SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act. 1956)

CINTELASSOCIATION

DEPARTMENT OF CINTEL
Software that can think

THE DEPARTMENT OF COMPUTATIONAL INTELLIGENCE

School of Computing

NAAC
A++

Category 1
with 12B Status

nirf NATIONAL INSTITUTIONAL RANKING FRAMEWORK
(2022)
Ranked 19th University

QS
(2023) World Ranking
one among 41 Indian Universities

THE WORLD UNIVERSITY RANKINGS
(2023) World Ranking
one among 75 Indian Universities

ARIIA
ATAL RANKING OF INSTITUTIONS ON INNOVATION ACHIEVEMENTS
(2021)
Ranked 4th

SHANGHAI RANKING
(2023) World Ranking
one among 14 Indian Universities

Editorial Team

MRS.C.G.ANUPAMA

DR.D.ANITHA

MR.C.ARUN

The ability to observe without evaluating is the highest form of intelligence

- Jiddu Krishnamurti

Dear Rhetoricians, Pleasure again to meet you all through the medium of COLOSSAL!

The baby steps of our walk is steadily reaching our milestone progressively. We are really proud and exuberant to acclaim that we are ready with all new hopes and hues to bring out the 6th issue, which is going to surely unfold the unraveled world of the most unforgettable and precious moments of the Department of CINTEL. The Department of Computational Intelligence spans its wings in varied directions and mark its thumb in the domains of mixed reality, Digital Twin, Blockchain and in soft computing paradigms.

Every individual is talented in his/her own way. Everyone has their area of interest, hobbies, and passion, if you are a student, scoring well in academics or being a topper is one thing, but the inner talent that everyone has is another. Faculty should identify what their passion is and work accordingly despite any societal pressure. Here in School of computing, the pressure is like a breeze that everyone wants to shower and enjoy the tiny droplets of knowledge and wisdom.

I feel comfortable in going through the achievements of the department and the way, the faculty members and the students have been groomed by the Head and the Senior Professors.

IThe Awards and recognitions, Faculty achievements, Placements, Project expos, IPR workshops, Hackathons, SRMKZILLA, Women's day ,Ethereum concept notes, Hyper ledger fabrics, Patents, publications, consultancy projects, sports events, outreach programs, alumni talks and what not under the fully angiosperm tree! Congratulations to the Editorial Team for their tireless effort and especially for the Thirukkural!

Under the cool breeze so soothing, Under the moonlight so striking, Under the darkness of our eyes, Under the silence of our ears, We being so shared together on a freeze epoch, I wish you all stunning, Paying no heed to others pace, Just flowing in your own pace to fly beyond the horizons with idiosyncratic innovations and with aberrant achievements! Are you Deciduous or Sempiternal? With your critics, See you in the next Edition!!!
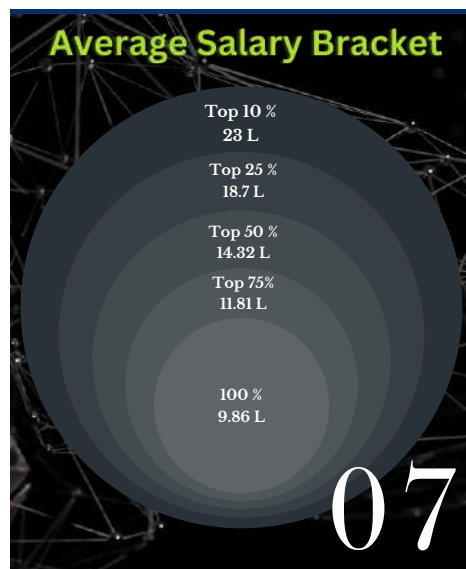

Dr.B.Amutha - Editor in chief

Average Salary Bracket

Top 10 %
23 L

Top 25 %
18.7 L

Top 50 %
14.32 L

Top 75%
11.81 L

100 %
9.86 L

07

28

09

25

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TABLE OF Contents

DR. R ANNIE UTHRA
HOD 'CINTEL

MIXED REALITY

Mixed reality (MR) combines aspects from the physical and digital worlds. Using cutting-edge sensing and imaging technology, you can interact with and modify both real-world and virtual objects and surroundings in mixed reality.

Without ever taking off your headset, mixed reality enables you to view and become fully immersed in the world around you while interacting with a virtual environment with your hands.

It enables you to have one foot (or hand) in the actual world and the other in an imaginary setting, bridging the gap between the real and the imagined, and providing an experience that could alter the way you work and play now. By visualizing their process, MR has demonstrated a progressive improvement of their process by 40% in terms of training utilization.
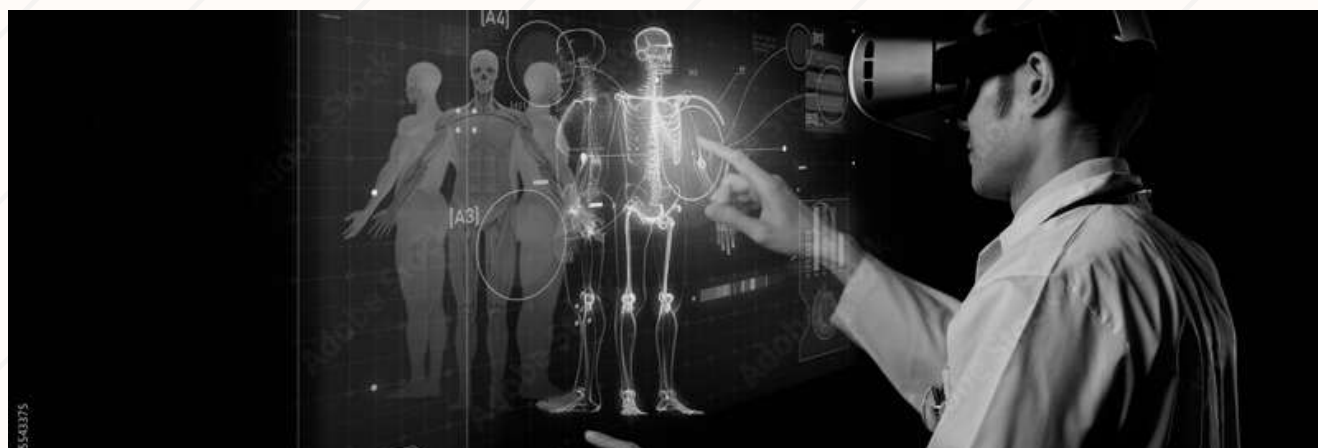
MIXED REALITY: THE NEW AGE

Mixed Reality depends heavily on the evolving relationship between humans and machines. To work effectively, an MR solution needs to be able to understand the various actions of a person in a specific space, as well as the surrounding landscape.

Mixed Reality uses a series of cameras, sensors, and often AI-enhanced technology to process data about a space and use that information to create digitally-enhanced experiences.

When, for instance, a user puts on a set of mixed reality glasses, the cameras and sensors in those glasses connect to a software program which collects as much information about the environment as possible, essentially creating a virtual map of the real world.

MEMORANDUM OF UNDERSTANDING

The SRM Institute of Science and Technology has teamed up with Ethiopia's Mattu University by signing a Memorandum of Understanding, to look into new areas of collaboration. With a focus on the cultural, economic, ethical, political, and social implications of contemporary technology in the global context.

- This MOU is based on mutual benefits, and seeks to foster cooperation between the two institutes in areas like students exchange and sharing of academic materials, publications, references, and other pertinent information. Based on discussions and agreements, both the institutions have decided to create particular projects and activities for the execution of this MOU. The execution of these projects and activities shall be governed by separate agreements or contracts..

Delegates Visit from University of Adelaide

Dr. Scott T Smith, Professor of Structural Engineering and Deputy Dean (International) from University of Adelaide has visited the department to discuss further collaboration activities and Knowledge Sharing.

BLOCKCHAIN 101

One of the most important technical developments in recent years is blockchain technology. It is a decentralized, distributed ledger that securely, openly, and permanently documents transactions. Blockchain technology is still fairly new, but it has already attracted a lot of interest because it has the potential to completely transform a variety of sectors, including finance, healthcare, and logistics.

