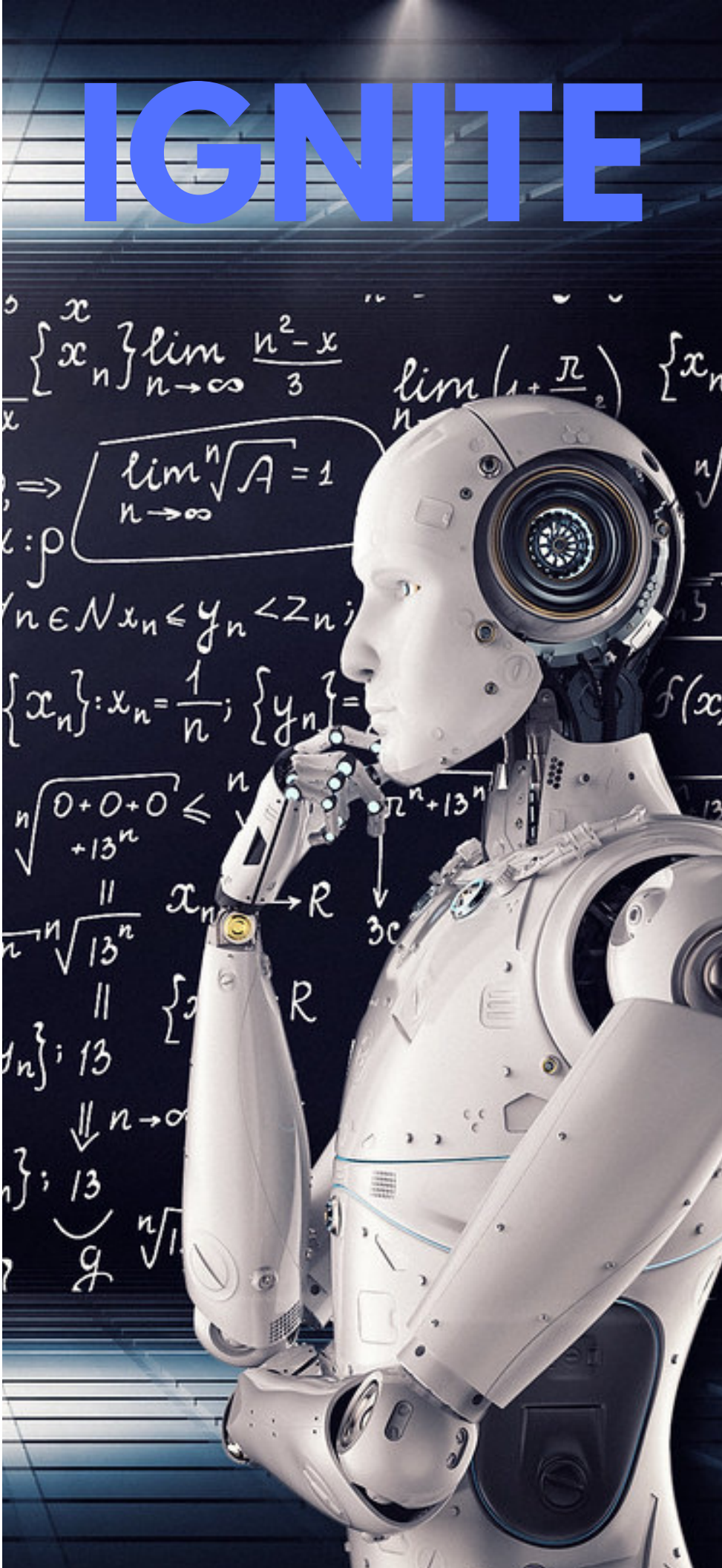
IGNITE



Annual Technical Magazine
September 2022 | Issue 02

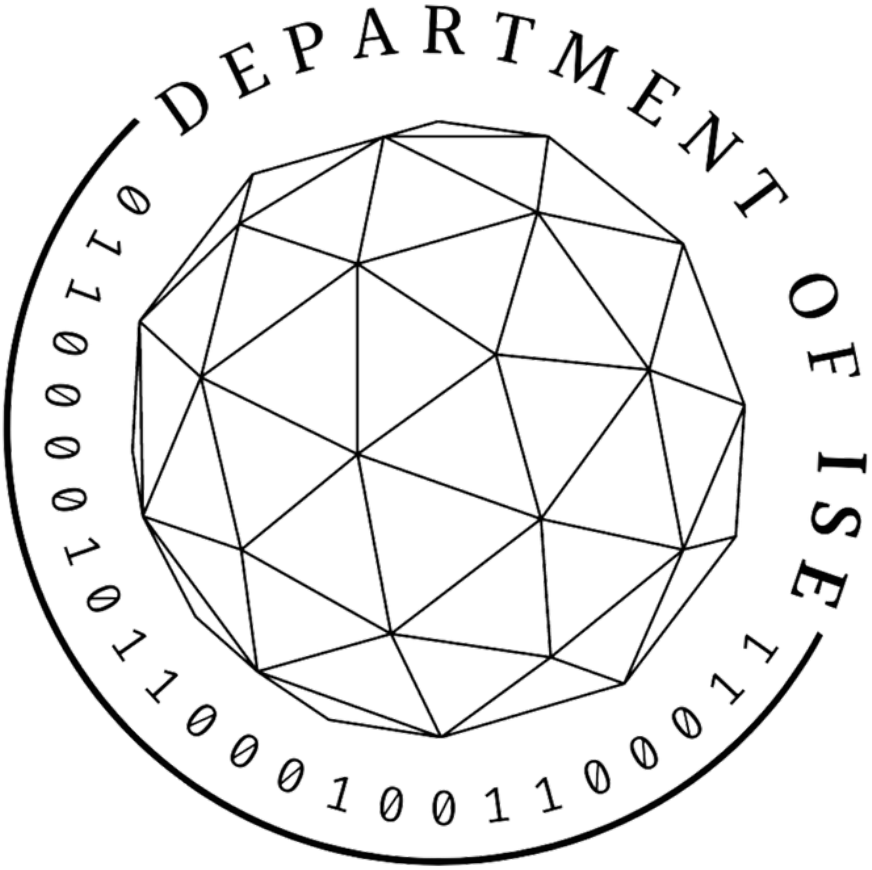
2021-22

EVENTFUL ACADEMIC YEAR

From
The
Dept. of ISE family

ABOUT THE DEPARTMENT

The Information Science & Engineering department aims to impart the foundational and dedicated skills in design, programming, user interface, etc. For graduating students, exciting career opportunities are available in all these areas across the industry, government, and entrepreneurship sectors. The Information Science & Engineering department has State-of-the-art infrastructure for teaching-learning, research and consultancy. The department has MOUs with leading IT companies and research organizations. It has full equipped Laboratories and Centre of Excellence. Postgraduate and Research Programmes of the department provides ample opportunities for the students to explore emerging technologies and do result-oriented research. The placement record of the department has always been impressive.



Remember that destiny is not a matter of chance , it is a matter of choice ; it is not a thing to be waited for, but a thing to be achieved.

Editor's Note

As we all know, a magazine mirrors a department- it's aims and objectives. It also highlights events, activities and academic achievements, In this edition we have tried to capture last one year's activities and excitement.
I hope that the magazine encourages many more students to use it as a platform to take part in activities and also express their creativity.

I sincerely hope that this year's edition makes for an interesting read. This department attains its eminence in the first place through the achievement of our students.
My sincere thanks are due, to our HoD, Dr. Shanthi Mahesh for her guidance & support . Also to our faculty, students, and all others for being an immense help in breathing life into these pages.

Kavitha Vasanth
Editor-

Ignite Magazine

Dr. Shanthi Mahesh
HOD, Dept. of ISE

FROM THE HOD'S DESK

"The question and focus is on what are the best practices we can implement!"

