



Centenary Celebrated Sharnbasaveshwar Vidya Vardhak Sangha's

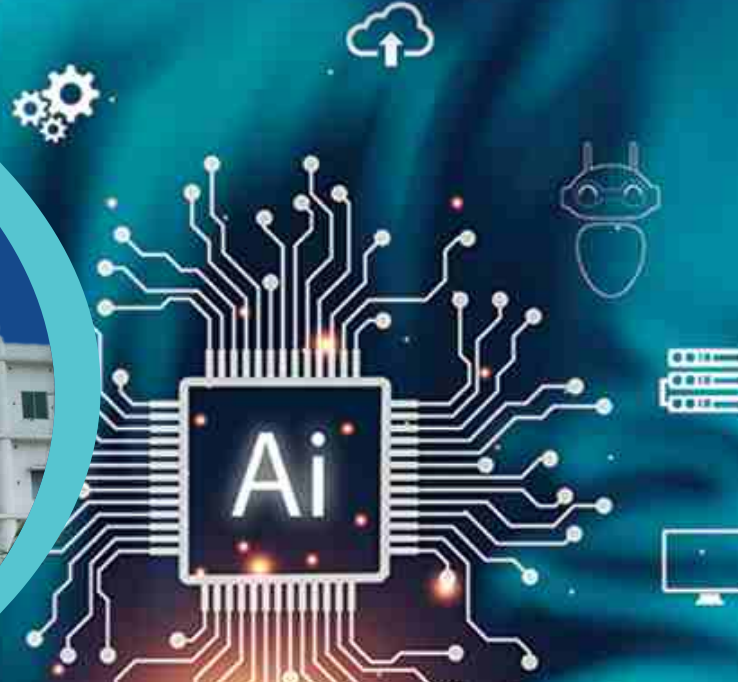
ಶರಣಬಸವ
SHARNBASVA



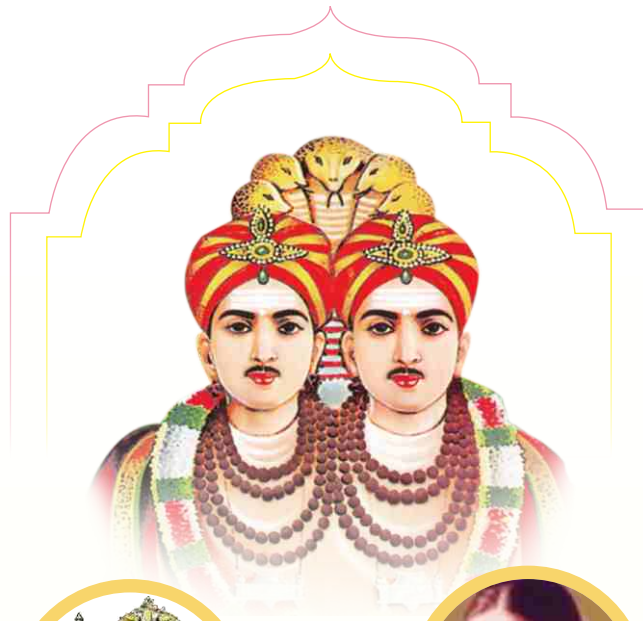
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UNIVERSITY

Tech Glimpses

INSIGHTS OF
CSE DEPARTMENT







Poojya Dr.Sharnbaswappa Appa

Trustee,PoojyaDr.Sharnbaswappa Appa Family Trust,
Sharnbasveshwar Samsthan MahadasohaPeethadhipati,
Sharnbasveshwar Samsthan
President,
Sharnbasveshwar Vidya Vardhak Sangha
Hon'ble Chancellor,Sharnbasva University, Kalaburagi



Poojya Chi. Doddappa Appa

9th MahadasohaPeethadhipati,
SharnbasveshwarSamsthan
Trustee, Poojya Dr.Sharnbaswappa
Appa Family Trust.
SharbasveshwarSamsthan, Kalaburagi



Poojya Matoshree Dr. Dakshayini S. Appa

Trustee,Poojya Dr.Sharnbaswappa Appa Family Trust,
Sharnbasveshwar Samsthan
Hon'ble Chairperson Sharnbasaveshwar
Vidhya Vardhak Sangha
Member, Board of Governor,
Sharnbasva University, Kalaburagi.

DEAN'S MESSAGE

Dr. Lakshmi Patil Maka

Dean, Sharnbasva University
Kalaburagi



Dear Students and Faculty,

It is with immense pride to connect with you once again through the pages of Computer Science & Engineering department magazine, which stands as a testament to the growth and achievements of our vibrant community.

This past year, CSE department has reached new heights, with significant advancements in research, collaborations, and student-led initiatives. Our focus on empowering women in technology, fostering creativity, and embracing interdisciplinary approaches has resulted in a wave of innovations and success stories.

I am deeply grateful to the faculty, staff, and students whose efforts continue to shape CSE department. My heartfelt congratulations to the editorial team for compiling this beautiful reflection of collective accomplishments.

Let us continue this journey of learning and innovation with passion and purpose.

Happy Reading!