The foundation of coins like Bitcoin and Ethereum is blockchain technology. Its uses go far beyond just digital money, though. Due to its distinctive characteristics, the blockchain is the perfect answer for a variety of sectors seeking to improve efficiency, security, and transparency.

How does the blockchain function?

A distributed ledger known as a blockchain keeps track of all events in reverse chronological order. A list of events, a timestamp, and a cryptographic hash are all included in each block of the blockchain.

The improved effectiveness of blockchain technology is another advantage.

Additionally, because the blockchain is a decentralized system, there isn't a singular point of failure. The blockchain is replicated across the network's nodes, guaranteeing that it can continue to run even in the event of a node failure. Because every node has access to the same transactional history thanks to its decentralized structure, the blockchain is also more open.

Advantages

The enhanced protection that blockchain technology offers is among its most important advantages. The blockchain is impenetrable to tampering thanks to the cryptographic hash of each transaction. The blockchain is the best option for businesses that need secure record-keeping because once a transaction is added to the chain, it cannot be changed or removed.

Uses of blockchain?

- Digital currencies: Blockchain technology is used by cryptocurrencies like Bitcoin and Ethereum to allow for safe and decentralized exchanges.
- Supply chain management: By tracking products along their complete supply chain, the blockchain can ensure accountability and transparency.
- Healthcare: The use of the blockchain to safely keep and share patient data will make diagnosing and treating patients more effective and precise.
- Blockchain technology is a cutting-edge innovation with the potential to transform many industries.

- Arun C

BLOCKCHAIN ARCHITECTURES

As a ground-breaking innovation, blockchain technology has the potential to revolutionize numerous sectors. An immutable, secure, and decentralized distributed ledger called a blockchain is used to document events. Blockchain technology has seen increasing interest in recent years, and different kinds of blockchain have been created to meet the various requirements of businesses and organizations. Four different kinds of blockchains will be covered in this article: consortium blockchains, private blockchains, public blockchains, and hybrid blockchains.

Public Blockchains: Anyone can access and use public blockchains, and anyone can join the network. Bitcoin is the most well-known instance of a public database. Since public blockchains are completely autonomous, the network is not governed by a single entity. A network of nodes that are run by people and organizations all over the globe validate transactions on public blockchains. A transaction cannot be changed or removed after it has been approved and submitted to the blockchain. Public blockchains are ideal for applications that require a high degree of security and transparency, such as financial transactions, voting systems, and supply chain management because they are safe and transparent.

In conclusion, blockchain technology has the potential to revolutionize a number of sectors by enabling safe, open, and unchangeable record-keeping processes.

Private blockchains: Permissioned blockchains, also referred to as private blockchains, are networks that only allow authorized users to join. Private blockchains are run by a single entity, and their nodes are usually run by a small number of people or organizations. Compared to public blockchains, private blockchains are less decentralized, and the network proprietor controls the degree of transparency. For applications that need restricted access, like managing intellectual property, healthcare data, and identity verification, private blockchains are perfect.

Consortium Blockchains: Consortium Blockchains are a cross between public and private blockchains. Blockchains run by consortiums are usually managed by a number of companies who cooperate to keep the network up and running. The consortium's participants are each responsible for validating a transaction before adding it to the blockchain. Compared to private blockchains, consortium blockchains provide a greater level of decentralization, and the degree of transparency can be changed to meet the requirements of the consortium members. For applications requiring a high degree of participant trust, like supply chain management, trade finance, and real estate, consortium blockchains are perfect.

- C G Anupama

FACULTY
ACHIEVEMENT

Dr. Athira Muraleedharan Nambiar, Research Assistant Professor from Dept. of CINTEL bagged a project titled "**Explainable AI tools for Detection and Classification of sonar imagery for real-world Defence Applications**" from **Naval Research Board, DRDO, Ministry of Defence, Govt. of India**. The budget for the project is **Rs. 28,98,260/-** for 02 years duration.

Dr.S.Krishnaveni, Associate Professor, Department of Computational Intelligence has Received Women Power India Award 2023 for the "**Women Researcher of the Year**", Powered by Raj square charity foundation MSME chamber of commerce and Industry of India.

Dr.Anitha D acted as a resource person for "**A one day meditation workshop on the elements of mindfulness**" organized by Anti Ragging Vigilance Squad, SRM Arts and Science college, Kattankulathur.

FACULTY

ACHIEVEMENT

- **Dr.R Annie Uthra** and **Dr.Kottilingam K** IconDeepCom-2022, Published Proceedings in CCIS, Springer with Role as Proceedings editor.
- **Dr.M.Maheswari** and **Dr.S.Karthick** conducted an outreach activity for the students studying in Government Higher secondary school, Singaperumal kovil, thenmelpakkam village on Ist February 2023.
- **Mrs. A.Jackulin Mahariba** completed SAMSUNG PRISM project titled "Software Defect Analyser | Defect-Code Tracer".
- **Dr.Vimaladevi M** delivered session on Deep Learning in the FDP on "Machine Learning and its Real time Applications", conducted by Sri Manakula Vinayagar Engineering College, Pucherry on 10/3/2023.
- **Dr T R Saravanan,** Dr.E.Poongothai and Dr.S.Amudha organized CSR (Corporate Social Responsibility) Activity Hope public charitable trust(Vocational Training Centre) Kaviya garden, Karunakaracheri, Annambedu Village, Pattabiram,ch-72 on 25-02-2023.
- **Dr.S.K.Lavanya** delivered a session on Natural Language Processing in the FDP on ARTIFICIAL INTELLIGENCE AND DATA SCIENCE IN IMAGE ANALYSIS Conducted by Department of Electronics and Communication Engineering, CMR Institute of Technology, Bengaluru on 14.2.2023.
- **Dr.S.Vimal** Received award in the TECWA 2023(Tamilnadu Educational Consultants and Counsellor Welfare Association) at TRICHY Courtyard Marriott Hotel for Best Professor in practicing folk arts on 28/01/2023.
- **Dr.Sudha Rajesh** and **Dr.S. Prithi** received appreciation certificate for the Practicing of Innovative Teaching Pedagogies from School of computing on 25.1.23.
- **Dr.K.Suresh** appointed as editorial Board Member of International Journal of Data Informatics and Intelligent computing (IJDIIC) ISSN: 2583-6250-UCG Care Journal.
- **Dr.S. Prithi, Dr.A.K. Reshmy, Dr.G. Sumathy** received AWS Academy Graduate - AWS Academy Cloud Foundations course completion Certificate and she also Completed AI-ML Virtual Internship by AWS Academy _AICTE from Dec 2022 to Feb 2023.
- **Dr.B.Pitchai Manickam** nominated as Reviewer for the journal Soft Computing (Springer).
- **Dr.M. Kiruthika** Acted as a Keynote speaker in the one-day National Level Workshop on the topic "Principal Component Analysis for Dimensionality Reduction using Linear Algebra" at Gopi Arts and Science College, on 10.03.2023.
- **Dr.T.R.Saravanan, Dr.B.Hariharan, and Dr.R.Siva** has successfully completed their certification with Golang training in association with Wipro Technologies.

PLACEMENTS

The students from the computational intelligence department have been making their department proud by raising the bar in regards to placements.

