



TECHNOBYTES

DEPARTMENT OF COMPUTER SCIENCE [PG]

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Behavioural Biometric Authentication

Most likely "authentication" hits our mind with the word "password". Password-driven security has incurred a bad reputation due to the human element of the equation. Nowadays, authentication extends far beyond the password. Currently, Multi-Factor Authentication is used which requires users to verify their identity using at least two of three factors. The tech community has strengthened the tools to connect between the digital and physical identity that is more important now than ever. One popular solution on the rise is behavioural biometric authentication.

How does it work? The gait with which one walks, the fluctuations in vocal tone, the cadence with which they type are as unique as fingerprints but are much harder for malicious actors to capture. Behavioural biometric tools run on mobile devices where each user with valid access automatically generates a behavioural profile that reflects the distinct ways in which they interact with critical systems. Once a user's profile is learned, their gestures are monitored in real-time, to continuously authenticate identity. If behavioural patterns that don't match the profile occur, the system can immediately prompt for other forms of authentication, block access, or lock the device down entirely. In the future, as this tool matures, it will likely replace other authentication methods entirely.

Types of Behavioural Biometrics: Though the field of behavioural biometrics continues to evolve, three basic types of behavioural biometric data can already be identified: kinesthetics (body movements), vocal patterns and device-based gestures.



Manikandan D
Software Analyst
Thales DIS, Singapore

→Device-Based Gestures:

•**Keystroke Dynamics:** Keystroke speed, keystroke duration, variations in these for particular key sequences, characteristic patterns.

•**Cursor Movements:** Unique patterns in mouse or trackpad cursor movement as in paths, tracking speed, direction changes, clicks

→Body Movements:

•**Posture:** The unique properties of an individual's body position and weight distribution while standing or while seated.

•**Gait:** An individual's unique walking style as in stride length, upper body posture, and speed of travel relative to these.

→Voice Inputs:

•**Vocal Patterns:** The unique, regular variations in sound that occur as a user speaks or vocalizes.

Prediction of Behavioral Biometric Authentication:

As AI and machine learning continue to advance, their ability to conclude, learn from, and take intelligent action based on real-time data inputs will also grow. These advancements will drive even greater predictive and adaptive capabilities for behavioural biometrics technologies.

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Principal's message

Rev Dr Augustine George - Principal

Investment in knowledge will always pay the simplest interest. Covid-19 is an unprecedented, worldwide pandemic. Everything shifted from offline to online, resulting in an acceleration of emerging digital technologies. Online has created new avenues for assessment, utilization and generation of new knowledge. Updating and skill enhancement through various online activities and research gave a competitive edge in diverse careers for a student. Online, has witnessed an uptick in e-learning which overcomes geographical barriers and ensures equitable access to education.



The Department of Computer Science [PG], Kristu Jayanti College aims in developing dynamic technocrats by inculcating a programmatic and professional approach among the students towards technical education and aspires to enrich the student learning experiences so that they are well prepared to face the challenges in the future. The college not only uses innovative methods of teaching the curriculum but also provides opportunities for the students encouraged to take part in workshops, conferences, fests and competitions. Furthermore, students are asked to take up various online certification courses, participate in meet-ups which add an extra edge to their employability.

“Technobyte”, the newsletter of the department brings to limelight activities and achievements of the department. It portrays the glimpses of curricular, co-curricular activities, initiative and accomplishments of the department during the academic session. I congratulate the staff and students who used various mediums of expression to present their ideas. I wish this endeavour a great success and take this opportunity to appreciate the tireless efforts of every creative mind behind it.

From the Dean's Desk

Dr Jude Calistus - Dean, Faculty of Sciences

The technology revolution has also made our lives easier, faster and better. In the past 20 years, major sectors as media, climate action and healthcare have changed because of technology integration. There is an increasing demand for a workforce that can skillfully handle information in the context of technology. With a flourishing industry, updation and skill enhancement through various experiential academic activities and research will give a competitive edge for the postgraduate in diverse careers.



The Department of Computer Science [PG] is committed to imparting advanced training in knowledge and skill amidst the students. The postgraduate students and faculty members have comprehended and synthesized articles for Technobytes that would discuss conventional, current and futuristic issues in the field of Information Technology. In a way, Technobytes will be an amalgamation of creative constituents and important updates in the field. Heartiest wishes to the contributors and editorial team.

THIS NEWSLETTER IS RELEASED ON MANOEUVRE 2021

Manoeuvre, the intra-collegiate fest is the flagship event of the Department of Computer Science [PG]. The final year students of MCA organise the event, each year. The events are organised on various themes relevant to the time. It'll include IT manager, IT quiz, Coding and Debugging, Web designing, Treasure hunting, Product launching, Videography, App development and Icebreaker events

MCA Programme at a glance

Dr Kumar R - Head, Department of Computer Science [PG]

The Department of Computer Science [PG] of Kristu Jayanti College was established in the year 2004 to inculcate technical education to aspire youth to shape them into a professionally competent workforce. The learning environment is intense and stimulating. The programme was designed to meet the growing demand for qualified professionals in the field of Information Technology. The department always encourages continuous learning and applying skills in the technological domain. The regular academic programme is supplemented by Seminars, Workshops, Personality Development Programmes, Attitudinal Workshop, Soft Skills Training, Tech-Talk Series, Student Seminar Series, Communication sessions and Aptitude Reinforcement modules. The IEEE students branch of our college conducted workshops, tech talks, and the IEEE fest named SpaceX which had many events to bring out the students' talent.



Faculty members of our department acted as resource persons for the in-house workshop and also in the workshop conducted in other colleges. The students have participated in the inter-collegiate fest and won many prizes. The technical sessions are conducted continuously by experts from the industry. As part of knowledge sharing, peer to peer teaching is motivated amongst the students. The academic transactions are rigorous and innovative. The special features of the department include the successful conduct of the International Conference on Current Trends in Information Technology once a year. The department has good placement records - Many students are placed in Companies like Data Semantics, Deloitte, Alucor, Utegration, Synchron, Sysfore Technologies etc. At present, there are 173 students in the department.

Why does Chrome hog so much RAM?

We all know what Google chrome is. Since its introduction in 2008, the amount of people using this browser has been increasing. At present, Chrome has almost 68% worldwide browser market share but we all have faced the problem of our system slowing down while using it. At Chrome, each separate tab and extension creates its process in the memory. The main reason behind this is stability. So, if one tab crashes, the others are not affected. Besides that Chrome's prerendering feature that predicts which link the user will click to improve page load time is another reason which uses RAM. If getting more RAM for your computer is not an option, then Chrome has its built-in task manager which allows us to disable some processes. This task manager can be accessed by clicking Shift+Esc on Windows and Search+Esc on Mac.



Anupam Basumatary
I sem, MSc CS

View on Cyber Security

Cyber security refers to the protection of electronic gadgets like computers and smart phones from hacking and stealing data through some malicious activities. Seeing the increase in usage of electronic gadgets nowadays, everyone needs to have proper cyber security aids. We usually keep our important data and documents on these gadgets, so keeping them secured is very important. There are many ways for cyber security, some of which are antivirus, antimalware and end-user protection. Updating your system software regularly is the basic and most important step for it. While enabling security in your Gadgets, choose a strong password, also we should avoid clicking suspected and strange links. In the current digital world, cyber security is important for everyone. We all should keep our devices private and secured with the help of tools.