Message from the

CHAIRPERSON



Dr. Shivaleela Patil

Chairperson CSE Department
FETW, Sharnbasva University,
Kalaburagi

Dear Readers,

It brings me immense joy to witness another year of accomplishments and milestones for our department. This magazine showcases the achievements and aspirations of a vibrant community dedicated to advancing knowledge and making a difference.

Many events in association with Professional bodies like IEEE, IETE etc. have further strengthened to remain at the forefront of academic and technical excellence.

As we continue to grow, I urge everyone to uphold the values of perseverance, teamwork, and integrity. May this magazine inspire you to aim higher and work harder



Institute Vision Mission

Vision

Enhancing the horizon of world knowledge by empowering women professionals through quality education.

We aspire to become a global model for women's education in the fields of engineering and technology, management and computer application.

Mission

The mission of our faculty is to inspire a research culture, encourage entrepreneurial efforts and empower globally to be great leaders. To create technical women's power to meet the current and future demands of the industry. To develop women professionals who are academically and technically sound with strong ethics and above all, good human beings.

Content

1.Academic Activity

2.Achievements

a.Students

b.Faculty

3.Department Activities

4.Professional body/student Chapters Activities

5.Placement

6.Outreach Activities

7.Articles

Academic Activity



Hands-on Training on Internet of Things (IoT)

Training on IOT was organized by Department of Computer Science & Engineering (Exclusively for women), from 21/9/2023 to 25/9/2023 the resource person for this event was Mr. S Karthikeyan Technical consultant, CADMAXX, Bangalore. The hands-on training on IOT provided compressive & interactive learning experience for the participants. From this training participants gained knowledge of Data Storage and Real Time Data Monitoring using Third party Application Server Integration. Skills in designing & developing IOT projects, preparing them for real world applications & feature innovations in the field.

Cooking without Fire



Hands-on Training on Internet of Things (IoT)

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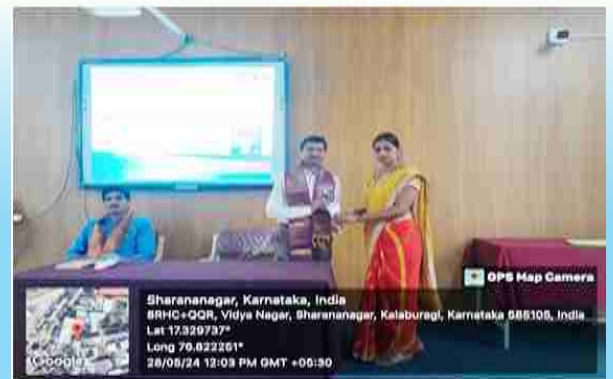
IBM Ice Day Coding Event -2024

On the occasion of the Jnanotsava, CSE department has organized the IBM ICEDAY. **Coding Event - 2024** was held on 28/4/2024, are sounding success, with over participants showcasing their technical prowess and creativity. The event not only provided a platform for students to demonstrate their skills but also ignited a passion for technology and innovation among the participants. Many projects demonstrated potential for real-world application.



The Career Development Cell has Organized by the department of computer science & Engineering (Exclusively for women), held on 28 /5/2024. The resource person for this event Dr. Ramakrishna Yelamanchi, who is International certified trainer from crucial support and information, Council institute of image management. Program was arranged for III year B.Tech students. For the students to make informed decisions about their career paths. The Career Guidance program had two sessions; the first session was conducted by NABET &, in collaboration with Scottish Qualification Authority. The session focused on communication skills, resume writing and its importance. The second session was conducted by Mr. Lingraj Nandi focusing on current job market, insights on Full stack development, Cloud & Data science. Overall, the day was informative and students participated enthusiastically and zealously.

One Day Career Guidance Program



“Process of Innovation Development, Technology Readiness level; Commercialization of Lab Technologies and Tech Transfer” Expert Talk

The department of computer science & Engineering (Exclusively for women) has conducted “Process of Innovation Development, Technology Readiness level; Commercialization of Lab Technologies and Tech Transfer” on 20/6/2024. The talk was arranged for III year B.Tech students by the Resource person Dr. Shivanna D.M, CEO of ARRS INVOTECH Pvt Ltd. Explained the insights on process of innovation, what is Intellectual Property Rights, about patent, Copyright, Trademarks. Introduced the procedure of filing patents. Gave the depth knowledge on importance of Entrepreneurs. The talk was informative for faculties & students and participated enthusiastically.



Punyasmarane

On the occasion of 53rd Punyasmaranosthava of Mathoshree Godutai Avvaji, students and faculty were felicitated for their achievements in academics.





women's day

Women's Day is celebrated every year on the occasion of international Women's Day. On this special occasion, invited chief guest Nandini Harinath scientist at ISRO satellite center in Bangalore. She has motivated all students by sharing her knowledge. Our institute will felicitate all women achievers.