We are proud to announce that an astonishing **99.24%** of 4th year students were placed this year! This is a record breaking and award winning milestone!
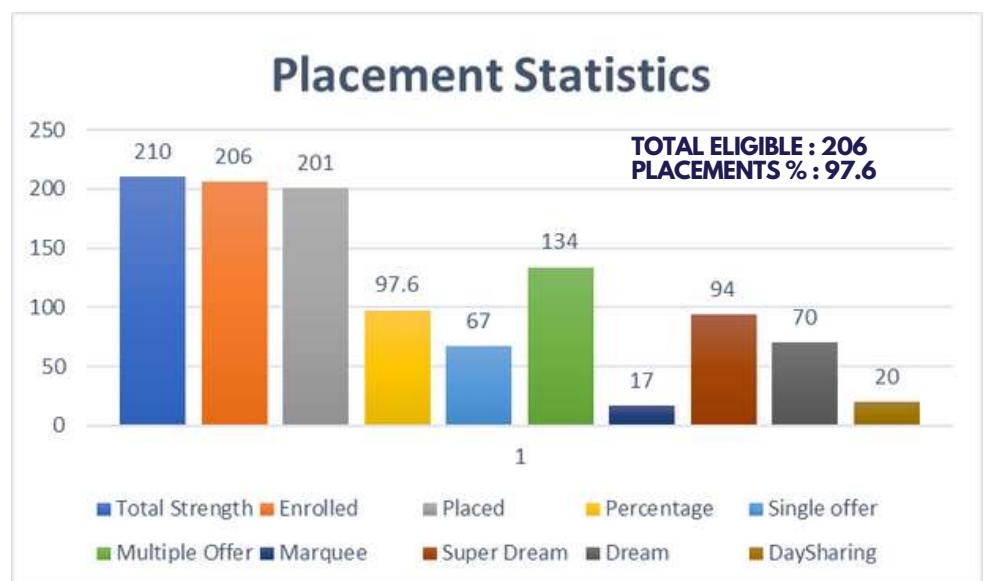
Highest pack CIntel's delighted to have such a marvelous performance by those who were placed and the faculty would like to congratulate and give blessing for their journey ahead to also be of fulfilment and have flying colors on the road ahead.
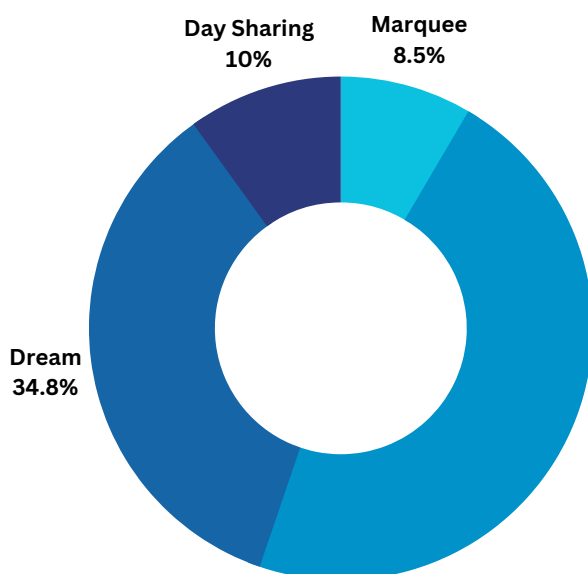
HIGHEST PACKAGE

47 LPA

2023-24 PLACEMENTS

We are delighted to announce that 20 of 3rd Year students got into a internship-cum-placement, with top recruiters such as Paypal, Barclays, JP Morgan, Fidelity, and Fractal Analytics

Placement Statistics

TOTAL ELIGIBLE : 206
PLACEMENTS % : 97.6

- 210 Total Strength
- 206 Enrolled
- 201 Placed
- 97.6 Percentage
- 67 Single offer
- 134 Multiple Offer
- 1 Marquee
- 17 Super Dream
- 94 Dream
- 70 DaySharing
- 20

Placement offers 2022-23 Batch

Day Sharing 10%
Marquee 8.5%
Dream 34.8%
Super Dream 46.8%

Our Recruiters

WELLS FARGO
BARCLAYS
amazon
Adobe
PayPal
ZS Associates
J.P.Morgan
Morgan Stanley
CROWDSTRIKE
OPTUM
BAJAJ FINSERV
Microsoft

INTERNSHIP CUM PLACEMENTS

Internship with PayPal - Stipend 1,00,000 pm

Abhinav Agarwal

Internship with Barclays - Stipend 75,000 pm

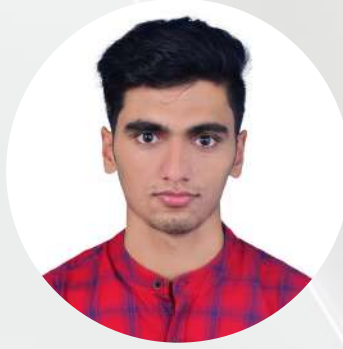**Abhay Dixit**   **Rithika Varaganti**   **Saifeen Naaz**   **Harshit Kochhar**

Mehvish Ahmed   **Sabarinaath S S**   **Krithika B**

Sabarinaath S S   **Yash Goel**

PROJECT

The Project Expo'23 was aimed to provide a platform for the budding engineers to showcase their talents and celebrate their success. A total of 80 teams participated and exhibited their innovative ideas through presentation and project demo. Among the 80 teams, 40 were hardware projects and the remaining 40 were software projects. The evaluation done in two phases namely Hardware Track and Software Track. The projects from each track was evaluated by the panel of judges from Industry as well from Academics. The evaluation process was based on the novelty, presentation and demo and societal needs.

On day 1 the panel of judges were Mr. Prasanna, Head of Information Security, Accubits Technologies, Chennai and Dr. Christy Jackson, Associate Professor from VIT Chennai for Software Track and the hardware projects were evaluated by Dr. N. Prakash, Professor & Head, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai

Similarly on day 2 the software projects were evaluated by Mr. Prasanna, Head of Information Security,, Accubits Technologies, Chennai and Dr. G. Suganya , Associate Professor Sr.Grade from VIT Chennai. Hardware track projects were assessed by Mr. Ramsingh Azhaguraja, Senior Consultant, Tata Consultancy Services, Chennai and Dr. N. Rajendran, Asst.Prof(Sr.Grade) & Assistant Director/ IQAC, B.S. Abdur Rahman Crescent Institute of Science and Technology.
Top 3 Projects on each track are awarded with cash prize.

WORKSHOP

A six-day **faculty development** workshop on **Intellectual property rights (IPR)** and research paper writing was organized by the Department of Computational Intelligence from January 23 to January 30, 2023. The program's objectives were to give participants a thorough understanding of the principles of intellectual property rights and to improve their ability to organize, write, and publish research articles in reputable journals across fields. Dr. G. Geetha, Dean (Innovation) and Professor (CSE), Rajalakshmi Engineering College, Chennai, India, spoke on the idea of patent dominance in academia, innovative and creative India, the national IPR strategy, its key components, the transition from the lab to the market, and the function of IPR.

Department of Computational Intelligence, SRM Institute of Science and Technology has organized a Six days **International Short Term Training Program on Design of Artificial Intelligence Based System for Disaster Management and Mitigation** from March 6th to March 11.Artificial intelligence/Machine Learning has been helping us in various applications such as customer service, trading, and healthcare. And now, researchers have found that AI can be used to predict natural disasters. With enormous amounts of good quality datasets, AI can predict the occurrence of numerous natural disasters such as Cyclones, Earthquakes, Floods, Volcanic eruptions, Hurricanes. This short-term training covers the concepts of climate science, about the cyclone, Data Analysis of weather prediction using numerical models, inner engineering, and disaster mitigation.Participants provided with knowledge on the most common tools used in climate science. Session were handled by experts from IMD,DRRF, ADDGEO, Florida, SRMIST, VIT, NICMAR,and SASTRA.

WORKSHOP

Department of Computational Intelligence has organized a **6 days FDP on Cognitive IoT** which provides understanding of the architecture and an overview of the various technologies utilised in Cognitive IoT.FDP covers topics such as fundamentals of cognitive computing systems, design principles for cognitive computing, the role of IoT in cognitive computing, NLP in cognitive computing systems with hands-on training, representing knowledge in taxonomies and ontologies in cognitive computing, the relationship between big data and cognitive computing, cloud and distributed systems in cognitive computing, IBM Watson as a cognitive system, and the process of building cognitive systems.Dr. R. Thirukkumaran, Head of Research and Development (IoT) at SkillsDA-Knowledge INGU's Academy Pvt Ltd, gave a thought-provoking presentation on the fundamentals of cognitive IoT and its possible applications in a variety of industries on the first day of the program.Participants provided with a practical experience with NLP in cognitive computing systems, and learned about cloud and distributed systems in cognitive computing.