Ankita Joshi
III sem, MCA

Vedic Math



Sagaya Jenifer
I sem, MSc CS

Vedic math is a faster and simple way of solving mathematical problems. Knowledge of Vedic Math will lend a helping hand to beat the difficulty level of solving many problems. Before I cite the Vedic math tricks for rapid calculation I feel that Vedic math can be effectively applied in ALU (Arithmetic Logical Unit) of computers and programming powerfully.

Shank Bharti Krishna Tirthaji discovered Vedic Math. If computers were been in his time definitely the logic of Vedic math would have taken a vital part in the structural organization of computers. There are many tricks in Vedic math for rapid calculation let me give you some, in brief, to make one understand how these tricks are powerful enough to help one reduce the calculation time.

1. Multiplication of a Number by 5

For even numbers divide the number by 2 and with the quotient add zero on the right

Eg .1 $6874 \times 5 = ?$

Step 1: divide 6874 by 2. The quotient is 3437

Step 2: Add zero on the right. The Answer is 34370

So our answer is $6874 \times 5 = 34370$

For odd numbers divide by 2 the (number-1) and with the quotient add 5 on the right Eg .2 $583 \times 5 = ?$

Step 1: divide $(583-1=582)$ by 2 The quotient is 291

Step 2: Add 5 on the right. The Answer is 2915

So our answer is $583 \times 5 = 2915$

2. Squaring of a Number with Unit Digit 5

Remove 5 from the unit digit you get a number say 'n'

Find $n(n+1)$

With the result add 25 (the square of 5) on the right side

Eg. 1 Square of 105

Step 1: remove 5 you get 10

Step 2: Find $10 \times (10+1) = 110$

Step 3: Add 25 on the right side, you get 11025

So our answer is $(105)^2 = 11025$

Eg. 2 Square of 1205

Step 1: remove 5 you get 120

Step 2: Find $120 \times (120+1) = 14520$

Step 3: Add 25 on the right side, you get 1452025

So our answer is $(1205)^2 = 1452025$

Overview on AI

What is the importance of AI, Artificial Intelligence? What is the need for AI? What made us want to implement AI? How is AI affecting the life of people? These and many more questions pop up in our heads when we think of such a vast domain. AI in the present age is very important as au-

tomation is taking over and to cope up with the needs and requirements of the people, AI must be used. AI can help us to do things faster and at a higher rate than what a human would do, thus, allowing the process to happen hassle-free and easier without any human intervention. Looking at everyone slowly starting to implement AI in their day to day lives, sets this standard where it overtakes the traditional methods of performing any activities. AI has its drawbacks like any other domain but it is also a very vast and complex field which makes it inevitable to have drawbacks. The skills required to implement it, the cost of production, the cost of manufacturing, the energy used, all these things and much more pull AI back. But we can surely say that AI has changed the lives of people. Artificial intelligence is slowly taking over the world.



Ayush Dhanraj Bhiogade
III sem, MSc CS

AI Fashionista

Talking about fashion, this data wisdom tool has been created by Intelistyle – an AI styling service company. Generally, computer vision ways that concentrate on pattern recognition are used to find visually analogous clothes but their approach was a little different.



Bhavana N
III sem, MCA

Their main focus was on erecting a system that can fete style. It's a lot further nuanced than chancing visually analogous clothes. So, they used deep literacy to prize the substance of style. Of course, this step was executed after they successfully crawled the web for fashion photography examining thousands of outfits put together by influencers and hairstylists, contrivers and retailers.

Intelistyle indeed tested it against real hairstylists and fashion influencers at London Fashion Week. As Forbes reported, 70 repliers unwittingly chose the aesthetics created by their model. Then's another fun data wisdom operation in fashion I spotted on Twitter. The AI, created by artist Robbie Barrat, has generated an entire collection grounded on Balenciaga's former styles.

XAI: Explainable Artificial Intelligence

A model that can explain the predictions like decision trees has low performance, whereas in the case of black-box models the explainability is low but the performance is high. So, there's a trade-off, we can either build a model that can explain the predictions very well or a model having high performance. To solve this problem, researchers have come up with different algorithms through which we can explain black-box models. Interesting, isn't it? These algorithms are called the Explainable AI Algorithms or Explainable AI Frameworks. One such algorithm is SHAP (SHapley Additive exPlanations), a game-theoretic approach to explaining the output of any machine learning model.

Using this you can find out which input features change the output greatly and which have a less impact on the output, or which input features are pushing the output to a higher value and which features are pulling the output downwards.

Some of the examples of Explainable AI Frameworks that are driving a new paradigm for transparency in AI are SHAP, LIME, DeepLIFT, Skater, What-if Tool, Activation Atlases and RuleX Explainable AI.



Mahato Niteesh Kumar
V sem, MCA

Real-time pothole detection

Intelligent transportation which aims to enhance the transport system has become more and more popular. Furthermore, improving the security of traffic is a crucial issue of ITS. Therefore, drivers' safety can be improved with the establishment of a real-time pothole detection system. Using an embedded device in vehicles to detect potholes; this approach can have higher efficiency in a comprehensive environment. To avoid all these causes, there should be a system which would help alert the drivers in advance and the authorized officials, so that the necessary changes can be made as soon as possible. This study proposes a pothole detection method supported by IoT sensors which will detect the jerk experienced by the vehicle. The greater number of data being recorded from different vehicles will ensure the existence of the pothole. The sensors in the vehicle will be sending the data to the required officials to inform them about the maintenance of the road. Then the information will be conveyed to the upcoming drivers by visual graphics or through speakers. The accelerometer data is normalized by Euler angle computation and is adopted within the pothole detection algorithm to urge the pothole information. Moreover, the spatial interpolation method is used to reduce the location errors from global positioning system (GPS) data. Therefore, this proposed system will be helping to create a significant change in the lives of the people by reducing accidents.

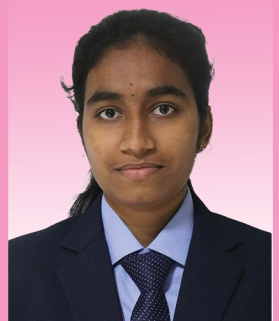


Edwin E Perera
V sem, MCA

Sign Language Recognition

Sign Language is a Language that allows deaf and dumb people to communicate among their community groups. The problem here is many people cannot understand sign language communication. As a solution to this problem, we have developed a model that can automatically recognize the basic sign language that is communicated by mute people and converts it into a text that a common man can understand. We have developed this model using the TensorFlow model. In this, we focus on the recognition of signs or gestures.

Shwetha S
III sem, MCA



Five keys to planning your CyberSecurity career path

Here are five things that potential candidates can do to plan their cybersecurity careers.

1. **Research The Industry** - Most people imagine that a task in cybersecurity may be a penetration tester, or an ethical hacker, breaking into computer systems but there are roles for building the defences rather than trying to find the gaps like analyzing the threats, writing policies, delivering training and even auditing the systems.

2. **Speak To People In Your Target Role** - This can be as simple as finding people in the industry through social media or LinkedIn. Find mentoring programs that might connect you with relevant people and ask what challenges they face. Consider the career path they took and the way you'll be ready to emulate that.