Congratulations to the students and faculty associated to magazine committee for successfully publishing this issue of departmental technical magazine 'IGNITE 2021-22'.
'IGNITE' is creating platform which provides an opportunity to the students and staff to express their original thoughts on technical topics and highlight the technical events conducted in the department. The magazine plays an instrumental role in providing exposure to the students to develop their technical skills and also command over the written language. It is a step towards building professional and ethical attitude in them. Students not only gain the knowledge about the latest technological developments and advancements through reading and writing articles but they also develop verbal and written communication skills. This issue has expanded its scope by introducing articles by major stakeholders. Apart from students and faculty, inputs have been collected from alumni, parents and industry experts. On concluding note, I would like to thank all the stakeholders for their involvement and encouragement and wish all the best for their bright future.

STUDENT'S CORNER

BLOCKCHAIN TECHNOLOGY

BY HEMANTH V

The 21st century's most hyped invention may be blockchain technology. Blockchains were first designed to power Bitcoin, but they now power thousands more cryptocurrencies, and developers are seeking to incorporate the technology into industries.

A blockchain is a digital log of transactions protected from hacking or alteration by a network of computers. With the help of technology, people can now transact with one another securely without the need for a middleman like a bank, government, or other third party. Blocks are a growing collection of records that are connected through cryptography. Peer-to-peer computer networks independently verify each transaction, timestamp it, and add it to an expanding chain of data. including medical, the arts, and banking. Once recorded, the data cannot be altered. Due to its ability to scale transparency, eliminate fraud, and reduce security threats, blockchain is an incredibly revolutionary and exciting technology.

Blockchain technology first rose to prominence in the 2010s due to its connections to cryptocurrencies and NFTs, but it has since developed into a management tool for a variety of international sectors. Blockchain technology is currently being used to innovate games, secure healthcare data, provide transparency for the food supply chain, and fundamentally alter how we manage data and ownership.

So, how does it works??

A transaction is entered by an authorised participant and must be authenticated by the technology. Then a block that reflects that particular transaction or piece of data is created by that action. Every computer node in the network receives the block. A block is added to the current blockchain after the transaction has been verified by authorised nodes. The transaction is completed when the update is delivered throughout the network.

STUDENT'S CORNER

BLOCKCHAIN TECHNOLOGY

Even at the moment somebody, somewhere, is now developing a blockchain solution to promote innovation and upset established business models. Indeed, the nature of trade is evolving right now. As we get ready to enter the third decade of the technology, It's no longer a question of if legacy organisations will adopt blockchain technology, as it's question of when? NFTs are becoming more and more prevalent today, and assets are being tokenized. Blockchain will experience significant expansion during the ensuing decades.

FACULTY'S CORNER

5G NETWORK SLICING USING SDN AND NFV

BY PROF. OMPRAKASH B

The increasing consumption of multimedia services and the demand of high-quality services from customers has triggered a fundamental change in how we administer networks in terms of abstraction, separation, and mapping of forwarding, control and management aspects of services.

The industry and the academia are embracing 5G as the future network capable to support next generation vertical applications with different service requirements. To realize this vision in 5G networks, the physical network has to be sliced into multiple isolated logical networks of varying sizes and structures which are dedicated to different types of services based on their requirements with different characteristics and requirements (e.g., a slice for massive IoT devices, smartphones or autonomous cars, etc.).

Softwarization using Software-Defined Networking (SDN) and Network Function Virtualization (NFV)in 5G networks are expected to fill the void of programmable control and management of network resources.

This paper provides a comprehensive review and updated solutions related to 5G network slicing using SDN and NFV. Firstly, we present 5G service quality and business requirements followed by a description of 5G network softwarization and slicing paradigms including essential concepts, history and different use cases. Secondly, we provide a tutorial of 5G network slicing technology enablers including SDN, NFV, MEC, cloud/Fog computing, network hypervisors, virtual machines & containers. Thirdly, we comprehensively survey different industrial initiatives and projects that are pushing forward the adoption of SDN and NFV in accelerating 5G network slicing. A comparison of various 5G architectural approaches in terms of practical implementations, technology adoptions and deployment strategies is presented.