Achievements

Students

Cadet From Kalayaan Karnataka Region To Attend National Republic Day Cam
At New Delhi -2024: Darshna Bhasgi
She got invitation to participate in the 75th Republic Day parade on kartavya path,
New Delhi on Friday 26th January 2024



Best performing ISTE Chapter
Student Award-2024 to Sneha shalgar(4th sem)



*District Level Declamation Contest Organized By
Nehru Yuva Kendra,
Kalaburgi Got First Position in 2024
Niharika Honalli (4th Sem)*



*Techiniovision 2024 organized by
Pooja Doddappa Appa College Of Enginerring
and secured Second Position :
Arpita A.M&Bhagshree Patil (6th sem)*



Sports

Basket Ball winners : Captain priya Govin and others won the First prize in basket ball competition in University.



Kabbadi winners: Captain Nagaraksha and others won the first prize in Kabbadi competition in University.



Javelin Discus throw winner :
Priya govin won first prize in the Javelin discus throw through.



Running Race:
Arpita won first prize in running race



Kho-kho : captain Tanuja patil and others won the first prize in Kho-kho competition in University.



Shortput: Anuradha Yadav won the first prize in shortput and second prize in javelin throw and discuss Throw



Rank Holders Of The Department



AFROZ BEGUM
SW20CSE005
CGPA:9.71



Aadila Mohamadi
SW20CSE001
CGPA:9.58



RUMESA TEHREEM
SW20CSE075
CGPA:9.55



SUNITA T SHIVPUJE
SW20CSE090
CGPA:9.53



AISHWARYA
SW20CSE009
CGPA:9.49



ARFIYA TABASSUM
SW20CSE017
CGPA:9.49



AYESHA UNEZA
SW20CSE018
CGPA:9.49



HUMERA
SW20CSE036
CGPA:9.47



POOJA SHIVAPUJE
SW20CSE060
CGPA:9.44



PREETI STAVARMATH
SW20CSE064
CGPA:9.42

FACULTY

Ph.D AWARDS

*Nandini V Patil completed her Ph. D degree
in secure data processing in wireless sensor network in July 2023*



*Dr. Pushpalata Patil Completed her degree in
Image processing in December 2023.*



*Dr. Jyoti Neginal Completed her Ph. D degree
in Image processing in April 2024.*



*Prof. Rashmi Bangar completed NPTEL Course in
“Python for Data Science”.*

*Prof. Anita B.M completed SWAYAM Course in
“Programming in Python”.*

*Prof. Amruta Reddy presented her Ph.d paper in
"Ph.D research scholar colloquium"
organized by IEEE Mangalore sub section in
association with NITK IEEE student chapter at
National institute of technology Surathkal*



PAPER PUBLISHED

1. **Dr. Nandini V Patil** Published paper with the title “Real-Time Stress Level Monitoring Using IOT” in 2023 International Conference on Integrated Intelligence and Communication Systems (ICIICS).
2. **Prof.Swarooparani** Published paper with the title “Research Over Different techniques In Implementation to Detect Dos Attacks In Current internet Era” in Journal: Eur. Chem. Bull.
3. **Prof. shradha a Dulange** Published paper with the title “Position Based outing Using Internet Contact To Vanet Through Satellite Receive-Only Terminal” ICTACT Journal on Communication Technology.
4. **Prof.Priyadarshini** Published paper with the title “Smart Dental Examinatin Device Using IOT” in Journal of Scientific Research and Technology.
5. **Dr.Manikamma Malipatil & Prof.Jyoti Neginal** Published paper with the title “An Intelligent Based System For Voice To Text Conversion And Summarization Using Machine Learning” in Journal For Basic Sciences.
6. **Dr.Manikamma Malipatil & Prof.Jyoti Neginal** Published paper with the title “ Offline Recognition of Handwritten Mathematical Expressions Using CNN and Xception” in Foundry Journal.
7. **Asst.Prof.Akkanagamma** Published paper with the title “Pixel To Plate: Generating Recipes From Food Images Using Cnn” in International journal of creative thoughts.
8. **Dr.Jyoti R M** Published paper with the title “Enhancing autonomus vehicle applications with advanced lane detection and tracking” in IRJET.
9. **Prof. Anita B. M** Published paper with the title “An Extensive Evaluation of Handwriting Analysis Methods for Personality Prediction” in 2024 International Conference on Integrated Circuits and Communication Systems (ICICACS).
10. **Prof. Shruti M Patil** Published paper with the title “Smartcare for asthma: A Machine learning based CDSS” in 2nd International Conferences on challenges and information, communication and computing technology (ICCICCT-2024)

Udbhav 2k23



The Freshers Party at FETW,CSE was organized on 28TH December 2023 to welcome the new batch of students and provide them with an opportunity to interact and socialize with their seniors and peers. The event aimed to create a friendly and inclusive atmosphere for the freshers to feel comfortable and get acquainted with the college environment. The freshers party witnessed a significant turnout with around 300 attendees, including faculty members. The presence of all chairperson of FETW, Dean SUK, Pricipal GECW added warmth and sincerity to the event. Everyone enjoyed lot by listening Sachin Jadhav fabulous and melodious songs,dance performances by juniors and final year students at last, **DJ** was arranged for all students and staff had a great time.