Dr. Mohammad T. Khasawneh, the director of healthcare systems engineering at Binghamton University, visited the SRMIST . The Thomas J. Watson College of Engineering and Applied Science at Binghamton University hosted a discussion on the alternatives to graduate studies. The talk was arranged by the department of computational intelligence. Dr. Khasawneh discussed the numerous options open to students interested in pursuing higher education in the field of applied science and engineering.

BINGHAMTON

DELEGATES VISIT

Cintel's
NEXT GEN AI
HACK STREET

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY, CINTEL's NEXT - GEN AI club organized a 24hrs hackathon on 24th-25th January 2023 in collaboration with SIIEC. The title sponsors of this event were M2P Fintech and Bajaj Finserv. Participants identified various problem statements on themes like financial health, disaster relief and response, environmental well being, sustainable communities culture. Top 20 teams with the coolest and most amazing ideas were invited offline to battle it out on campus to win the very first, one of its kind hackathon. The event was organized on 24th-25th January 2023 at Mini Hall 2, Dr. T.P. Ganesan Auditorium, SRMIST - KTR.
The event was inaugurated by guests and mentors Jayadeep Reddy, Engineering Manager Bajaj Finserv. Soham Dixit, Sr. Technical Lead Bajaj Finserv. Blessin George Varghese, Backend and App Lead Bajaj Finserv along with Dr.Annie Uthra, HOD CINTEL School of Computing. Dr. Revathi Venkataraman, Chairperson School of Computing. Venkata Sastry, Director of Career Centre at SRMIST. First place was bagged by Team Dream Hack, the second place was bagged by 'Team Ctrl Alt Dlt' and the third place was bagged Team Recoder

Tech & Creativity

SRMKZILLA

SRMKZILLA
moz://a

MOZOHACK 4.0

A 24 hour hackathon called MOZOHACK 4.0 was organized, which provide platform for the participants to explore their technical skills for the problem statement provided by reputed companies. There were 70 teams checking. in for the hackathon, of which 23 submitted their projects. Team Binary Bosses won the Hackathon with prize of 15000, goodies and other Compliments

Counter strike & valor

Global Offensive were the two games played. In Valorant, players took on the roles of agents, fictional people inspired by various nations and cultures. Two teams participated in Counter-Strike: Global Offensive, using statistics and tactics to win the championship.
The event went off without a hitch and succeeded in giving each participant a memorable learning experience.

MOZOFEST '23

On February 24 through February 26, 2023, MOZOFEST'23, a three-day festival, included a wide range of activities for both technical and non-technical fans. The event was a huge success, with participants from a variety of industries who were eager to demonstrate their abilities in problem-solving, teamwork, critical thinking, and leadership.
Rush Hour, the first technical event, was a team-based competition where competitors were timed as their coding prowess and trivia knowledge were put to the test.
"Ca(t)che The Code," the following technical event, was held. This event brought participants technical intuitions and spontaneity to the table. The contestants had to figure out a series of hints in order to decipher a code.
The event went off without a hitch and succeeded in giving each participant a memorable learning experience.

INTERNATIONAL

WOMEN'S
Day!

Every year on March 8, the world celebrates International Women's Day to honour the social, economic, cultural, and political accomplishments of women. It is a day to honour women's accomplishments, promote gender equality, and stand up for women's rights.

The theme of this year's International Women's Day is "Choose to Challenge," which calls on people to oppose gender injustice and bias, advance diversity and inclusivity, and build a more gender-equal society. Everyone can contribute to ensuring a better future for women by battling misconceptions and removing barriers.

In addition to honouring women's accomplishments, International Women's Day also serves as a reminder of the work still left to be done. Despite recent improvements, women still face several obstacles, including discrimination, unequal pay, and restricted access to education.

In honour of International Women's Day, let's all pledge to contribute to making the world a more fair place for women. We can contribute to creating a better, more inclusive future for everyone by making the decision to confront gender bias and inequality.

8TH MARCH

WOMEN'S DAY

WOMEN OF CINTEL

Aligning to the International Women's Day Theme "Accelerating Equality & Empowerment" team CINTEL congratulates and appreciate the efforts of the FACULTY who have served our esteemed organization SRMIST for over 20+ years and 10+ years.

Women's Leadership & Collective Action Can Make a Difference for an inspiring conversation, with these women leaders whose collective action to drive progress in academic, research and administrative areas thus raising standards of school of computing. They aren't just expected to do office chores but also their interpersonal intelligence which has created a harmonious work environment.

It's been an amazing 26 years at SRM!! A place that helped me blossom into an academician, researcher and an administrator. SRM has abundantly gifted me with ample opportunities and has taught me many of the life's greatest lessons throughout my career!!!

I have been travelling and growing with SRM for the past 21 years. I was not a person who transforms dream into actions as pointed out by Dr. A P J Abdul Kalam, when I joined SRM a way back in 2001. SRM taught me "TO DREAM AND TO MAKE DREAMS INTO ACTION". I thank all the leaders of SRM and heads of Computer Science and Engineering from whom I learnt the best qualities to make myself best in all the work I involve in.

Dear SRMIST, My Professional career started and flourished along with your growth from past 26 years and its ongoing. My life journey along with you is as with my Parents, my friend, my Guru, my Soulmate etc., You have made me understand myself and my heartfelt thanks to you. I would like to call you as "BODHI SATTVA". Words are less to describe the Experience since It's a Feeling....

In this Journey of 21 years with SRMIST, I have explored my academic and research activities, Gained leadership qualities with multitasking.

Decade and counting more....

Dr.M.Uma

Dr.N.Snehalatha

Dr.T.S.Shiny Angel

Dr.S.Krishnaveni

Ms.SasiRekha Sankar

Mrs.J.V.Vidhya

Mrs.C.G.Anupama

Dr.D.Anitha

Dr.S.Aruna

Mrs.Jackuin Mahariba

Mrs.A.L.Amutha

SHADOWY ENIGMA

The enigmatic person who created the Bitcoin cryptocurrency goes by the name Satoshi Nakamoto. Whether Satoshi is a single person or a collection of persons is still a mystery, as is the identify of this person. Satoshi, though, has made some truly innovative contributions to the cryptocurrency space.

In 2008, Satoshi released a white paper titled "Bitcoin: A Peer-to-Peer Electronic Currency System" that served as the first explanation of the Bitcoin concept. Satoshi described the fundamental ideas behind Bitcoin in this article, a decentralised digital currency that enables safe, private transactions without the need for a central authority. Since then, countless more cryptocurrencies have been developed in response to this ground-breaking concept.

Since the launch of Bitcoin in 2009, the identity of Satoshi has remained a mystery. On the basis of the name and the time of Satoshi's remarks on online forums, some have hypothesised that Satoshi might be a person or group of people from Japan. Some people have hypothesised that Satoshi might be a group of computer scientists, mathematicians, and cypherpunks from different parts of the world.

It is impossible to ignore the influence of Bitcoin and cryptocurrencies in general, notwithstanding the secrecy surrounding Satoshi's identity. Decentralized finance is becoming more popular across the globe thanks to Bitcoin, which has also given people and businesses new opportunity to deal in a safe and effective manner. Future developments in technology and finance will surely be influenced by Satoshi's legacy for many years to come.

Finding Satoshi Nakamoto's real identity has sparked increased attention in recent years. Several people and organisations have even asserted that they are Satoshi, but no one has been able to conclusively substantiate these claims. Whether Satoshi's identity is ever made public or not, the effects of their invention will be felt for a very long time. The impact of invention and the potential for technology to transform the world are demonstrated by Satoshi's legacy.

- Samudra Banerjee

ETHEREUM

Ethereum is a decentralized open-source blockchain platform that was introduced in 2015 by Vitalik Buterin. It is unique in that it allows developers to build decentralized applications (dApps) and smart contracts that can execute automatically based on certain conditions. Ethereum is highly flexible and offers a range of benefits that make it a popular choice among developers and businesses alike.

