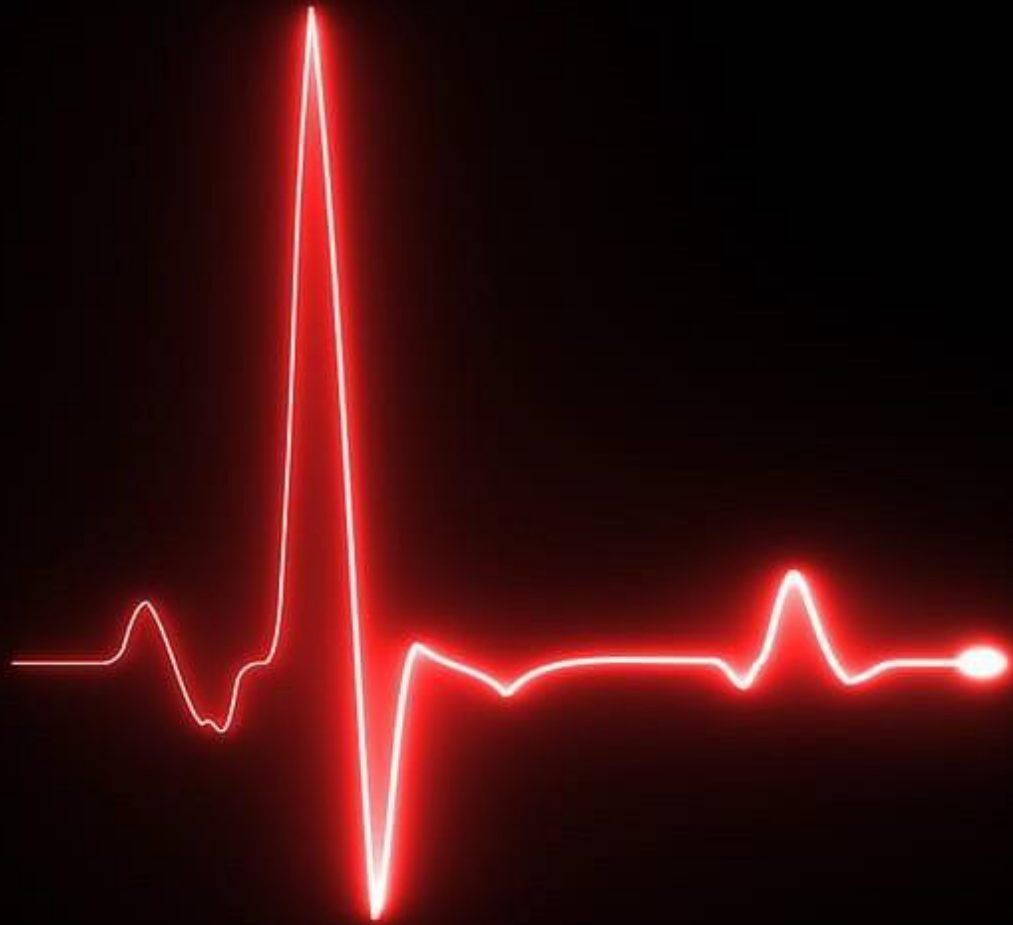


# THE PULSE

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NEWSLETTER  
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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## **Vision**

To emerge as a centre of academic excellence in the field of Electronics & Communication Engineering to address the dynamic needs of the industry upholding moral values.

## **Mission**

- Impart in-depth knowledge in Electronics & Communication Engineering to achieve academic excellence.
- Develop an environment of research to meet the demands of evolving technology.
- Inculcate ethical values to promote team work and leadership qualities befitting societal requirements
- Provide adaptability skills for sustaining in the dynamic environment

# FACULTY CONNECT

## DIGITAL TWIN

The concept of digital twins has been around for many years, but it has recently gained widespread recognition and popularity. The origin of the term "digital twin" (DT) is unclear. Still, it is widely credited to Dr. Michael Grieves of the University of Michigan, who first introduced the concept in a 2002 paper. Since then, the idea of DTs has been adopted and expanded upon by many researchers, engineers, and practitioners across various industries.

### What is that? – A DIGITAL TWIN?

A DT is a virtual representation of a physical object or system. It refers to a digital replica of a real-world entity that can simulate and analyze the behavior, performance, and potential issues of the corresponding physical object or system. For example, a DT of a manufacturing plant could be used to simulate the production process, optimize the use of resources, and identify potential issues before they occur in the physical world.

### Happening now – Use cases

For instance, NASA uses digital copies to monitor the status of its spacecraft.



Energy companies General Electric (GE) and Chevron use them to track the operations of wind turbines.

The IBM Maximo lab services 'turns on' many visual and voice (Natural Language Processing) features for the workforce. This enables one to see their assets in a new dimension and get instant access to critical data.