3. **Copy The Careers Of Others** - I recomm-

end watching people within the job you're targeting now and jobs that will be of interest within the future.

4. **Take Certifications Only If You Have To, Or Want To** - No one certification is relevant to all roles. There are some roles, like penetration testers, where certifications are highly relevant. Others, like threat intelligence, have far fewer certifications and are typically not required or valued as much as experience.

5. **Build Your Network** - Building your network means making connections, engaging with them often and adding value to them when you can. Connect through podcast or posting on LinkedIn. Comment on the content they have created and connect with them. Sending them other content they might find interesting is a great way to add value to them.



Atif Khan
III sem, MCA

Quantum Computing Simplified

Quantum Computing is a technique of computing wherein we use the laws and properties of quantum physics for computing in order to achieve faster computing or gain a quantum advantage.

Why Quantum Computing when we have Supercomputers?

Supercomputers worked well until the boom of smartphones and affordable electronics. Data started growing exponentially since then, to a point where supercomputers felt inefficient because of management and maintenance costs. Quantum Computing can help with complex calculations and work well with problems that grow exponentially.

How is it better than Supercomputers?

Quantum Computers use qubits whereas supercomputers / regular computers use bits for data manipulation at a macro level. Qubits can represent both 0 and 1 at the same time. There are 2 possible outcomes for the measurement a qubit, 0 and 1 (due to a concept called superposition), whereas that of a bit is either 0 or 1. Qubits can hold more data and hence it is more effective for computations that

grow exponentially with a slight increase in values. Such as factorial, $5! = 120$ whereas $10! = 3628800$.

Why are companies rushing towards Quantum Supremacy?

Companies such as Google, IBM and many more are rushing towards quantum supremacy because it opens up a new market for business. We know that Amazon's EC2 Instance i.e., Amazon's remote computing horsepower is used by many small



Kaushik M
III sem, MCA

and medium businesses. But very large businesses do not opt for it because the amount of data that their companies generate cannot be managed on the current cloud provider's servers. Hence they set up their own servers. To grow business by providing quantum computing on the cloud is the strategy here. The goal is to provide Quantum Computing as a Service.

Hyperloop, the new era of transportation

From the invention of the wheel in the 4th century BC to the latest Starship rockets, the field of transportation has seen immense changes and innovations as time passes on. An upcoming technology that might bring about drastic changes in the field of transportation is the concept of the Hyperloop. It is an ultra-high-speed transportation system for commuters and cargo that works on the principle of contactless levitation, low aerodynamic drag, and propulsion system. It consists of metal capsules also known as pods that move at tremendous speed and this is achieved through drastically reducing air resistance. The pods travel through low-pressure sealed vacuum tubes with the help of electromagnetic propulsion and magnetic levitation. The entire system would be fully automated and function smoothly.



Jithin Mohan
I sem, MCA

The concept of the hyperloop which was theorised by Elon Musk was given life by Virgin Hyperloop which made history as the first company that successfully tested this new technology. With the implementation of this technology, a three-hour trip via train can be reduced to just 30 minutes. Traffic between major cities will drastically be reduced and would bring ease to public travelling. In November 2020 Virgin Hyperloop tested the first-ever hyperloop pod with passengers on board and stated that the first passenger tube is likely to become fully functional by 2030. Virgin company has also started planning on constructing a line from Mumbai to Pune, which would be a boon to the people residing in those heavy working cities. Several challenges still lie ahead in the full completion of this project, be it cost of technology, construction, safety aspects etc. A new era in the mode of transportation is certainly on the rise with the concept of Hyperloop technology.

Dapp

Dapp (Decentralized Application) is similar to the application which we use in our smartphones such as Facebook, Twitter etc. Once the content is posted, it cannot be erased.

Dapp can only be built on smart contract networks which is a code that makes up a program that can be run on more complicated systems which will allow two people to make an agreement written in code. Hence, there is no necessity to trust a third party providing transparency and high liquidity.

Some Dapps are Game Dapp, Tracking Dapp, Market Dapp, Educational Dapp and others. There are new Dapps built every day. They are beneficial in censorship-resistant, never going offline and decentralized exchanges. There are actually many decentralized applications that provide a way to invest in something called Decentralized finance (DeFi). It is the new protocol that uses Block chain that allow investors to do new things with their money out to be more beneficial.



Ashwini G
V sem, MCA

ClubHouse and the pandemic

The ClubHouse social network media was developed by former Google employees in 2020. But it was bombed only after Elon Musk joined and tweeted on Twitter about it. So far, access to the social network started only by invites.

The Clubhouse describes itself as a "New type of social project based on voice where people everywhere talk, tell stories, develop ideas, deepen friendships and meet interesting new people". The



Abhishek S
III sem, MCA

clubhouse is a social network consisting of audio conferencing. No videos, pictures or texts can be found here. My conversation skills have improved a lot. You can hear a lot of random interesting stories. This lockdown and Pandemic made a lot of people deprived of human interaction and clubhouse chose the right time to come out to the world.

Lazy Predict Python Library

A Data Scientist always puts in a lot of effort to get the best model, but following the usual data science workflow is a tedious process. So, by the time we reach the modelling stage we are already exhausted from writing huge lines of code. At this point, if one has to again dig deeper into deciding which model to use, The Lazy predict library comes in handy. It is accurate and saves a lot of time for supervised Machine Learning problems.

In any IDE install this “lazypredict” library. It works well for Classification and Regression problems. Utilizing lazypredict is exceptionally simple and natural for anybody acquainted with scikit-learn. We initially make an instance of the estimator, LazyClassifier and afterwards, fit it to the information applying the fit technique. By determining predictions=True for the example of LazyClassifier, we will likewise get forecasts of the multitude of models for every single observation.

In any IDE install this “lazypredict” library. It works well for Classification and Regression problems. Utilizing lazypredict is exceptionally simple and natural for anybody acquainted with scikit-learn. We initially make an instance of the estimator, LazyClassifier and afterwards, fit it to the information applying the fit technique. By determining predictions=True for the example of LazyClassifier, we will likewise get forecasts of the multitude of models for every single observation. In the event we need to utilize them for something different later on, we can use the custom_metric argument to pass a custom metric we might want to use for evaluating the models' performance. The best part is, it does the preprocessing also by itself. The missing values will be filled using simple imputer. After this, it uses StandardScaler() for the numerical features and OneHotEncoder or OrdinalEncoder for the categorical features. It works similarly for the regression problems as well, using LazyRegressor. One important thing to remember is the data type of our features should be converted to int or float for the numerical features and object for the cate-

gorical features or else the wrong preprocessing methods would be applied and our results will be inaccurate. Finally, after all this, when we run the LazyClassifier or LazyRegressor it will run a set of the best models and give us the estimated accuracy by displaying the usual evaluation metrics as well as the time taken by each classifier. From the 15-20 models that are displayed. We can select the top 5 or 10 models and then use hyperparameter tuning and decide the best model for our business problem. Another thing to keep in mind is that this library will run for python versions above 3.6 and if you have low computational power, it is better to use Google Colab. I would like to conclude by saying that this library is completely voluntary for the user since it does have a few drawbacks such as the default preprocessing techniques and it does not allow hyperparameter tuning. So, for all the Data Scientists out there who get a little lazy in the modelling stage, never hesitate to use this wonderful library because it saves your time and also teaches you about new algorithms which would be useful in your future codes.