Moreover, we provide a discussion on various open source orchestrators and proof of concepts representing industrial contribution. The work also investigates the standardization efforts in 5G networks regarding network slicing and softwarization. Additionally, the article presents the management and orchestration of network slices in a single domain followed by a comprehensive survey of management and orchestration approaches in 5G network slicing across multiple domains while supporting multiple tenants. Furthermore, we highlight the future challenges and research directions regarding network softwarization and slicing using SDN and NFV in 5G networks.

ALUMNI'S CORNER

SRX SESSION ANALYZER ON DOCKER

BY DHANUSH K V

SRX Session Analyzer by Juniper is software for troubleshooting networking aspects of packets being transmitted through the use of session table from a firewall to generate reports on the outages. The analyzer assists session counts running over the network and filters are provided to select out required traffic patterns.

The analyzer performs actions and analysis on security flow sessions on usage of session log files present in the local box and loaded on to Analyzer program. Filters such as Source IP, Destination IP, Ports, Protocols, Policies and Interfaces can be provided. For serving the API of the top talkers of the mentioned filters API endpoints are programed using Python Flask technology to validate process and populate the data sets. The method uses Angular routing concepts to render the data on the portal.

vThe metrics data renders the analytics created on an API call to be served on the required template for integration on to websites portal or applications. The validation process consists of a 200 OK test with containerization concept done using Docker software. Docker is a platform used for developing, running and shipping of applications which enables to separate the applications created from the infrastructure to deliver software quickly in form of containers.

ALUMNI'S CORNER

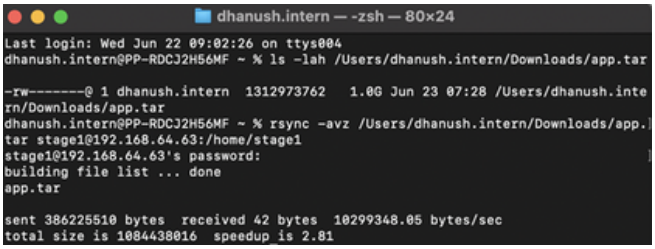
SRX SESSION ANALYZER ON DOCKER

Using Docker it is possible to manage the infrastructure in the same way of managing an application. This significantly reduces the delay between writing code in the development to running it on production. Various tooling on the platform helps in managing the container lifecycle.

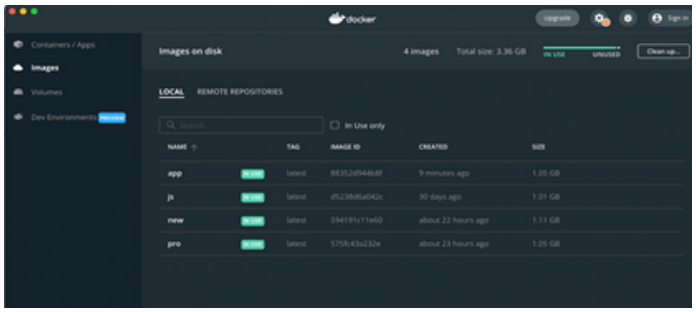
·Containers help in supporting the components of application.

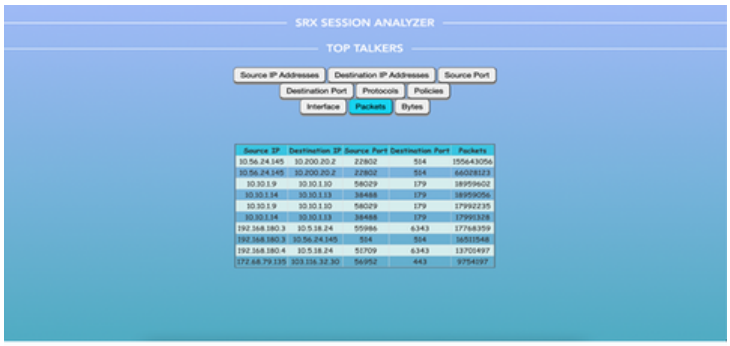
·Container stands as a unit for distribution of application and it's testing.