Department Activity

ADIOS FEISTA 2K24

Every year for final year student's farewell will be organized. The farewell party for the outgoing engineering students was a memorable event that marked the culmination of their academic journey. The party was organized by the junior students and faculty members, who worked tirelessly to make it a success. Farewell is a fancy way to say goodbye. A farewell is also an expression of good wishes at a parting. It is a moment to reflect on shared experiences, friendships formed, and lessons learned. It is a time to celebrate achievements and wish each other well as paths diverge. Farewells carry a mix of nostalgia and anticipation, as students prepare to embark on new adventures, carrying with them memories that will shape their futures.



SPORTS

Our CSE department has organized Basketball Ball Competition: A Thrilling Showcase of Skill and Strategy. The basketball ball competition was an electrifying event that brought together talented teams from various backgrounds to compete in a thrilling display of skill, strategy, and teamwork. The competition was held at a Basketball Court of Sharnbasva University, with a gleaming hardwood court and a packed crowd cheering on their favorite teams.



Industry Driven Full Stack Development

The Computer Science and Engineering department (exclusively for women) in association with IETE sub centre, Kalaburagi organized a student training program from June 28, 2024, to August 7, 2024. The trainer for this program was Mr. Ramakrishna Reddy Levaku from Tech Fortune, Bangalore. The 10-day program, students engaged in hands-on training that covered an introduction to Django and Frontend Fundamentals. The training further delved into frontend and backend development using Django, culminating in project development with Django. The program provided students with practical experience in web development, equipping them with valuable skills in both frontend and backend technologies.



STUDENT CHAPTER ACTIVITIES

“ Webinar on *Augmented and Virtual Reality* ”

To provide the knowledge of Augmented and Virtual Reality Organized by Department of computer Science & Engineering (Exclusively for women) in association with IETE sub centre, Kalaburagi on 10/8/2023. Expert speaker Prof. Kiran, Manager at Metaverse, Bengaluru, Karnataka. Discussed the Role of virtual and augmented reality in the metaverse. The metaverse environment combines multiple elements of technology, such as AR, VR, MR and blockchain, along with social media concepts to create spaces that enrich users, interaction by mimicking the real world. Simulation based training in VR can provide hands on experience in the fields like medicine engineering and more.



Internet of Things

Department of Computer Science and Engineering has conducted workshop for Faculties on “Five Days Hands-on Training on Internet of Things(IoT)” by resource person Mr.S.Karthikeyan , Technical Consultant,Cadmaxx Edtech Pvt Ltd ,Bangalore.

Resource person gave introduction of Internet of Things(IoT) with Open source hardware(ESP32) which is the ultimate IoT board with wired 100Mb Ethernet Interface, Bluetooth LE, WiFi, Remote control IR, and CAN connectivity. Introduction to MQTT Protocols, Long Range IoT/Industrial IoT,Hardware selection for LoRa Technology,Arduino Based LoRa Modules. Sir also delivered Hands-on Sessions on Analog sensor interfacing,Actuator interfacing,Bluetooth low energy,Gateway registration with Network Server,End device data interfacing for raw data in the things network cloud platform,payload formatter for viewing real data .



INVITED TALK ON

“EDGE COMPUTING : A NOVEL PARADIGM FOR LATENCY SENSITIVE APPLICATIONS”

To provide insights on Edge Computing, the Department of Computer Science and Engineering (Exclusively for women) in association with IETE sub centre, Kalaburagi has organized talk on 29/09/2023. The invited speaker Prof. Nitin Auluck from IIT Ropar, Punjab, explained the challenges of traditional concentric approaches & presented edge computing as a solution for reducing latency, enhancing real time processing & improving overall performance. The speaker's expertise & real-world examples made the concept more accessible & engaging to the audience. The different department faculties and students took advantage of the same.



PLACEMENT



Bhagyashree
Capgemini
Package-4.25LPA



Vaishnavi Jadhav
Capgemini
Package-4.25LPA



K Varsha
Capgemini
Package-4.25LPA



Lavanya
Accenture
Package-4.25LPA
Dept CSE



Sadiya Aatiq
Accenture
Package-4.25LPA
Dept CSE



Aishwarya Hiremath
KodNest
Package-2-3LPA
Dept CSE



Bhavani Hiremath
KodNest
Package-2-3LPA



Bhagyashree Yalagi
KodNest
Package-2-3LPA



Pratibha Katagighan
KodNest
Package-2-3LPA



Shifa Mahveen
KodNest
Package-2-3LPA



Soumyashree
KodNest
Package-2-3LPA



Rumesa Tehreem
KodNest
Package-2-3LPA



Pooja Shivapuje
KodNest
Package-2-3LPA



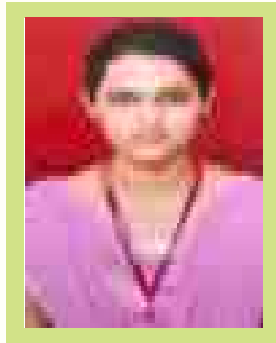
Bhavani Hiremath
Qspider
Package-2-3LPA



Aiman Raheen
Qspider
Package-2-3LPA



AMBIKA S PATIL
Qspider
Package-2-3LPA



Lavanya
Qspider
Package-2-3LPA



Shubhangi Patil
Qspider
Package-2-3LPA



Mandakini patil
Qspider
Package-2-3LPA



Rumesa Tehreem
Qspider
Package-2-3LPA



Preeti Siddayya Stavarmath
Qspider
Package-2-3LPA



Soumyashree
Qspider
Package-2-3LPA

MOU's

Oracle support: software update license and support.