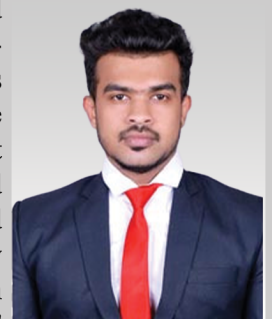


Sherley Gracia
III sem, MCA

3 Malicious Apps that steal your data

The banned applications are "Magic Photo Lab - Photo Editor", "Blender Photo Editor-Easy Photo Background Editor" and "Pix Photo Motion Edit 2021". Now, these applications have been blocked by Google as they have stolen personal information, including user login information and payment details. After a major split in malicious apps that has seen Google block 150 apps recently, the company has now banned many apps from the Google

Play Store to protect users who download apps like these from its store. The "Facebook login" button on various web services and services is used to quickly authorize users and allow them to use the app without having another username and password and is used by popular services like Spotify and Tinder. However, according to a security company, these applications use the login information to misuse the access of users' personal information.



Sumanth S
III sem, MCA

Swarm Drones in Agriculture

The Swarm Robots for Agricultural Applications project is inspired by the insect behaviour. It uses a swarm of small drones to process the information on board, continuously monitor its presence and condition of weeds and crops. SAGA (Swarm Robotics for Agricultural Applications) tackles the problem of sugar beet fields infested by volunteer potatoes, a common benchmark in agricultural robotics. Volunteer potatoes are obtained from tubers remaining in the soil after harvest. To obviate long relocations, only a subset of cells in the vicinity is taken into consideration.

Many applications require high-resolution data only in certain areas, while other parts may receive less attention. To achieve the best compromise between precision and speed, the SAGA swarm implements a decentralized deployment strategy inspired by bee behaviour, which dynamically assigns drones to different areas to be monitored and re-assigns them appropriately to other areas when needed. This way, drones only inspect certain low-altitude areas, while lightly monitoring other cells. The SAGA project has set a new standard for swarm robotics research with its successful demonstration. The next logical step is to expand the notion of agricultural swarms to different systems made up of the ground and flying robots that can handle a wide range of jobs on the farm, from weeding to insect management, from fertiliser optimization to harvesting.



Robin Philip
III sem, MSc CS

Interview from the Industry

All IT professionals need to know which Programming language will change the impact of the industries to achieve maximum advancement in the future. This is an interview with Mr Amosevijayakumar Samuel working as Senior Automation Test Developer at Nextuple Inc. He has 7 years of experience as an IT professional working as Testing Executive->Test Engineer->Test Engineer II->Senior Automation Test Developer in Infosys, JCPenner and Nextuple Inc.



Sumanth S
I sem, MCA

-As an IT professional which language do you think is the best language to work with right now?

Reply: Java for backend, JavaScript for front-end & Python for Metrics & AI/ML.

-Will Java, JavaScript and Python continue to be the best languages for the next 5 years?

Reply: Of course, for the next 10 years.

-What is your opinion on Languages such as Golang, Typescript and Ruby?

Reply: Golang is slowly emerging but other languages won't beat Java.

-Do you think Ruby may gain more popularity in the future?

Reply: It's already being used by some but it wouldn't gain more popularity.

-Do you think Golang may grow faster among the developers in 10 years?

Reply: Maybe since it's getting marketed by Google, there is a chance for it to become popular among the developers.

-So according to you, Golang will be popular because it's been marketed by Google, Not because of its features or anything like that?

Reply: Yes, we can achieve the same by using other languages as well.

-Do you think Typescript will replace JavaScript?

Reply: For a few frameworks, people are using Typescript instead of JavaScript but in the end, Typescript came from JavaScript.

-Do you think Scala will replace Java?

Reply: Not in near future.

-But do you think it may in the future?

Reply: I doubt that, but there will be serious competition between both.

Continued...

-Any other languages that's newly emerging among the developers?

Reply: Nothing I can think of... Maybe Spark.

-Do you think Swift is going to be an emerging language in the future?

Reply: I haven't even heard about people using this language. It's not been recognised everywhere. So -I don't think this will be futuristic. Also it is mostly used in IOS only. In the current world, people don't only rely on IOS and Mac. There is a lot of other alternatives. So I see the scope here is very low.

-What is your opinion about Kotlin as a future emerging language?

Reply: Seems it was created to replace Java but still Java has a lot of advantages over Kotlin. so -Kotlin will remain behind Java and Python for many years. So the scope here is lesser but Kotlin may be increased in popularity if they brought up some new components(updates) to beat Java and Python, then it can. But I don't see It coming.

BlockChain

IT and cloud alternatives organisation, SecureKloud Technology which presently brought the approval to record its health-tech subsidiary Healthcare Triangle on Nasdaq, has launched a plug-and-play blockchain-as-a-service (BaaS) platform under its blockchain picks arm Blockedge Technologies. Blockchain form Blockedge to offer a BaaS platform which is a BaaS is a third-party cloud-based infrastructure for automative supply chain markets. BaaS answer Blockchain Network Management Platform stands in distinction with built-from-scratch guide options and entails zero-coding. The platform additionally helps the introduction of iterative decentralised apps and presents multi-cloud and multi-chain help in businesses. Businesses and governments globally have been more and more selective at adopting blockchain to decorate records privacy, forestall cash laundering, implementation of policies, facts storage, voting, strengthening provide chains, online transactions, and lots more.



Mariam Saba
I sem, MCA

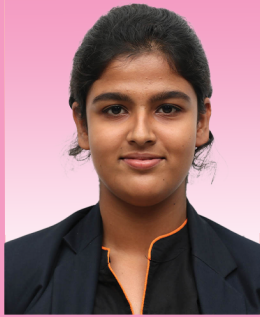
Blockedge is designed to cater to corporations of all sizes to be in a position to be part of blockchain networks and collaborate. A BaaS platform such as Blockedge will have to tackle these unique needs, provide flexibility, make sure of protection and compliance whilst supporting our customers to speed up their blockchain transformation, Kumara Guru, Chief Growth Officer, Blockedge Technologies advised Financial Express Online. Globally, businesses are anticipated to spend shut to \$6.6 billion on blockchain options this year, up over 50 per cent in evaluation to 2020 whilst blockchain spending will proceed to develop at some point of the 2020-2024 forecast duration with a five-year CAGR of forty-eight per cent, IDC had stated in its Worldwide Blockchain Spending Guide in April this year. Importantly, India was once ranked 2nd in a current file on the adoption of cryptocurrency, one of blockchain's biggest use cases, globally via Chainalysis. Out of 154 nations ranked in the report, India used to be ranked after Vietnam and beforehand of nations consisting of the US, Thailand, Brazil, Russia, etc. The report, posted in August this year, stated that the international cryptocurrency adoption grew by over 2300 per cent since Q3 2019 and over 881 per cent in the ultimate year.

How AI is changing the music industry

Artificial intelligence has undoubtedly had a huge impact on the music industry. AI-powered tools and music software packages are becoming more common in music composition, performance, mastering, learning, and digital sound processing.

Continued...

AI has also made it feasible for anyone, from any device, to create professional-sounding music at a minimal cost. Some of the ways AI is affecting the music industry are listed below.