One of the key benefits of Ethereum is its flexibility. It has its own programming language, Solidity, which allows developers to create custom smart contracts that can execute automatically based on certain conditions. This has led to a vibrant ecosystem of developers and projects, with many innovative ideas being brought to life. Additionally, Ethereum is highly secure due to its use of cryptographic algorithms, making it a reliable platform for financial transactions and sensitive data.

Another benefit of Ethereum is its scalability. The platform has introduced several upgrades to its infrastructure, including the upcoming Ethereum 2.0 upgrade, which aims to increase the network's transaction throughput and reduce fees. This will make Ethereum even more accessible to users and developers, further fueling its growth and adoption.

In conclusion, Ethereum is a highly flexible and scalable blockchain platform that offers a range of benefits to developers and businesses alike. Its unique programming language and ability to execute smart contracts make it ideal for decentralized applications, while its security and scalability make it a reliable platform for sensitive data and financial transactions. As the platform continues to evolve and mature, it will undoubtedly play a crucial role in shaping the future of the blockchain ecosystem.

- Swetanshu Agrawal

WHAT IS HYPERLEDGER FABRIC

A blockchain platform with permissions called Hyperledger Fabric was created for business use cases. It was unveiled in 2017 by the Hyperledger project of the Linux Foundation and has since gained popularity among companies looking for a scalable and secure blockchain solution. For businesses wishing to take advantage of the advantages of blockchain technology, Hyperledger Fabric offers a number of advantages that make it the perfect solution. The versatility of Hyperledger Fabric is one of its main advantages. Because of the platform's high degree of customization, developers can pick and choose which components to employ and how to configure them. This makes it a very adaptable platform that can be customized to satisfy the unique requirements of any use case. Moreover, Hyperledger Fabric is appropriate for large-scale enterprise applications because it is highly scalable and capable of processing thousands of transactions per second.

- Govind Kalawate

The attention Hyperledger pays to confidentiality and privacy is another advantage. Sensitive data is kept secure and only accessible to authorized parties thanks to the platform's ability to set up private channels between particular parties. This makes it perfect for use in situations where numerous parties may need to transmit sensitive information, including supply chain management. Moreover, Hyperledger Fabric has a permissioned network paradigm, which restricts network access to only authorized users. Because of this, it is more secure than publicly accessible blockchains like Ethereum or Bitcoin. With a built-in consensus process that makes sure all transactions are verified and logged consistently, Hyperledger Fabric is also very dependable.

CINTEL STUDENT HIGHLIGHTS

Aditya Kapoor from a 3rd year in the department of CSE-AIML is a Senior Under Officer of SRMNCC. He and his team participated in Cadofiesta which was conducted by Tamil Nadu Dr Ambedkar Law University that was organized on 09 March 2023.

They secured Overall Runner up Banner and the Over all Drill banner. Apart from that they won other other accolades like Contingent Drill 3rd place ,Guard Of Honor 1st Place TSC 1st place , Lexo Cadet 2nd place, Thalir 2nd place ,NIAP 3rd place

Vaishali Vinayaga from third year -AIML Department of Computational Intelligence was selected in an Semester Abroad program. She was accepted in **WASEDA UNIVERSITY based in TOKYO , JAPAN**. She is in the School of Fundamental Science and Engineering till September 25th
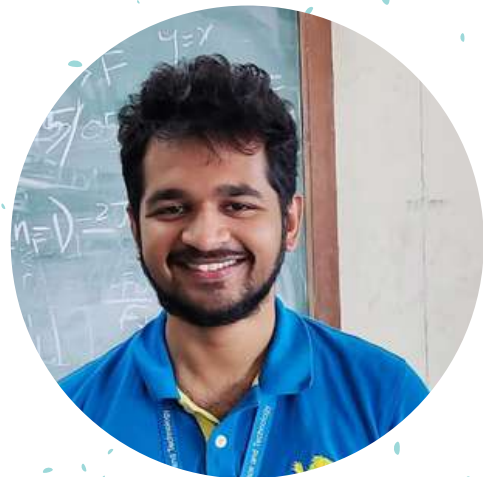
Gadiraju Chinmay Varma from third year -AIML Department of Computational Intelligence was selected in an Semester Abroad program. He was accepted in **WASEDA UNIVERSITY based in TOKYO , JAPAN**. He is in the School of Fundamental Science and Engineering till September 25th

STUDENT ACHEIVEMENTS

ACTION BRAINSTORMING CAN HELP IDENTIFY WHAT THINGS ARE HELPING OR STOPPING YOU FROM ACHIEVING YOUR GOALS.

The 1st year students from V1 section in **AIML** have won 1st prize for smart hackathon campus. The team comprising of Abilaash S S, A Akhil and Kavya U have achieved a huge mile stone and our department is very proud of them.

A team comprising of students from **CINTEL and CTECH** students took part in IIT Bombay Techfest. The team comprised of Samudra Banerjee(CINTEL), Ritveek Rana (CINTEL), and Sneha Mazumder (CTECH) came 6th in the competition.

Hariharan G. Mudaliar of I Year AIML U2 Section won first prize in Kodekshetra Hackathon conducted by Department of NWC, SRMIST on 21.03.2023.

First year AI student Divjot Singh Manchanda and his team won the first place in the line follower robotics event held at BITS GOA

STUDENT ACHEIVEMENTS

ACTION BRAINSTORMING CAN HELP IDENTIFY WHAT THINGS ARE HELPING OR STOPPING YOU FROM ACHIEVING YOUR GOALS.

- **Paras Atal** from X2 section won Best Delegation Award as a whole unit and he also received individual participation certificate.
- **Ritwik Mohanty, Om kar** and **Siddhartha raghaw** won third palce in the Project Expo 2023.
- **Ankit Singh** participated in Machine Learning with Python which was conducted from 27th Aug, 2022 to 27th Oct, 2022 in IIT Guwahathi.
- **Aryan Kumawat**, was first place in Table tennis men, Inter Collegiate Tournament, Indoor sports complex near Milkha singh ground on the 3rd of February 2023.
- **IDDHARTH S**, has won second prize in short film competition students chapter. He also won the Stage play, Improv competition in Milan, and SN Fest instincts- stage play 3rd prize.
- **Karthik** won silver in math Olympiad.
- **Varun Khachane** is doing a IIT-Guwahati Research and Development Internship
- **Upamanyu** has got a Ghosh Global Academic Internship Programme
- **Charvi Jain** completed virtual internship in code clash
- **Hariharan, Adithya, Thejas and Tiruvenkata Muhilan** presented the project in Project Expo conducted by Department of CINTEL, SRMIST on 15th and 16th February 2023.
- **Mr. Sarath Chandra** got the internship in FXIII ENHANCE PRIVATE LIMITED.
- **Mr.Sarthak Mittal** form CSE-AIML completed his internship with National Centre for Communication Security in the Department of Telecommunications, Bangaluru from 17.12.2022 to 17.02.2023.
- **Harsh Bhayana** has successfully completed online course on software training & values empowerment conducted by ENDURO in association with IIT Hyderabad

Patents & Consultancy Project

CINTEL

Stars of our Department

- **Dr.M.S.Abirami** published patent titled, "A Multimodal biometric System for Human Recognition and a Method Thereof", Indian Patent Office.
- **Dr.P.G.Om Prakash** published patent titled, "Design System of Intelligent Healthcare System Using IoT driven Signals with Machine Learning", Indian Patent Office.
- **Dr.S.Vimal** published patent titled, "A Music Selection System Based on Facial Recognition with Wireless Communication and Means", Indian Patent Office.
- **Dr.Sudha Rajesh**, **Dr.A.K.Reshmy** and **Dr.R.A.Karthika** filed a patent titled, "Security for Online Banking and transactions" - 24 Feb 2023, Indian Patent Office.
- **Dr.N.Kanimozhi** published a patent titled ,"Temperature based Touch less Attendance System" on 03-01-2023, Indian Patent Office.
- **Dr.Gopirajan PV** published a patent titled, "A system for human resource management using artificial intelligence and robotics", Indian Patent Office.