AWS Academy: Self-paced professional development program.

EC- council cyber security related academic courses: For delivering high quality, authorized EC-Council cyber security related academic courses

Veerwal Getwork Services Private Limited : for generating demand for interns, Fresher's and alumni in different work domains generated at various employers all across the country for students of all courses.

Intel Technology India Private Limited: To bring the attention of the institute the relationship of Intel with the program and how the program is managed by vendor, training to students.

OUTREACH ACTIVITIES

Food preservation and Packaging

Karnataka Public School, Madina colony, MSK Mill Kalaburagi



Food preservation and packaging Organized by Department of computer Science & Engineering (Exclusively for women) held on 10/07/2024. event involve techniques and materials used to extend the shelf life of food products and maintain their quality. Preservation methods include refrigeration, freezing, drying, canning, and fermentation, which help inhibit microbial growth and spoilage. Effective packaging protects food from contamination, moisture, and light, while also providing convenience and information. Together, these practices ensure food safety, reduce waste, and enhance accessibility for consumers.

Awareness of digital scams Organized by Department of computer Science & Engineering (Exclusively for women) held on 08/07/2024. is digital scams essential in today's online environment, where fraudulent schemes like phishing, identity theft, and malware attacks are prevalent. Being informed about common tactics such as fake emails, suspicious links, and too-good-to-be-true offers—can help individuals recognize and avoid scams. Educating oneself about cybersecurity practices, such as using strong passwords and enabling two-factor authentication, is crucial in protecting personal information and maintaining online safety.



Spreading public awareness under rural Area Awareness on Digital Scams

Awareness on health and hygiene in public area was Department of computer Science & Engineering (Exclusively for women) held on 10/07/2024 Health and hygiene are essential aspects of maintaining well-being and preventing illness. Good health involves physical, mental, and social well-being, achieved through a balanced diet, regular exercise, and adequate sleep. Hygiene practices such as hand washing, proper sanitation, and personal grooming reduce the spread of diseases and promote overall cleanliness. Together, these practices contribute to a healthier lifestyle and improve quality of life by preventing illnesses and promoting longevity.

Awareness on health and hygiene in public Area

Central Bus Stand, Kalaburagi



Spreading public awareness on Breast Cancer, Cervical cancer and Heart Attack. at .Koharali Tq. Aland

Awareness on health in public about Breast Cancer, Cervical cancer and Heart Attack was Organized by Department of computer Science & Engineering (Exclusively for women) held on 10/07/2024. The World Health Organization (WHO) recommends that girls aged 9–14 get the vaccine before they become sexually active. The vaccine can be given in one or two doses, but people with compromised immune systems may need two or three. The human papillomavirus (HPV) vaccine is a shot that can prevent cervical cancer and other diseases caused by HPV.



Awareness on Breast Cancer

Breast cancer

*vaccines are being
developed to treat and
prevent the disease*

- Peptide Vaccine: Stimulates The Immune System To Respond To Specific Tumor Antigens
- Protein-based Vaccine: Uses An Immunostimulatory Protein From A Tumor Antigen Or Pathogen To Trigger An Immune Response
- Carbohydrate Antigen Vaccine: Uses Sugar Chain-based Compounds That Are Often Found On Cell Surfaces
- Mhc Class Ii Epitope Vaccine: Used To Prevent Secondary Breast Cancer.

Prevention Coronary heart disease

1. Eat a healthy, balanced diet. ...
2. Be more physically active. ...
3. Keep to a healthy weight. ...
4. Give up smoking. ...
5. Reduce your alcohol consumption. ...
6. Keep your blood pressure under control. ...
7. Keep your diabetes under control. ...
8. Take any prescribed medicine.

ARTICLES

STUDENT'S ARTICLES

Niharika Honalli

4th sem C1

As someone who belongs to a generation that has dual life: REAL and VIRTUAL, I can say that the Virtual life is equally awesome, enthusiastic and sometimes way more interesting than the Real life. But hold on a sec, have you ever thought about how much personal stuff we just throw out there?

That's where cyber security comes in, and trust me, it's not some boring adult thing. It's about keeping your virtual life safe, just like you wouldn't leave your wallet lying around at a party. Here's the lowdown on cyber security from a fellow young adult's perspective.

Passwords: The Unsung Heroes (Make Them Strong!) Imagine someone trying to break into your online accounts. What would they do? They'd probably target weak passwords and look for ways to trick you into giving up information. So, the first rule is to create strong passwords. Don't use birthdays, pet names, or anything easily guessable. Make them long, mix uppercase and lowercase letters, throw in some numbers and symbols, and use a different password for every account. And never make the mistake of writing down all your passwords in the Notes App of your mobile phone because if your mobile is stolen then it is easy for the hacker/thief to get into all your online accounts.