Beryl Sandrina
I sem, MCA

1. **Generating music** - AI-generated music is gaining traction, with numerous well-known performers releasing albums with AI-generated music. IBM Watson Beat, Jukedeck, Melodrive, Google Magenta's NSynth Super, and Amper Music are some of the most popular music-making services. Magenta is a Tensorflow-based Google project that allows users to train an existing model in music to build a new model. LANDR users may master their music with the help of artificial intelligence in this audio mastering tool. It enables you to create output filters by matching production aspects to the music of album quality.

2. **Streaming music**: On streaming platforms like Spotify, this technique is used to analyse the listening habits and music preferences of millions of users. It's particularly good at spotting patterns in millions of music. Spotify's Discover Weekly, for example, is an AI-powered feature that generates a personalised list of music

3. **Music mastering and education**: Many organisations utilise AI to process data and track music usage across many platforms. For example, BMA, a music label based in Barcelona, use audio fingerprinting technology to detect similarities between sounds and machine learning algorithms to track compositional similarity. For many aspiring musicians who are just starting, music mastering might be prohibitively expensive. Several music sites employ AI to function on a freemium basis and provide a full service for a fee. There are also music programmes that provide feedback on your progress while you learn to play an instrument.

4. **Prediction And Discovery Of Hit Songs For Record Labels**: Recording labels and companies can use AI-driven tools to assess different songs to discover what is going to be successful with consumers. They can utilise the demographic data to determine whether or not a particular musical composition will appeal to listeners.

5. **Creation Of New Sounds**: AI has opened up a world of possibilities for new sounds and beats. Although most AI-generated music lacks creativity, it is nevertheless capable of producing solid compositions with which musicians might collaborate to create hits. For example, NSynth, a machine learning algorithm launched by Magenta in 2017, uses this technology to create new sounds based on the acoustic properties of existing sounds.

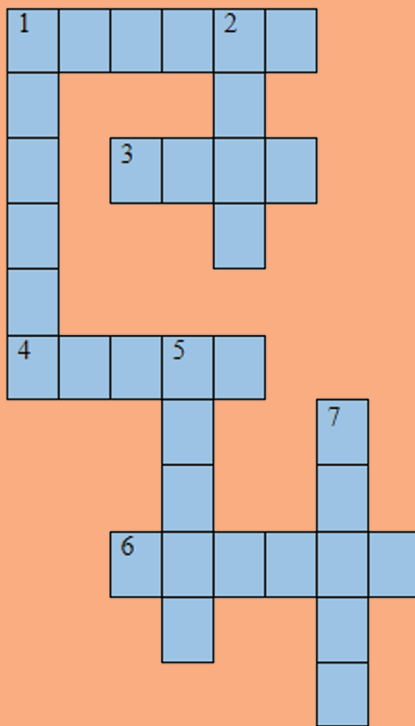
Instagram Monetization

Facebook-owned Instagram is testing new tools to make it easier for creators to earn money through its work. The app is now exploring member stores, a feature that we first tested at its Creative Week event in June, and a dedicated inbox for "partners", reports Engadget. Combined stores are an addition to the existing Facebook shopping experience, which is now widely available. But the latest store-bought version allows creators to link to products that are already part of their compatible plans. The creators will earn commission fees if their fans buy products from these stores, the report said. The company said at the moment the purchase feature will only be available to creators who are part of that collaboration program. Instagram is also exploring new features in the inbox that it says will make it easier for companies to contact creators for support. Instagram DM will receive a dedicated "collaborative" section of messages from products. Facebook assured that they would only allow giving messages "priority" and would always let users skip the requests section from the incoming messages.



Yashwanth R
III sem, MCA

Crossword puzzle

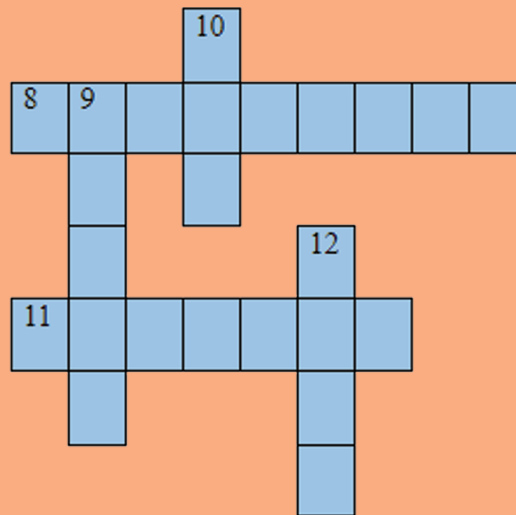


ACROSS

- 1: A number system that uses only 2 digits (1 and 0)
- 3: Unwanted mails
- 4: Small dot or square that makes up an image
- 6: A place where the computer stores its information
- 8: A short-range wireless technology that allows transferring data between devices
- 11: A closed path of an electric current is called _____

DOWN

- 2: Action used to acquire data from its source
- 5: An electronic spreadsheet application
- 7: Give the acronym of (Vital Information Resources Under Siege)
- 9: A procedure used to get access to an operating system or application
- 10: Is a collection of websites
- 12: A method in a data structure that is processed as a queue



Neha K
I sem, MCA

Ethical Hacking

It involves an authorised attempt to gain unauthorised access to a computer system, application or data. This helps to identify security vulnerabilities that can then be resolved before a malicious attacker has the opportunity to exploit them. Ethical hackers use their skills and knowledge to secure and improve the technology of organizations. Malicious hackers intend to gain unauthorised access to a resource for financial gain or personal recognition.

Some malicious hackers deface websites or crash backend servers for reputation damage or to cause financial loss. The ethical hacker gets enough information and uses it to look for vulnerabilities against the asset. Ethical hackers do not progress beyond a defined scope to make an attack successful.



Fatima Begum
I sem, MCA

Latest Trends in Animation Industry

Initially, the Animation Industry catered only to children's entertainment. But now animation is a serious business, with the latest technologies and software. Movies like Avatar, How to train a dragon, Hotel Transylvania, Monsters Inc, Shrek redefined animated content for all age groups. The story, language, animations, effects, there was something for everyone in it. We have many more movies to look forward to like Rumble, Hotel Transylvania 4: Transformania, Bigfoot Family, Master.

There is huge demand globally for high-definition, hyper-realistic, engaging visual experience in terms of visual effects and realistic animation. To meet customer demand, studios are exploring more animation and VFX shots into their movies. Consumers are consuming across all platforms and devices. And, being a population-driven country, India is also rising to the top! The Indian animation Industry grew from INR ₹53 billion rupees (USD 719 million) in the fiscal year 2016 to INR ₹101 billion rupees (\$1.37 billion) in FY2020. Animation accounted for 21.8 billion rupees, VFX, and post-production for 79.5 billion rupees. And by estimates, the market will grow up to 156 billion rupees by 2022.