Consultancy Project

- **Dr.G.Sumathy** and **Dr.AR.Arunarani** received consultancy project titled,"Customized Human Resource Management System (CHRMS)" from the company Ti Anode Fabricators Pvt. Ltd,Chennai, 9th Nov to Feb 2023.

PUBLICATIONS

Journal Publications

- **Dr.M.Ferni Ukrit** published paper titled, "Published "CSO-CNN: circulatory system optimization-based cascade region CNN for fault estimation and driver behaviour detection", Signal, Image and Video Processing, Springer.
- **Dr.C.Amuthadevi** published paper titled, "Emotion Recognition of People Based on Facial Expressions in Real-Time Event" in the proceedings of Communications in Computers in and Information Science, Springer.
- **Dr.T.S.Shiny Angel** published paper titled, "Performance evaluation of image fusion techniques and implementation of new fusion technique for remote sensing satellite data", Journal of Intelligent and Fuzzy Systems.
- **Dr.M.S.Abirami** published paper titled, "Novel Multimodal Biometric Feature Extraction for Precise Human Identification", Intelligent Automation and Soft Computing, 36(2), pp. 1349-1363, Jan 2023.
- **Mrs.A L Amutha** published paper titled, "Mobile Application Development for Disease Diagnosis based on Symptoms using Machine Learning Techniques".
- **Dr. S.Amudha** published paper titled, "Modelling Air Pollution and Traffic Congestion Problem through Mobile Application" in the proceedings of Communications in Computers in and Information Science, Springer.
- **Dr. S.Amudha** published paper titled, "Emotion Recognition of People Based on Facial Expressions in Real-Time Event" ,in the proceedings of Communications in Computers in and Information Science, Springer.
- **Dr.S.Amudha** et al published paper titled, "Emoji Anticipation and Prediction Using Deep Neural Network Model", IEEE Explore 27 Feb 2023.
- **Dr.S.Sadagopan** published paper titled, "Block chain-based security and privacy framework for point of care health care IoT devices', Soft Computing, 2023.
- **Dr.S.Sadagopan** published paper titled, "Propositional Inference for IoT Based Dosage Calibration System Using Private Patient-Specific Prescription against Fatal Dosages", Sensors, Vol. 23(1), 2023.
- **Dr.P.G.Om Prakash** published paper titled, "Hybrid optimization based deep neuro fuzzy network for skin cancer detection is published in Concurrency and Computation: Practice and Experience".
- **Dr.S.Vimal** published paper titled, "A classy energy efficient spider monkey optimization based clustering and data aggregation models for wireless sensor network" ,Concurrency Computation Practice and Experience.
- **Dr.R.Beaulah Jeyavathana** published paper titled, "Pre-Trained Xception Model-based COVID Detection using CXR Images", IEEE, Feb 2023.
- **Dr.Sudha Rajesh** published paper titled, "MDHO: Mayfly Deer Hunting Optimization Algorithm for Optimal Obstacle Avoidance Based Path Planning Using Mobile Robots", in the Journal Cybernetics and Systems, Taylor & Francis, Feb 2023.

PUBLICATIONS

- **Dr.K.Suresh** published paper titled, "A modified k-means-based cluster head selection and Philippine eagle optimization-based secure routing for MANET", Journal of Supercomputing, Springer.
- **Dr.K.Suresh** published paper titled, "Software Risk Ranking Assessment Model using Fuzzy Decision-Making Trial and Evaluation Laboratory," March 2023, pp. 1485-1490, doi: 10.1109/ICSSIT55814.2023.10061105. (IEEE Xplore).
- **Dr.A.Maheshwari** published paper titled, "Deep Learning for Depression Detection Using Twitter Data", Intelligent Automation and Soft Computing 36(2):1301-1313, DOI:10.32604/iasc.2023.033360.
- **Dr.S.Prithi** published paper titled, "Cognitive authentication for smart healthcare system" in the Book "Deep Learning for Cognitive Computing Systems: Technological Advancements and Applications", De Gruyter Publisher, January 2023.
- **Dr.S.Prithi** published paper titled, "Implementation of Smart Vehicle Accident Detection using Raspberry PI in Smart Cities", in IEEE Explore.
- **Dr.G. Sumathy** published paper titled, " Artificial intelligence for the identification of healthy fruits and vegetables using MMDL-ABO ", Journal of Experimental & Theoretical Artificial Intelligence DOI: 10.1080/0952813X.2023.2166592 on 22 Jan 2023.
- **Dr.Gopirajan PV** published paper titled, "Real-Time User-Service Centric Historical Trust Model Based Access Restriction in Collaborative Systems with Blockchain Public Auditing in Cloud", Int J Intell Syst Appl Eng, vol. 11, no. 2s, pp. 69–75, Jan. 2023.
- **Dr.Gopirajan PV** published paper titled, "Secure E-Voting System using Deep Learning Techniques," 2022 2nd International Conference on Innovative Sustainable Computational Technologies (CISCT), Dehradun, India, 2022, pp. 1-6, doi: 10.1109/CISCT55310.2022.10046486. (IEEE Xplore-Scopus Indexed).
- **Dr.Sheryl Oliver** et al published paper titled, "Heuristic green computing based energy management with security enhancement using hybrid greedy secure optimal routing protocol", Energy Reports, 2023, 9, pp. 2494–2505, ISSN 23524847 DOI 10.1016/j.egyr.2023.01.052.

Conference Publications

- **Dr.C.Amuthadevi** presented paper titled," Splicing Image Forgery Detection by Deploying Deep Learning Model," 2022 International Conference on Automation, Computing and Renewable Systems (ICACRS), Pudukkottai, India, 2022, pp. 1116-1120, doi:10.1109/ICACRS55517.2022.10029055.
- **Dr.N.Meenakshi** presented paper titled, "Diagnosis of Diabetes using Reverting Algorithm", IEEE Conference,14.2.2023,DoI:10.1109/ICCST55948.2022.10040290.2022 1st International Conference on Computational Science and Technology (ICCST).

PUBLICATIONS

- **Dr.T.Subha** presented paper titled," Livspecs: Design and Implementation of Smart Specs for Hearing and Visually Challenged Persons", and published in Lecture Notes in Electrical Engineering, Springer, 4th International Conference on Recent Trends in Advanced Computing - Computer Vision and Machine Intelligence Paradigms for Sustainable Development Goals, ICRTAC-CVMIP 2021.

- **Dr.K.Suresh** presented paper titled, "Software Risk Ranking Assessment Model Using Fuzzy Decision Making Trial and Evaluation Laboratory", in IEEE Explore 5th International on Smart Systems and Inventive Technology, (ICSSIT 2023) at Francis Xavier Engineering College, on 23-25 January 2023.

- **Dr.S. Prithi** presented paper titled, "Methodical Tamil Character Recognition Using Fabricated CNN Model" in the International Conference on Computer Communications and Informatics held from 23-25th January 2023 organised by Sri Shakthi Institute of Engineering and Technology, Coimbatore.

- **Dr.K.Vijayalakshmi** presented paper titled, "Measuring COVID-19 Opinion in the Online Debate using an Unsupervised Model" Proceedings of the International Conference on Automation, Computing and Renewable Systems (ICACRS 2022) IEEE Xplore Part Number: CFP22CB5-ART: ISBN: 978-1-6654-6084-2.

- **Dr.AR.Arunarani** presented paper titled, "An Efficient Prevention and Challenges in Wireless Sensor Networks for Energy and Security Concern" in the 2023 AICTE sponsored "International Conference on Artificial Intelligence and Knowledge Discovery in Concurrent Engineering (ICECONF 2023)" held at St. Joseph's Institute of Technology (Autonomous), Chennai, TamilNadu, India, during 05 -07, January 2023.