Second Layer of Defence:

Two-factor authentication (2FA) is like having a double lock on your digital door. Even if someone gets your password, they'll need a code from your phone or email to get in. Most of the time the Two-factor authentication code is obtained in the form of One Time Password (OTP) so enable this option only for important accounts like banking and email. But if a hacker wants to break your 2FA then he will send you a link with a message stating "you just won a lottery and to claim the reward click the link below" and if you click on the link this means that you have verified the 2FA.

•Phishing: Those Links are Bait

Ever gotten an email from a "bank" you don't even use, telling you your account is compromised? Yes, that's a

phishing attempt. Hackers send emails (or texts) that look legit, trying to trick you into clicking a link or downloading an attachment. Once you do, boom – they're in.

Here's the golden rule: Never click on links or download attachments from unknown senders. If it seems suspicious, it probably is. Check the sender's email address closely (those typos are as same as that of the authentic one), and if in doubt, contact the company directly (not by replying to the suspicious email!).

•Social Media: Sharing too much can hurt you

We love sharing our lives online, but sometimes, over sharing can backfire. Think about it: the more information you put out there, the easier it is for someone to steal your identity or target you with scams.

Here's the fix: Be mindful of what you post. Don't share your birthday, address, or other personal details publicly. Be careful about accepting friend requests from strangers, and adjust your privacy settings on social media platforms. Remember, your online life is an extension of your real life – treat it with caution.

•Staying Secure: It's Not Rocket Science

Cyber security might sound intimidating, but it doesn't have to be. Here are some extra tips to keep your online self safe:

ØUpdate, Update, Update: Those software updates are there for a reason. They often contain security patches that fix vulnerabilities hackers could exploit.

ØFree Wi-Fi? Think Twice: Public Wi-Fi is convenient, but it's also risky. Avoid using it for sensitive activities like online banking. If you must use it, consider using a VPN (Virtual Private Network) for an extra layer of protection.

ØBack Up Your Stuff: Imagine losing all your photos, documents, and memories because of a cyber attack. Back up your data regularly on a secure external drive. Trust me, future you will thank you.

By following these tips, you can navigate the online world with confidence. Remember, cyber security isn't just for adults – it's for everyone who uses the internet. So, stay safe out there, fellow digital adventurers!

5G TECHNOLOGY

What is 5G?

5G is the fifth generation of wireless cellular technology, offering higher upload and download speeds, more consistent connections, and improved capacity than previous networks. 5G is much faster and more reliable than the currently popular 4G networks and has the potential to transform the way we use the internet to access applications, social networks, and information.

For example, technologies like self-driving cars, advanced gaming applications, and live streaming media that require very reliable, high-speed data connections are set to benefit greatly from 5G connectivity.

Why is 5G important?

The demand for internet access, combined with the emergence of new technologies such as artificial intelligence, the Internet of Things (IoT), and automation, is driving a massive increase in the amount of data created.

At the same time, with its high speed, massive capacity, and low latency, 5G could help to support and scale several applications like cloud-connected traffic control, drone delivery, video chatting, and console-quality gaming on the go. From global payments and emergency response to distance education and mobile workforce, the benefits and applications of 5G are limitless. It has the potential to transform the world of work, the global economy, and people's lives.

How will 5G benefit businesses?

The capabilities of 5G can support innovation and improved customer experiences for business. Here are some areas to look out for.

- ❖ Autonomous mobility solutions
- ❖ Smart factories
- ❖ Virtual reality
- ❖ Edge computing

How could 5G benefit society?

The growth of 5G networks is predicted to create trillions of dollars in economic value and millions of jobs, but there are also many areas where it could benefit society.

- ❖ Smart cities
- ❖ Healthcare
- ❖ Environment

How does 5G technology work?

As with previous cellular networks, 5G technology uses cell sites that transmit data through radio waves. Cell sites connect to networks with wireless technology or wired connection. 5G technology works by modifying how data is encoded, significantly increasing the number of usable airwaves for carriers.

- ❖ OFDM
- ❖ Smaller towers

5G TECHNOLOGY

How fast is 5G?

The new fifth-generation allows for navigation at speeds of up to 10 GBPs (gigabytes per second), which is ten times faster than major fiber-optic options . At this rate, it will be possible to download a complete movie in a mother of seconds.

How fast are 5G speeds? The short answer is that 5G speed capabilities depend on many factors such as location, how many people connect to the network, what 5G network you're using, and what 5G device you have. In the U.S., nationwide networks mostly depend on low-band 5G, although some are accelerating deployment of mid-band 5G. Mid-band spectrum 5G can carry plenty of data while traveling significant distances and provides speed improvements over the low-band. High-band mmWave spectrum provides very fast download speeds, but because the radio waves can't penetrate obstacles or travel far, places such as sports stadiums benefit the most.