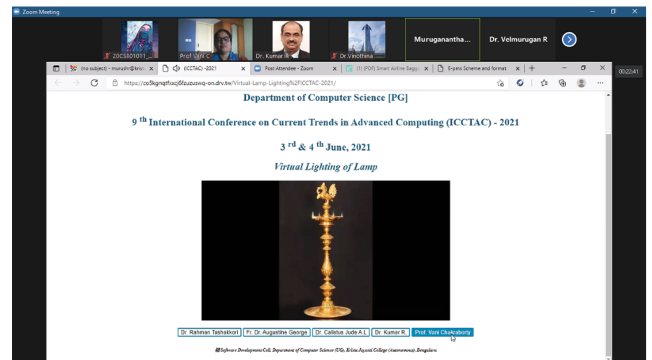
Most companies in India offer the best animation services with an exceptionally talented workforce, infrastructure, and experience and state-of-the-art equipment. India is the preferred destination for outsourcing and service providing India's contribution will be 20-25% to the global market share in the animation and VFX sectors. This leads to the creation of thousands of jobs and opportunities in this sector. As a student, in any stream, training in Animation can be gained from reputed institutes for a successful career in the sector. VFX, Animation and related media and entertainment fields are growing at a phenomenal pace. Are you game?



Ms Pavana Hegde
Director
Arena Animation,
Kammanahalli.



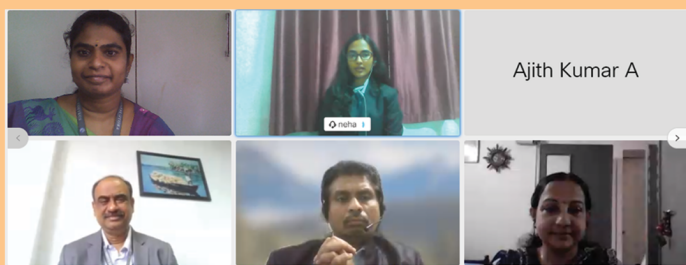
ICCTAC 2021



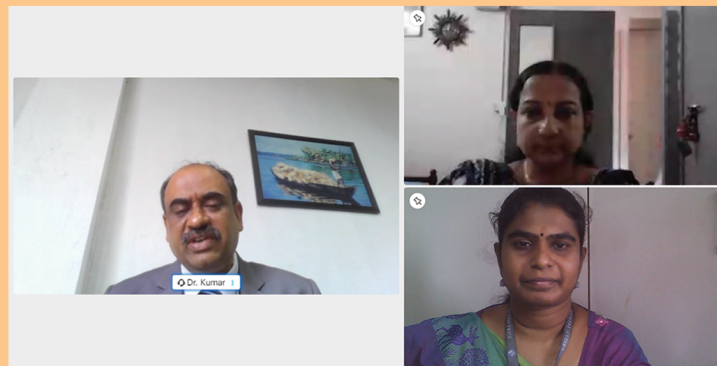
The Department of Computer Science [PG] organized the 9th International Conference in association with IEEE Bangalore Section on June 3rd and 4th with the Title “Current Trends in Advanced Computing “. This conference aimed to create awareness of Modern Technologies and how it's going to create an impact in the future. It mainly focused on creating awareness about the technical world heading towards making advancements in Human-Computer interaction. On the first day, the resource persons were Dr Rahman Tashakkori (Chief Guest), Chair and Lowe’s Distinguished Professor Program Director, NSF S-STEM and ERCS Department of Computer Science Appalachian State University Boone, NC, the USA inaugurated the conference; Dr Samit Bhattacharya, Associate Professor, Department of Computer Science and Engineering, IIT Guwahati, Assam, India spoke on the title “Human-Computer Interaction: What, Why and How? “ and Dr Vikram Rao, User Experience Design Strategist and Consultant SmartKarrot Inc., Bangalore Urban, Karnataka, India briefed on “The role of Human-Computer Interaction in Today’s World “. On the second day Dr P Subashini, Professor of Computer Science, Centre for Machine Learning and Intelligence, Avinashiligam Institute for Home Science and Higher Education for Women - Deemed University, Coimbatore – 640143, Tamil Nadu, India was the resource person throwing light on “Optimised Machine Learning approaches for Brain Computing Interface”. A paper presentation event was conducted at the end of both days.

National Webinar on Artificial Intelligence (AI)

AI: Transforming the world webinar has two sessions. Session I: Artificial Intelligence (AI) - Mr Niteesh Prince John, Asst. Professor, Department of Computer Science and Engineering Saintgits College of Engineering (Autonomous) Kottayam, Kerala, India explained the concepts of Artificial Intelligence like learning and its types and steps in learning. The resource person took a glance through different concepts like Image super-resolution problem, Classification, Detection problem and Image Reconstruction and showed the implementation of Artificial Intelligence in real-time through video footage.

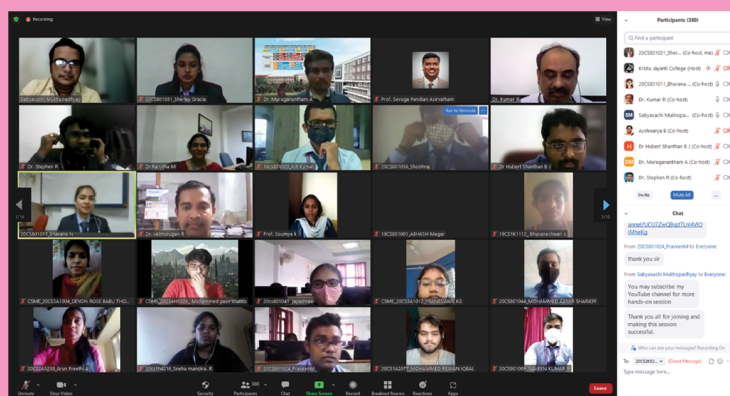


Session II: Natural Language Processing (NLP) - Dr Aruna Devi K, Asst. Professor, Department of Computer Science [PG], Kristu Jayanti College (Autonomous) Bangalore, Karnataka, India. Dr Aruna explained the usage of Natural Language processing and the importance of Text Data. Also, Mam demonstrated sentiment analysis with texts which helped to know even more precisely about Natural Language Processing.



Webinar on Deep Learning Architecture

An exclusive technological skill enhancement webinar was organized by the Department of Computer Science [PG] in association with the ACM-W student chapter, on the topic 'Deep Learning Architecture'. The session was also planned to commemorate "National Online Learning Day" which aimed to get a deeper understanding of the concept of the webinar and acquire practical skills. The Resource Person, Shri Sabyasachi Mukhopadhyay, Google Developer Expert in Machine Learning gave a vivid outlook on the concept by giving a hands-on session on Google Colab and DCNN (Deep Convolutional Neural Network).



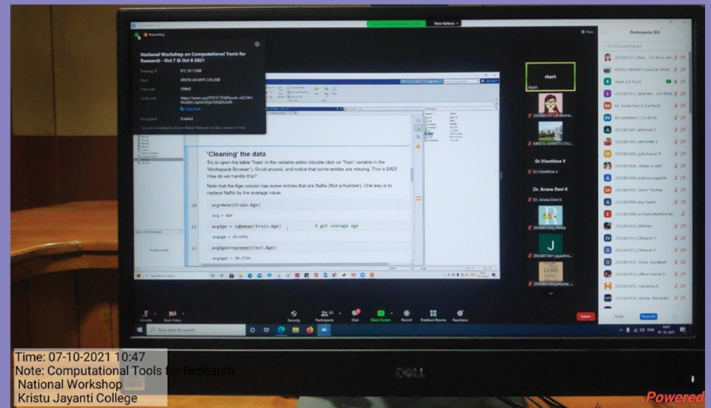
SpaceX - IEEE Day Celebration



SpaceX - Intra-Collegiate IT Competition was celebrated on account of IEEE day. This event aimed to create awareness of IEEE day and how it's going to create an impact in the future. It mainly focused on creating awareness about the IEEE day and how the technical world is heading towards making advancements in future. The competition had the following events – Raptor (IT manager), Starswp (App Development), Pegasus (Coding and Debugging), Grasshopper (Product Launch) and Artemis (Pick and Speak).