- **Dr.B.Pitchai Manickam** presented paper titled, "SINE COSINE ALGORITHM BASED OPTIMAL CLUSTER HEAD SELECTION IN WIRELESS SENSOR NETWORKS" in 5th International Conference on Smart Systems and Inventive Technology (ICSSIT'23) held from 23- 25th January 2023 organized by Francis Xavier Engineering college, Tirunelveli.

- **Dr.B.Pitchai Manickam** presented paper titled, "Ant Lion Optimizer based Multi-sink Placement in Wireless Sensor Networks" in 7th International Conference on Trends in Electronics and Informatics (ICOEI'2023) held from 11- 13th April 2023 organized by SCAD College of Engineering and Technology, Tirunelveli.

- **Dr.Gopirajan PV** presented paper titled, "IOT-BASED WATER QUALITY MONITORING AND DETECTION SYSTEM", and "Actual Facial Mask Recognition Utilizing YOLOv3 and Regions with Convolutional Neural Networks", in 2nd International Conference on Emerging Trends in Expert Applications& Security, JAIPUR, INDIA.

SPORTS EVENT

"When they take surveys of women in business, of the Fortune 500, the successful Women, 80% of them say they were in sports as a young woman"
said Billie Jean King

Our Cintel Faculty have proved this again by winning the consecutive trophy in **"Throwball" 3 times** in row.

- **School of Computing Sports Meet – December 2022**
- **INTER DEPARTMENTAL FACULTY SPORTS MEET 2023 – February 2023**
- **Women's Day Sports Meet – March 2023**

"Creativity is making marvelous out of the discarded," **Dr. Akshya J and Dr.N.Kanimozhi** have created one such master piece and won second place in the Women Day "Wealth from Waste" competition.

Vocally **Dr.Meenakshi** with her booming voice and bags of character in her tone, has bagged second price in the singing competition.

"A perfect team deserves a perfect win and CINTEL Women Team has flourished as successful team for sweeping the complete sports event of IWD celebrated during March 2023"

Heartiest congratulations on the amazing win! Your hard work, determination, and passion for the sport have paid off in the best way possible.

Dr U. Sakthi bagged the first prixe and **Dr. A. Maheswari** bagged the runners up prize in **Tennikoit Singles.**

Dr A. Maheswari won the first prize and Dr.**Sherin Shibi** has bagged the runners up in the **Tennikoit Doubles**

Mrs.C.G. Anupama and **Dr.U.Sakthi** got the first prize in **Badminton Doubles**

Dr. G. Sumathy won first prize and **Dr.A.Maheswari** won second prize in 100 meters running event

Dr.A. Maheswari has won second prize in **Cricket Ball Throw** Competition

Dr. G. Sumathy has won the first prize in **Slow Cycling** Event

Dr.S.Prithi has won the first prize in the **400 meters** running event

Dr.J.Akshaya has won the first prize in the **Fast Cycling Event**

Mrs.Anupama and her team won the Second place in the **Tug of War Competition**

Faculty Sport

Faculty Upskilling

"There are no shortcuts to any place worth going." — Beverly Sills

CHALLENGES ⌄

- **Mrs.Vidhya.J.V, Dr.B.Jothi, Dr.J.Jeyasudha, Dr.M.Maheswari, Dr.A.Revathi, Dr.M.Vimaladevi, Dr.Vimala Star Bino, Dr.A.Poongothai Dr.S.Vimal, Dr.G.Dinesh, Dr.K.Suresh and Dr.P.G.Om Prakash** has successfully, completed her UHV-I AICTE.

- **Dr.B.Jothi, Dr. J.Jeyasudha, Dr.A. Maheshwari, Dr.S. Prithi, Dr.K.Vijayalakshmi, Dr.AR.Arunarani, Dr.N. Kanimozhi** attended ADOBE - AICTE Digital Creativity Skills Workshop for Faculty, Mon Feb 20, 2023.

- **Dr.B.Jothi, Dr. J.Jeyasudha** given training in an Outreach Program for all Government Engineers in State Institute of Rural Development and Panchayat Raj on 23/02/2023 on the Topic "Data Management &Security".

- **Dr.B.Jothi, Dr. J.Jeyasudha** organized webinar series on Natural Language Processing from 11.2.23 to 11.3.23.

- **Dr.Sudha Rajesh** attended 2 weeks National Level Faculty Development Program

- On "Deep Learning" during the period of 09th Jan 2023 to 20th Jan 2023, Organized by Department of Information Technology, of Army Institute of Technology in association with IEEE and CSI Branch.

- **Dr.Sudha Rajesh** attended Three Days National Online Workshop On Data processing & Data Analysis, from 23rd to 25th Jan 2023.

- **Dr.K.Suresh** completed seven days Design Thinking Course from 08-Feb-2023 to 14-Feb-2023.

- **Dr. J.J. Jayakanth** attended Cohort5 Design Thinking Training for Faculties from March 6th - 8th 2023, Intellect Design Arena Ltd.

- **Dr.A. Maheshwari**, **Dr.G. Sumathy**, **Dr.AR.Arunarani**, **Dr.N. Kanimozhi**, "Deep Learning Application Development Tools and Research" 5 days FDP, VIIT, Pune, 28th feb to 4th March 2023.

- **Dr.A. Maheshwari**, **Dr.K.Vijayalakshmi**, **Dr.G. Sumathy**, "Healthcare Systems Engineering, Data Analytics, and Lean Six Sigma" by Binghamton University, State University of NewYork at SRM Institute of Science and Technology, Chennai,8th Feb 2023.

OUT REACH

CINTEL organizes a community outreach programme

On February 1, 2023, students from the Government Higher Secondary School in Thenmelpakkam village, participated in an outreach event organized by the Department of Computational Intelligence and IEI. A general knowledge quiz, a communication skill-building activity, and team-building games were all administered by student volunteers and faculty coordinators. Top finishers in each competition received a prize as a mark of thanks, and volunteers spoke on social media awareness during a motivating speech. The programme came to a successful conclusion as the children enthusiastically bid farewell and expressed gratitude.

On three different days, an outreach programme for government engineers was held at the State Institute of Rural Development and Panchayat Raj at Maraimalai Nagar, Chengalpattu. Dr. J. Jeyasudha presented a presentation and practical lesson on "Data Management and Security" on the first day for 30 government personnel from Tamil Nadu. On days two and three, Dr. J. Jeyasudha led a demonstration and hands-on session for 17 and 15 government officials, respectively, on the same subject. On the third day, Dr. B. Jothi also delivered an introduction and a comprehensive presentation on the subject.

OUT REACH

CINTEL organizes a community outreach programme

The Department of Computational Intelligence, Department of Electronics and Communication Engineering & Department of Networking and Communications in Association with IE(I)KTR LC Organized Tree plantation and free Medical Camp on "Community Based Rehabilitation for Musculoskeletal Pain Management" for the benefit of public at UBA adopted Anjur village on 29.03.2023. The technical support was provided by SRM college of Physiotherapy. Totally 56 residents of Anjur village attended the physiotherapy camp. Patients availed free consultation, diagnosis and treatment in the camp.


On three different days, an outreach programme for government engineers was held at the State Institute of Rural Development and Panchayat Raj at Maraimalai Nagar, Chengalpattu. Dr. J. Jeyasudha presented a presentation and practical lesson on "Data Management and Security" on the first day for 30 government personnel from Tamil Nadu. On days two and three, Dr. J. Jeyasudha led a demonstration and hands-on session for 17 and 15 government officials, respectively, on the same subject. On the third day, Dr. B. Jothi also delivered an introduction and a comprehensive presentation on the subject.

