Today's youth are not exempt from life's challenges and pressures. The body and mind tense up from hours spent at a desk, returning home, and studying books to complete daily homework assignments, studying for, and passing several tests, taking part in various extracurricular activities, etc.

IOT PROJECT EXHIBITION AND POSTER PRESENTATION



Student Participants in IOT Project Exhibition



Students from different batches interacting with the judges during the event

Student Development Program with Hackathon on Blockchain



Sessions by
the speaker
Dr.Kiran M,
NITK,
Suratkal.



Faculty and Student Interaction with the Speakers



Sports ,NCC & NSS
Activities

" METAVERSE - A virtual universe where reality meets imagination "



Meta → Beyond and Verse → Universe

Metaverse is a most used term in recent times. It is a virtual ecosystem for the current generation which allow us to explore, work and play. It is a galaxy given to individuals, enterprises, and developers. The metaverse is a hypothetical iteration of the Internet as a single, universal, and immersive virtual world that is facilitated using virtual reality and augmented reality headsets. In idiomatic use, a metaverse is a network of 3D virtual worlds focused on social connection. Computers and smartphones, augmented reality, mixed reality, and virtual reality are some of the key parameters for metaverse.

Entering the Metaverse



Come meet your family in a virtual space, play a game in a digital avatar where actual movements and conversation takes place. Here, the characters will be real human beings, but the world will be entirely fictional.

In 1992, when the internet was just new, an American Novelist 'Neal Stephenson' spoke about virtual reality. A Virtual world where people use digital Avatars to live, work and play online. He called it metaverse. A blend of meta meaning BEYOND and verse meaning UNIVERSE. Stephenson envisioned metaverse as a successor of the Internet. An escape from a dystopian reality.

Today the tech giants like apple, Microsoft, google, Facebook are racing to claim metaverse- A Virtual Universe that will co-exist with the physical one. Facebook has even changed its name to META to stay on top of the curve. It is an Imaginary world controlled by tech giants. Technology based Augmented Reality space that would change how we live and interact forever. Here, users navigate the metaverse using their eye movements, feedback controllers or voice commands.

Where can you use Metaverse :



Metaverse
Wedding



Metaverse
Sports



Metaverse
avatars/
Shopping
mall



Entertainment/
video games



Education
(medical or
military training)



Business
(virtual meetings)

- Come let's get ready to enter the world of metaverse

Article by: Prof. Kavita V. Horadi
Assistant Professor

Publications: Conferences

1. Dr. Kiran Y C, “**Kannada Handwritten Character Recognition (KHCR): A Literature Review**”, International Conference on Research Trends in Engineering and Management-2021 ICRTEM-2021, IFERP Aug, 20-21, 2021.
2. Dr. Kiran Y. C.,” **Analysis on skew detection and rectification techniques for offline handwritten scripts**”, International Conference on Inventive systems and control (ICISC-2-022), 6-7 January 2022
3. Dr. Jyoti Neeli,” **Intruder minimization using Zombie controller agent in Wireless Ad hoc Networks**”, International Conference on Technologies for Smart Green Connected Society 2021, 29&30-Nov-2021.
4. Dr. Jyoti Neeli,” **Design of Efficient Algorithms for Secure Communication Contextual to Internet of Things**”, International Conference on Technologies for Smart Green Connected Society 2021, 29&30-Nov-2021.
5. Dr. Vimuktha E Salis,” **Design study on actuated traffic control system using internet of vehicles for smart cities**”, International Conference on Technologies for Smart Green Connected Society 2021, 29&30-Nov-2021.
6. Dr. Vimuktha E Salis, Ms Pathanjali C,” **Interactive virtual reality (IVR) an aid for self-paced learning**”, International Conference on Technologies for Smart Green Connected Society 2021, 29&30-Nov-2021.
7. Pathanjali C,” **An algorithm for Efficient real-time airplane landing scheduling**”, International Conference on Technologies for Smart Green Connected Society 2021, 29&30-Nov-2021.
8. Kavita V. Horadi, “**Deep learning-based Layout Equivalence Detection in Compressed Domain and analysis of different Document Image Dataset: A Systematic Study**,” 2022 2nd International Conference on Intelligent Technologies (CONIT), June 2022.
9. Dr. Kiran Y. C.,” **Analysis on skew detection and rectification techniques for offline handwritten scripts**”, International Conference January 2022

Publications: Journals

1. Manjunath S,” Efficient resampling features and convolution neural network model for image forgery detection”, Indonesian Journal Jan-22,Scopus.
2. Dheeraj D,” Investigation and Fine Tuning of Hyper Parameters on U-Net Model for Segmentation of Glioma”, Design Engineering, Nov-21, Scopus.
3. Deepthi V S,” ApHEC: Attribute Policy Homomorphic Encryption and an Elliptic Curve Cryptography Based Attack Classification Model for MANET Security”, Design Engineering, Dec 2021, Scopus.
4. Shruthi K R,” An LSTM-Based Approach to Predict Stock Price Movement for IT Sector Companies”, International Journal ,Scopus and web of Science.
5. C Manasa,” Detection of Deformed Number Plates in Natural Scene Images”, International Aug-21
6. Sharmila Chidaravalli, “Biblio-Tech Assistance Using Restricted-Boltzmann Machine ”, International Journal, Aug-21, UGC.

Book Chapters

Sharmila Chidaravalli,” **Gait Learning Using Reinforcement Learning**”, Advanced Computing, Dec-21, 978-3-030-95501-4, Scopus, Springer publications.

Patents

1. Dr. Vimuktha E Salis, Ms.Pathanjali C, Dr. Jyoti Neeli, Mrs. Usha C R, Mrs. Kavita V Horadi, ” **Big data model with lower cost and efficient security constraints for new generation medical systems**”, 202141044793 , OFFICIAL JOURNAL OF THE PATENT OFFICE.
2. Dr.Sridhar R,Dr. Vimuktha E Salis,Ms.Sharmila Chidaravalli& Ms.Pathanjali C,” **System and Method to detect Quality of M-Sand using IOT and AI Integrated Mobile Application**”, 202341043531 A , OFFICIAL JOURNAL OF THE PATENT OFFICE.

Achievements: Cultural, Technical, Sports



1. Chandan K S and team, won First Place in SKIT which was organized in Dayanand Sagar college of Engineering.
2. Chandan K S and team, won Second Place in NAVARASA (National Level SKIT competition) organized by NMAMIT, Nitte.
3. Chandan K S won Best actor award in Abhinaya 2022, which was organized by Jain college.
4. Satwik D P won First Place in Mono acting which was organized by New Horizon college of Engineering.
5. Chandan K S and team won First Place in PRATHIBHOTSAVA Mime in VTU Youth Fest 2022 which was organized by VTU.



Overall Championship trophy 2022-23



Editorial Team

Dr. Kiran Y C
HOD
Dept. of ISE

For any suggestion and articles, kindly mail to: hodise@gat.ac.in