National Workshop - Computational Tools for Research

The Department of Computer Science [PG] organized on October 7th and 8th being Two Day National Workshop titled “Current Trends in Advanced Computing “. This workshop aimed to create awareness of Modern Technologies and how it's going to create an impact in the tech world. It mainly focused to get a deep understanding of the computational tools available for the research. On the first day, the resource persons were Mr Rakshith B S, Senior Application Engineer, Mathworks Products, CoreEL Technologies, Bengaluru, Karnataka on the topic “Statistical Techniques and Work flows using MATLAB” and



Dr S Kalaiselvi, Assistant Professor , Department of CSE,t National Engineering College, Kovilpatti, Tamil Nadu over the topic “Machine Learning” in detail. On the second day, the resource persons were Dr Vinothina V, Associate Professor, Kristu Jayanti College (Autonomous), Bengaluru briefing on the topic “Data Visualization” and Dr V Gomathi, Professor & Head Department CSE, National Engineering College, Kovilpatti, Tamil Nadu speaking on the title “Deep Learning”.

Student Research Symposium 2021

The Department of Computer Science [PG] of Kristu Jayanti College organized the National Level Student Research Symposium 2021 on October 27th in association with IEEE Bangalore Section. The objective of this event is to expand the existing body of knowledge by providing solutions to different problems in pedagogy while improving teaching and learning practices in turn providing exposure to the latest techniques from a research perspective using popular software. This conference aimed to create awareness and brush up latest technological trends and how it's going to create an impact in the future, mainly focusing on artificial intelligence and its subparts. Dr Santhi Thilagam (Chief Guest), Professor, National Institute of Technology, Surathkal, Karnataka, India inaugurated the Symposium and delivered a keynote session. The paper presentations.

One was led by Mr Anubhav Wahie, Regional Leader-Cybersecurity Solutions, Cisco, India on the topic “Cybersecurity, Catch up or Catch-all” and another led by Mr Soma Dhavala, Principal Researcher, Wadhvani AI, India on the title “XAI, App explanations are right! Some of them are useful!”



Tech-Talk Session on Azure Foundation

Mr Sameer Basha, Cloud Engineer from Microsoft delivered a session on the importance of the Foundation of Azure. This helped the students to gain knowledge on Azure Foundation, a set of security, governance, and cost management solutions and the offer underpinned by the Microsoft Cloud Adoption Framework for Azure. This helps students to know more about career-related openings and certifications based on this platform.

Resume Building

Computer Science department guest speaker Prof Sen B Mathews, Director, CECR, Kristu Jayanti College and students of the CS [PG] department. The session aimed at making students understand the importance of a Resume and Cover Letter. A resume is a formal document that a job applicant creates to itemize their qualifications for a position. It is usually accompanied by a cover letter in which the applicant can express interest in a specific job/company. The program was organized to prepare the students for creating their brand in college starting with a very impactful outstanding resume and getting placed.



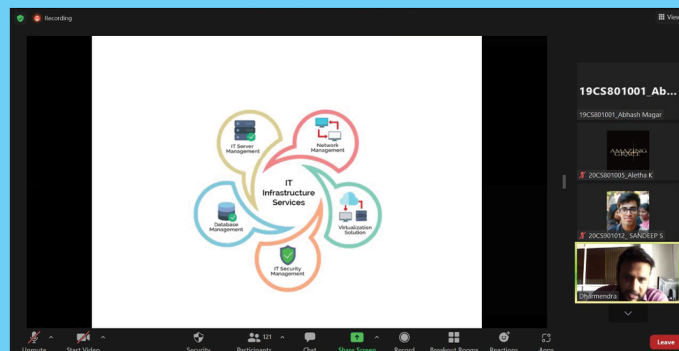
Prof Sen B Mathews

Placement Orientation & Training Program

The program was initiated by Dr Velumurugan welcoming Dr Kumar R, Head of Department Computer Science [PG], guest speaker Prof Sen B Mathews, Director, CECR, Kristu Jayanti College and students of the Computer Science [PG] department. Placement orientation aimed to enlighten students on how the placement is conducted in the college and training program referred to the daily enhancing knowledge and skills through GATE – Graduate Aptitude Test in Engineering that tests comprehensive understanding on various subjects for a job in public sector companies. The program was organized to prepare the students for creating their brand in college and getting placed.

Career Orientation

The program was initiated by emcee Aletha K welcoming Dr Kumar R, Head of Department Computer Science [PG], resource person Mr Dharmendra V, Founder & CEO, NetCraftz, Bengaluru and students of the Computer Science [PG] department. The session aimed at making students understand the importance of occupation, skills and career pathways. Also specializing in a domain and attaining a job, assisting students to comment goals, engaging in job training and acquiring relevant skills, support for career advancement, job maintenance and additional opportunities for professional further education. The program was organized to prepare the students for creating their brand in the company starting with a very impactful outstanding knowledge in their domain and getting placed.



Faculty's Corner

Dr Vinothina V

■ Dr Vinothina V published a research Article on “ Exploring Immersive Technology in Education for Smart Cities” referenced from Immersive Technology in Smart Cities, Augmented and Virtual Reality in IoT, EAI/ Springer Innovations in Communication and Computing

■ On 26th of June 2021 ma'am was a resource person for a regional level One Week Faculty Development Programme on Research Methodology titled “Manuscript Writing in LaTeX” organized by the College of Science and Management, Malur, Karnataka

■ On the 8th of October, 2021 ma'am was a resource person for a national level two days workshop on Data Visualization titled “Computational Tools for Research” organized by Kristu Jayanti College,



Faculty's Corner

Dr Aruna Devi K



- Is awarded PhD in the domain of ANN
- On 24th August 2021, Prof Aruna Devi K has won the best woman Faculty Award hosted by Novel Research Academy, Puducherry, India.
*Ma'am has also filed and published a patent in July 2021 on the topic *"IoT and RFID based positioning of autonomous shock absorber for smart vehicles" with the application number - 202141028518
- On 10th August 2021 professor was a resource person for a state-level webinar titled "Social Network Analytics" organized by the Department of Computer Applications, Sri Malolan College of Arts and Science, Madurantakam

■ On 4th, 18th and 23rd of September 2021 ma'am was a resource person and chief guest for - national-level webinar titled "Natural Language Processing" organized by Sacred Heart College (Autonomous), Thevara in association with the Computer Science Department [PG] of Kristu Jayanti College (Autonomous), Bengaluru; a regional level Media-Tech Workshop titled "Web Development using Dreamweaver" organized by Department of Media Studies [PG], Kristu Jayanti College (Autonomous), Bengaluru and national level Faculty Development Programme titled "Innovative Digital Tools for Teaching, Learning and Evaluation Internal Quality Assurance Cell (IQAC)" organized by Ayya Nadar Janaki Ammal College (Autonomous), Sivakasi - Tamilnadu respectively