Sudhanshu Basu Roy. B.Tech-CSE with Specialization in Software Engineering. 2018-2022 batch

The role SRM IST played in shaping the essential first years of my adulthood and preparing me for the future cannot be understated. The environment at the university made it clear to me early on that while support existed all around me in various forms, I would need to be responsible for myself and my career. My professors went above and beyond in creating a comfortable communication space for them and me. The continuous growth and maturing I experienced through my four years at the university helped me make crucial life decisions without breaking a sweat, eventually helping me get admission to the University of Illinois at Chicago. The coursework I took and the technical skillset I developed during my undergrad also helped me bag a part-time job as a web developer on campus at UIC. For any juniors reading this, a piece of advice would be to not wait for opportunities to fall into your lap, but to figure out your goals early, set your mind to them and chase after them. Academics aside, SRM is a great place to meet like-minded people and also those from very different backgrounds. The diverse demographic of students and faculty makes you learn and appreciate the differences in cultures around you. The guest speakers at SRM are industry leaders that give you great insight on how the world after uni operates, so attending their seminars is a must. My experience at SRM, while hampered by the unfortunate covid-19 pandemic, was still a delightful one that has left me with wonderful memories that will last a lifetime.
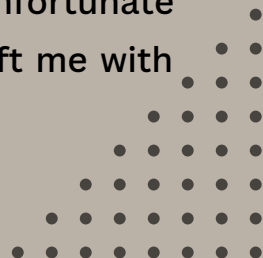
Alumni Talk

| Mr. Shivam Pandey | 2015-2019 |

Alumni Talk on Cloud development to upskill our career was delivered by Mr.Shivam Pandey. He graduated from Computer Science with Specialization in Software Engineering branch in the year 2019. Currently he is working as a Senior Associate in Blackbuck insights, Bangalore. This talk gave the more information about the cloud concepts and AWS services. This session provided the additional information for cloud certifications to participants which enable them to upskill.

| Ms.M.Krithikaa | 2014-2018 |

Alumni Talk on Agile Software Process to upskill our career was delivered by Ms.Krithikaa Murugaiyan. She graduated from Software Engineering branch in the year 2018. Currently she is working as a Business analyst in ZigZag Global, Londan, UK. This talk gave the more information about the agile framework, terminologies and manifesto. This session provided the additional information for software tools for agile process development.
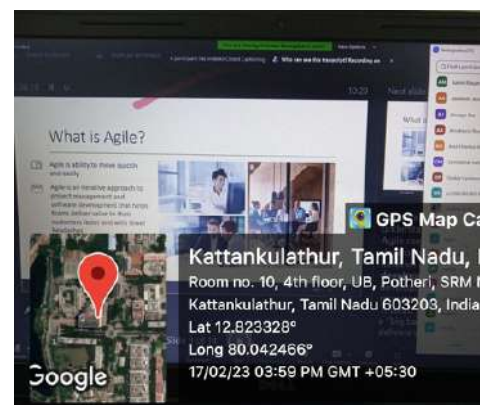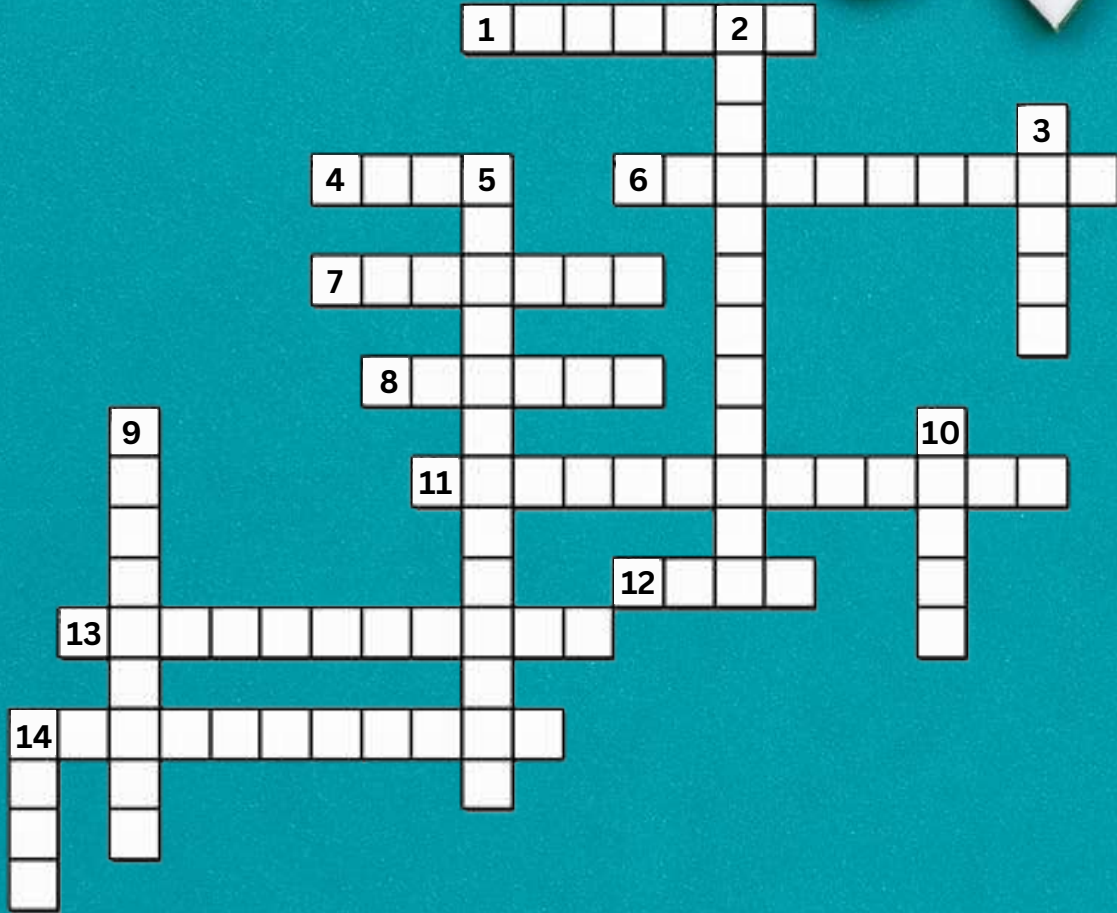
Puzzle Time
BLock Chain

Can you find the words hidden in the puzzle?

Across

1.A _____ key is used to encrypt data and create digital signatures in blockchain

4. A _____ fork occurs when a blockchain splits into two separate chains due to a change in the underlying protocol

6. A _____ is a type of blockchain that allows multiple parties to participate in the consensus process

7. The first and most well-known blockchain-based cryptocurrency is _____

8.The process of creating new blocks in a blockchain is known as _____

11. The most popular consensus algorithm used in blockchain is _____

12. Each block in a blockchain is linked to the previous block using a _____

13. The process of distributing a blockchain ledger across a network of computers is known as _____

14. A blockchain is a _____ database that is shared and updated by multiple parties

Down

2. A block in a blockchain contains a list of_____

3. Smart contracts in blockchain are self-executing and operate based on a set of predefined _____

5. Blockchain is a _____ database that is managed by a network of computers.

9. Transactions in a blockchain are verified by a process known as _____

10. A _____ is a unique identifier that is used to represent a digital asset on a blockchain.

14.
A_____ is a decentralized application that runs on a blockchain
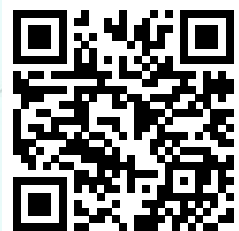
MEET THE TEAM

OF COLOSSAL

PRESIDENT

SWETANSHU AGRAWAL

VICE PRESIDENT

SAMUDRA BANERJEE

CONTENT WRITER

GOVIND KALAWATE

SR.DESIGNER

CHIDAMBARAM

DESIGNER

TA HRISHIKESH

SR.DESIGNER

RITVEEK RANA

பயன்மரம் உள்ளூர்ப் பழுத்தற்றால் செல்வம்
நயனுடை யான்கண் படின்.

**Who plenty gets and plenty gives
Is like town-tree teeming with fruits.**

**பிறரால் விரும்பப்படுபவனிடம் சேரும்
செல்வம், உண்ணத் தகும், கனிதரும் மரம்
ஊருக்கு உள்ளே பழுத்திருப்பதைப் போல
எல்லார்க்கும் பொதுவாகும்.**

**The wealth of a man (possessed of the virtue) of
benevolence is like the ripening of a fruitful tree in
the midst of a town.**