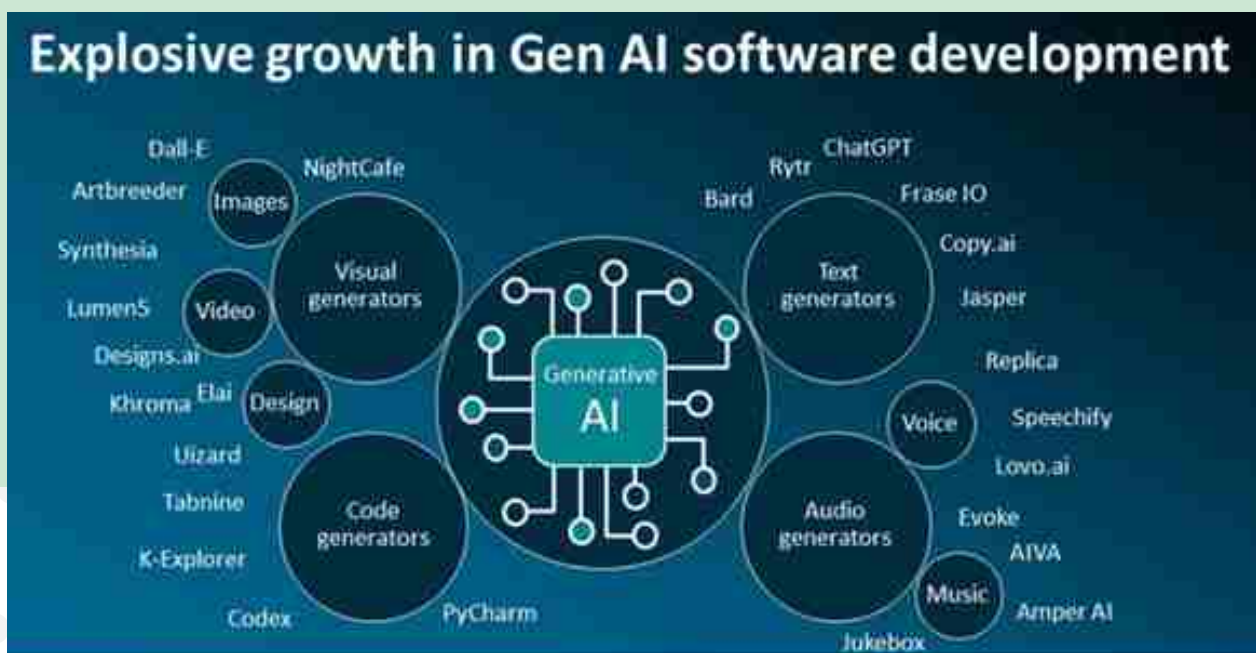
6 Key Features and Benefits of 5G :

What are the key benefits of 5G? 5G is already creating value in several key industries that depend on its low latency, increased bandwidth and higher speeds. For example, a Swedish mine reduced its drilling and blasting costs by 1 percent by creating 5G-enabled automation systems. A European Ford factory is using 5G to power a human gesture recognition and virtual reality application to improve production line efficiency. In healthcare settings, hospitals can use IoT sensors to track insulin pumps, ventilators, and EKG machines. This makes it easier to find equipment for servicing.

FACULTY ARTICLE

Generative AI: Revolutionizing Content Creation and Beyond

Generative AI (Gen AI) refers to a subset of artificial intelligence that creates new data, such as text, images, audio, and even video, by learning from existing datasets. Using advanced machine learning techniques, generative AI models can produce novel content that mimics human creativity and innovation. This technology is transforming industries ranging from entertainment and content creation to healthcare, finance, and beyond.



The Core Technology Behind Generative AI

At the heart of generative AI lies machine learning, particularly deep learning models such as **Generative Adversarial Networks (GANs)**, **Variational Autoencoders (VAEs)**, and **Transformer-based models** like OpenAI's GPT series. These models are trained on large datasets and learn to generate new content by identifying patterns and structures in the data.

For example, GANs consist of two neural networks: a generator and a discriminator. The generator creates new content, while the discriminator evaluates the authenticity of that content. Through this adversarial process, both networks improve over time, leading to highly realistic output, such as hyper-realistic images or video sequences.

Similarly, **Transformer models** like GPT-4 or BERT excel in natural language processing (NLP) tasks. These models are trained on massive corpora of text and can generate coherent, contextually relevant sentences, articles, and even conversations that are nearly indistinguishable from those written by humans.

“AI and Cyber security A New Era”

Artificial intelligence (AI) is a broad term that refers to the science of simulating human intelligence in machines with the goal of enabling them to think like us and mimic our actions. This would allow AI machines to perform tasks that previously only human beings could handle. For some tasks, AI may even surpass human beings.

Cybercriminals are using AI to carry out a variety of sophisticated attacks, from data poisoning to deep fakes. Cyber security organizations also increasingly rely on AI to help flag suspicious data and detect or thwart attacks. To help keep your data safe, review your current cyber security protection and make sure it follows best practices. If you recently used your car's GPS system, relied on auto-correct when writing an email or conducted an online search, chances are you've experienced artificial intelligence (AI). A recent research report estimated the global market for AI-based cyber security products was about \$15 billion in 2021 and will surge to roughly \$135 billion by 2030.