■ On 7th and 30th of June 2021 ma'am has been a resource person for - a regional level Lecture Series on Recent Trends in Computer Science titled "Python for Data Science" organized by the Department of Computer Science, Dr N. G. P Arts and Science College, Coimbatore and national level Virtual FDP on "ICT Tools for Online Teaching", IQAC titled "Creating Teacher's Educational Resources Platform" organized by Government College for Women, Chintamani, Chikkaballapura



Dr Ranjitha M

■ Has published a patent in September 2021 on the topic "R-CNN-based Smart Healthcare Cloud-based IoT Model for Detection and Prevention" with the application - 202141040809



Dr Velmurugan R

■ On 16th of September 2021, sir was a resource person for a regional level webinar on Orientation of IIC and KJIC organized by the Department of Computer Science [PG], Kristu Jayanti College

■ Dr Velmurugan R & Dr Muruganatham Alagiah published a Research Article on "Data Summarization and Analysis of E-Waste Management using R in IT-Hub of India Bangalore" in Vidyabharati International Interdisciplinary Research Journal



Faculty's Corner

Dr Muruganantham Alagiah



■ On 15th October 2021, sir was a resource person and guest lecture for a national-level Online/Technoarete Group, IFERP Conference on the topic “PhD end to end assistance & Guidance”

Student Academic Achievements

- All students have either made paper presentations/poster presentations. Students attended seminars/webinars/workshops/conferences like Sodacon, Programming language briefing, overview on open-source technologies certification and many more.
- All students completed 2 or more courses from cisco networking academy. “AWS cloud foundation” course was completed by 36 students of V semester.
- At least two courses from Learnathon were completed by 87 students of III semester. Every two months at least one course is completed by every student as credit marks

Student Achievements

■ Sherley Gracia of III sem MCA earned her place as IEEE Student Ambassador representing our whole nation in IEEE Student Community and received a token of appreciation for the successful participation in the event IEEEXtreme. She is also the ACM-W chair of our college.

■ “Enhance” the inter-collegiate fest conducted by New Horizon College of Engineering was organized in October 2020 where Ms Jainy James of III sem MCA won first place for mobile photography contest named Endless Shot.

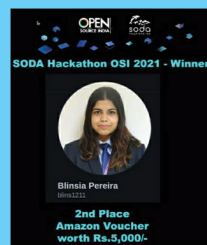
■ Mr MahatoNiteesh Kumar and Ms Blinsia Pereira of V sem MCA won First and Second place respectively in Soda Foundation Hackathon OSI 2021.

■ Computantra named Techmerise 2020 conducted by Presidency College, Bengaluru was organized in the mid-October where Mahato Niteesh Kumar won 2nd place in Startup pitch and Blinsia Pereira won 2nd place in Graphic Designing from V sem MCA.

■ Gateways 2020, the national level intercollegiate IT fest themed as Techovid conducted on 12th December 2020 where Mr Atif Khan of III sem MCA won the IT manager contest



Ms Sherley Gracia



Ms Blinsia Pereira



Mr Niteesh Kumar

■ Gateways 2021, the national level intercollegiate IT fest was conducted by Christ college in November 2021 where Mr Jithin Mohan of I sem MCA won IT manager contest named TechnoWhiz.

Alumni Interaction Series

Session On Hyperion Essbase



Ms Shruthi C D
Implementation Account Manager at eclinical works

The speaker, Ms Shruthi C D, started the session by giving a brief introduction about Essbase. Ma'am explained Hyperion Essbase and its functionalities and features. She briefly explained the working of the Essbase database offered by Oracle. The speaker also presented sample data extracted from data sources and files in a spreadsheet to give an overview of how the database works.

Further, the speaker shared her experience as a cloud support analyst in her organization. The speaker also discussed the applications of Hyperion Essbase and how it evolved over the years. The presentation was informative and provided insight into the corporate world.

Session on Overview of Automation Tools



Mr Mohan R
Automation Lead Engineer Starmark Software Pvt.

The speaker, Mr Mohan R, Automation Lead Engineer Starmark Software Pvt. Ltd. Bengaluru started the session by giving a brief introduction on Automation Tools. He also spoke about how he started his career, what were the challenges he had to face and the puzzle he had to solve to get to this position. Further, he also gave various insights about

how one can prepare themselves for interviews and the fields they should concentrate on and how to choose the domain.

Placement Details(2018-2021)



- * Alex john
- * Alphonsa Joseph
- * Apoorva Bahuleyan
- * Jehova Lalsuongum
- * YuvaShree
- * Sanjay
- * Arya Narayanan



- * Ankita Das
- 
- * Haritha Nair
 - * Sijoy S Samuel
 - * Manish P



- * Sanoop Devassia
- * Sheik Faridh Nowfal
- * Shobhan Manik
- * Syed Faizan Ismail
- * Preethi S
- * Sony John
- * Aswin Mohan
- * Megha
- * Nikhil



- * Neha Elizabeth Price
- * Tabu
- * Sherlin Susanna Shaji
- * Meghasri
- * Abhishek S
- * Sathish
- * Jainy James
- * Shashanka Rekha R



- * Pyarjit VP
- * Xavier Pearl
- * Aletha
- * Jerin Joji



- * Dinesh Kumar K
- * Prashanth S
- * Sarathchandra Babu



- * Sherly Madhu.



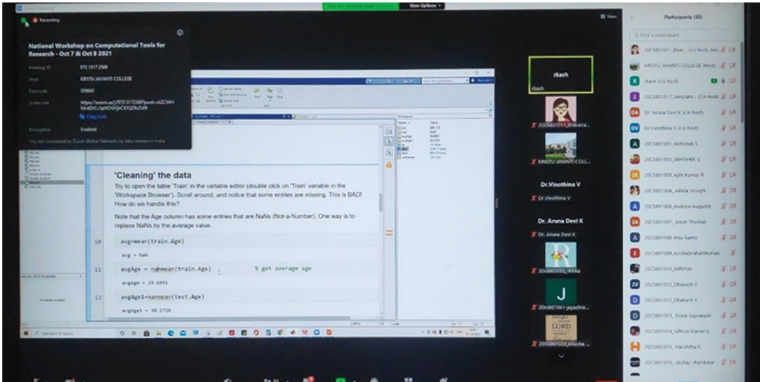
- * Saji C
- * Pradhan P
- * Bhavan Kumar Y

Upcoming events

■ **Shells 2021** - The intercollegiate IT fest conducted by the Post Graduate Department of Computer Science is a platform to exhibit technological expertise, it is a fusion of technology and accomplishments. This fest aims at discovering students' inner potential. Shells 2021 offers a platform for students from various institutions to exhibit their talents. The programmes for the fest include Web Designing, Coding, IT Manager, IT Quiz, Gaming, photography/video making and Treasure Hunt.

■ **International Conference on Current Trends in Advanced Computing (ICCTAC) - an Online Conference** - The last date for paper submission is December 16, 2021; the Authors notification date is March 30, 2022; The final manuscript submission date is April 16, 2022. The conference dates are the 16th and 17th of June 2022. To know more go to our site <https://kristujayanti.edu.in/icctac>

Gallery



National workshop 2021



Student Research Symposium



IEEE Day Inauguration



Freshers Day Celebration



2020 Batch MCA / MSc CS



2019 Batch MCA



Teachers Day Celebration



2021 Batch MCA