·Deployment of application into production environment is done using Docker with orchestrated services.



Using the concept of Docker the application on the production can be container and be shipped to other Virtual Machines on the production seen in the above code snippet.





SRX Analyzer on the production server on a virtual machine running Focal OS on Linux VM

EVENTS

213TH AUGUST 2021:
STUDENT RESEARCH TALK SERIES

T15TH AUGUST 2021:
TRIVIA HOUR QUIZ

21ST AUGUST 2021:
ONAM CELEBRATIONS

30TH AUGUST 2021:
MAD EXHIBITION

I8TH SEPTEMBER 2021:
WEBINAR ON CAREER COUNSELING

30TH SEPTEMBER 2021:
WEBINAR ON MACHINE LEARNING

30TH OCTOBER 2021:
WEBINAR ON SWIFT & XCODE

3OTH OCTOBER 2021:
EPISODE-X QUIZ

16TH NOVEMBER 2021:
WEBINAR ON RPA USING UI PATH

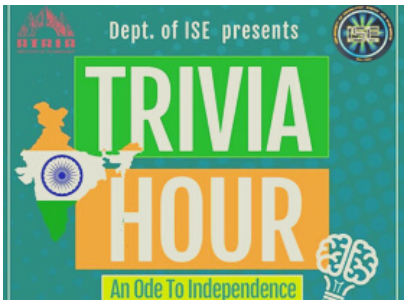
23RD NOVEMBER 2021:
WEBINAR ON CAREER PATHWAY

7TH TO 9TH DECEMBER 2021:
3 DAY FDP ON PROFESSIONAL TEACHING

18TH DECEMBER 2021:
WEBINAR ON NEXT GEN NETWORKS

STUDENT RESEARCH SERIES

THE FUTURE OF INDUSTRY



TRIVIA HOUR

A QUIZ TREAT FROM OUR QUIZ CLUB

Knocking out the creative brains of the students and win their ways out of an array of competitions to get hold of amazing cash prizes,

FESTIVALS

ONAM CELEBRATIONS

United we stand, despite different religions, different cultures, different festivals, different languages!

EXHIBITION

MOBILE APPLICATION DEVELOPMENT

Ideas of how to develop an application for Android and iOS using Firebase

EVENTS

20TH DECEMBER 2021:
CICADA INTERCOLLEGIATE TECH FEST

21ST DECEMBER 2021:
CICADA HACKATHON

31ST JANUARY 2021:
NEW YEAR CELEBRATIONS

1ST JANUARY 2022:
SDP ON APP DEVELOPMENT IN PYTHON

I8TH JANUARY 2022:
WEBINAR ON MACHINE LEARNING

26TH JANUARY 2022:
REPUBLIC DAY CELEBRATIONS

30TH SEPTEMBER 2021:
WEBINAR ON MACHINE LEARNING

18TH FEBRUARY 2022:
WEBINAR ON ARTIFICIAL INTELLIGENCE

25TH FEBRUARY 2022:
WORKSHOP ON NBA CRITRERIA

23RD MARCH 2022:
WEBINAR ON INFORMATION TECHNOLOGY ROLES

21ST APRIL 2022:
ROLES & RESPONSIBILITIES OF TODAY'S ENGINEERS

18TH DECEMBER 2021:
WEBINAR ON NEXT GEN NETWORKS

CICADA TECH FEST & HACKATHON

THE FUTURE OF INDUSTRY

NEW YEARS EVE

MARKING A NEW BEGINNING

Letting go of old disputes and fights, and focus on mending everything for the new year to come. Marking the beginning of new promises

WEBINAR

MACHINE LEARNING

To Stay ahead with technologies in today's world here comes Machine Learning and Data Analysis using Python.