How Hackers Abuse AI

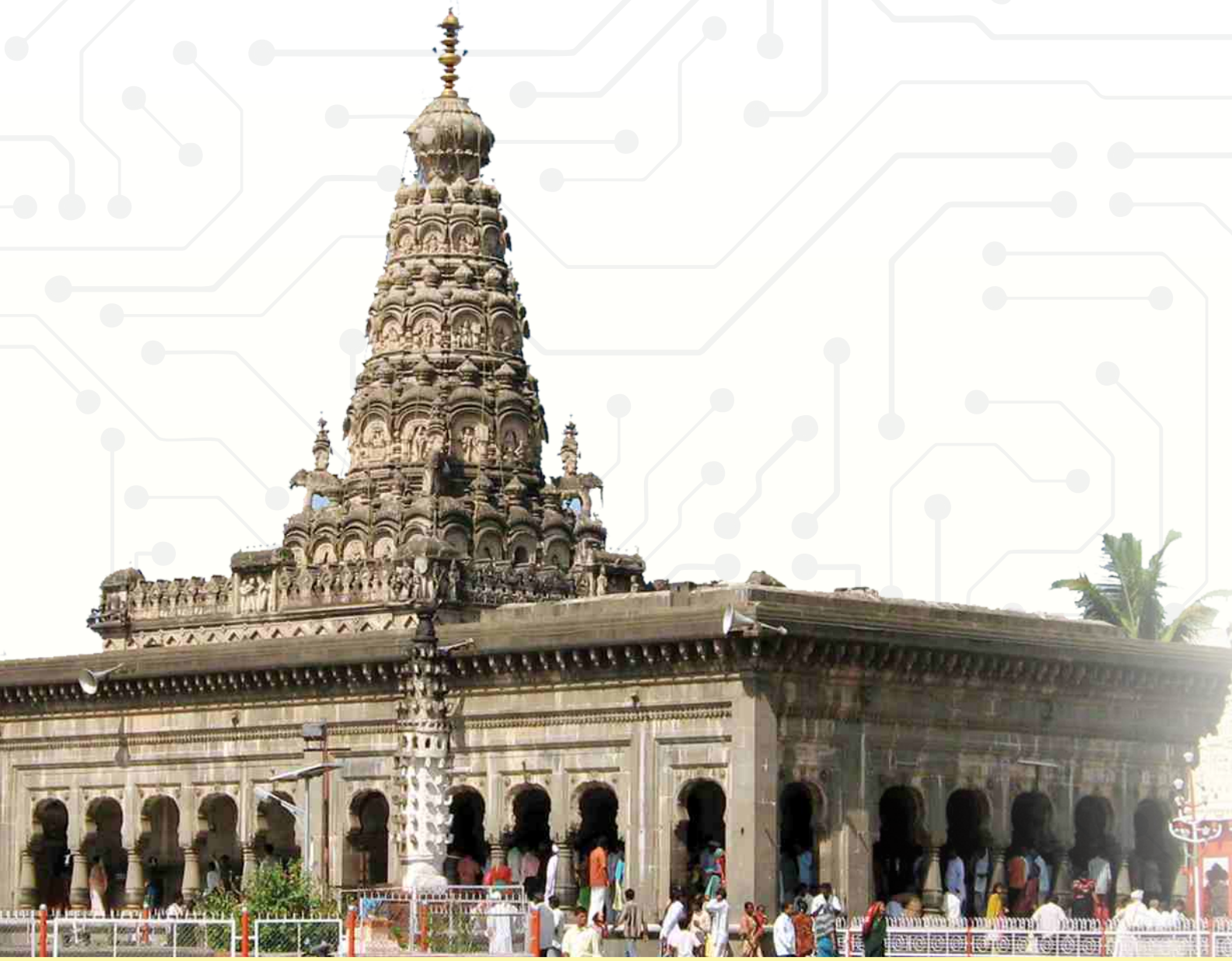
- 1) **Social engineering schemes:** These schemes rely on psychological manipulation to trick individuals into revealing sensitive information or making other security mistakes. They include a broad range of fraudulent activity categories, including phishing, vishing and business email compromise scams.
- 2) **Password hacking:** Cybercriminals exploit AI to improve the algorithms they use for deciphering passwords. The enhanced algorithms provide quicker and more accurate password guessing, which allows hackers to become more efficient and profitable. This may lead to an even greater emphasis on password hacking by cybercriminals.
- 3) **Deepfakes:** This type of deception leverages AI's ability to easily manipulate visual or audio content and make it seem legitimate. This includes using phony audio and video to impersonate another individual
- 4) **Data poisoning:** Hackers “poison” alter the training data used by an AI algorithm to influence the decisions it ultimately makes. In short, the algorithm is being fed with deceptive information, and bad input leads to bad output.

Staying Secure in a Changing AI Environment

We all should review our current cyber security protection and make sure it follows best practices in critical areas such as passwords, data privacy, personal cyber security and especially social engineering. As always, it's a good idea to regularly visit our Security Center for updates regarding AI and our latest cyber security tips.

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Centenary Celebrated Sharnbasaveshwar Vidya Vardhak Sangha's

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