SDP

APPLICATION DEVELOPMENT IN PYTHON

Ideas of how to develop an application in Python

EVENTS

23RD APRIL 2022:
WEBINAR ON IOT & ITS APPLICATIONS

26TH APRIL 2022:
FDP ON INTELLECTUAL PROPERTY RIGHTS

13TH MAY 2022::
WEBINAR ON DOUBLE SECURITY IN B2B E-COMMERCE

20TH MAY 2022:
WEBINAR ON CAREER COUNSELING

I26TH MAY 2022:
STUDENT DEVELOPMENT PROGRAMME ON APPLICATIONS OF IOT IN REAL WORLD- DAY 1

27TH MAY 2022:
STUDENT DEVELOPMENT PROGRAMME ON APPLICATIONS OF IOT IN REAL WORLD- DAY 2

28TH MAY 2022:
STUDENT DEVELOPMENT PROGRAMME ON APPLICATIONS OF IOT IN REAL WORLD- DAY 3

IOT & ITS APPLICATIONS

THE FUTURE OF INDUSTRY

FDP

INTELLECTUAL PROPERTY RIGHTS

On account of world IPR day. a programme on IPR and significance in Research and innovation

WEBINAR

CAREER COUNSELING

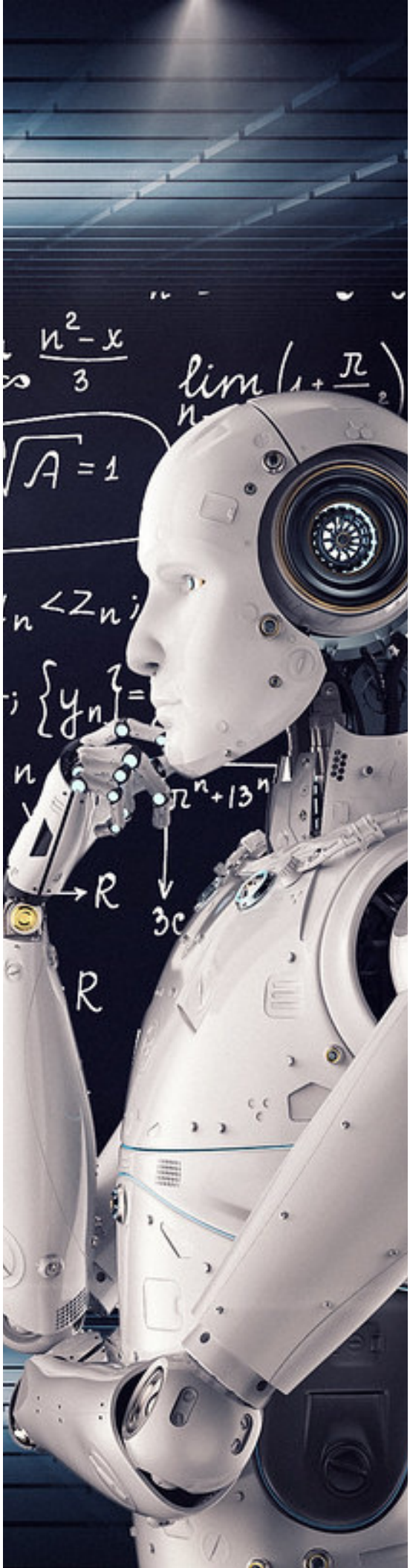
To Stay ahead with opportunities in higher studies, Crafting a high impact career post Graduation

SDP

APPLICATIONS OF IOT IN REAL WORLD

Ideas of how to apply iot in real world scenarios

Proud Placements



September 22 | Issue 02

IGNITE

Annual Technical Magazine

VISION

To develop competent professionals with strong fundamentals in Information Science and Engineering, interdisciplinary research and ethical values for the betterment of the society.

MISSION

M1 - To establish a transformational learning ambience with good infrastructure facilities to impart knowledge and the necessary skill set to produce competent professionals.
M2 - To create a new generation of engineers who excel in their career with leadership/entrepreneur qualities.
M3 - To promote sustained research and innovation with an emphasis on ethical values.

2021-22 Eventful Academic Year