*Photo: ©Gorodenkoff/stock.adobe.com*

These are just a few examples of the many real-world applications of DTs.

### Challenges

*Data capturing:* Missing or erroneous data can distort results and unknown faults. In addition, different sensors collect data in other units, time scales, and formats. *Real-time sync:* All the generated physical data should be communicated with its DT without delay; non-sync may cause the entire system to fail. *Conflict detection:* There are several troubleshooting mechanisms involved in DT to detect and address the issue in

# FACULTY CONNECT

real-time. Also, it has a self-healing property to repair/patch with an update. *Virtual-physical interaction*: It can take on the form of a human user and communicate with other virtual objects or DTs in an immersive manner.

## Wrapping up

DT has many advantages, including the ability to provide real-time insights into the behavior of physical systems, test and validate new ideas and designs, and improve collaboration and communication within an organization. However, some limitations include the need for accurate and up-to-date data and specialized software and hardware. Despite these limitations, DTs are becoming increasingly popular across various industries. It is seen as a powerful tool for organizations to optimize their operations, expand their manufactured goods, and offer best practices for their consumers.

- **Praghash K,**  
Assistant Professor  
ECE department

# EVENTS

## Highlights of the Month

- Department bagged 3<sup>rd</sup> prize in march past during Annual Sports day held on 07-01-23.
- Organized a hands on training for the newly setup Instrumentation and Bio Lab on 17-01-23.
- Dr. Jesuwanth Sugesh R. G. delivered a talk in the seminar “Research trends in Optical Technologies and its Applications” organized by VIT, held on 05-01-23.
- Dr. Chidambaram S. attended an International Webinar on Introduction to Autonomous Vehicle Sensors held on 26-01-23.
- Dr. Harimurthy and Dr. Vianny Jha Pillai published an article titled “A Statistical Analysis and Comparison of the spread of Swine Flu and COVID-19 in India” in Malaysian Journal of Medicine and Health Sciences, Jan 2023

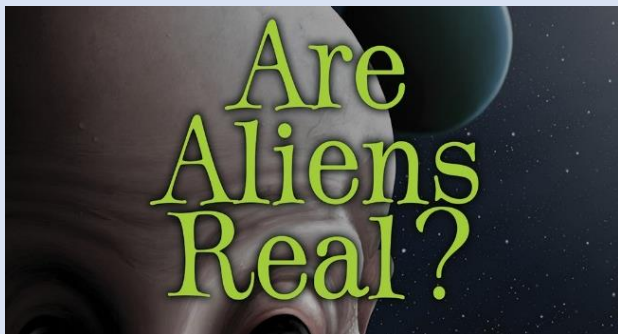


# STUDENT CONNECT

## ARE ALIENS REAL???

We have all heard about aliens, ARE ALIENS REAL?..... This is one of the most debated questions in the scientific community. We have all heard stories about them and speculated about what they might look like and their mission on Earth.

To this day, there is no concrete evidence of extra-terrestrial life, but many scientists believe that it is only a matter of time before we make contact with an alien species. The most compelling evidence in support of the existence of extra-terrestrial life is the sheer number of planets in our galaxy. And also they estimate that there are more than 100 billion galaxies in the observable universe.



It is interesting to know about aliens because it could provide valuable insight into the origin and evolution of life in the universe, and could potentially hold the key to many of the mysteries of the cosmos. It also provides us with an opportunity to explore the possibilities of life beyond Earth and the potential for other intelligent life forms. And it is also known that there is no scientific evidence to suggest that aliens are living or speaking on Earth. Each of these galaxies could contain millions of planets. HOW DO ALIENS LOOK LIKE?..... There is no definitive answer to this question, as aliens are often depicted in a wide variety of ways in popular culture. Generally, aliens are often depicted as humanoid creatures with large heads, thin bodies, and two or three eyes. They are usually portrayed as being tall and thin, with pale skin, and often wearing some kind of technology or armour. However, they could also be depicted as small, slimy creatures, or even as large, insect-like creatures.

The discovery of multiple unidentified flying objects (UFOs) has been confirmed by several reliable sources and is causing a stir in the scientific community. UFOs have been described in many ways, from small lights to huge triangular or disk-shaped objects. They are usually seen at night or during the day, and sometimes even during the day. The most popular explanation for UFOs is the extra-terrestrial hypothesis, which suggests that UFOs are alien spacecraft. This explanation is favoured by some members of the scientific community, who point to the fact that some UFOs have been seen performing manoeuvres that are beyond the capabilities of any known terrestrial aircraft.

# STUDENT CONNECT

There are many theories as to why aliens may be visiting us. Some believe that they are here to observe us and learn more about us, while others believe they are here to help us. Regardless of their motives, the possibility of aliens visiting is an exciting thought. This is a monumental discovery for the entire human race, and we are sure that many of you are as excited as we are. We are now entering a new era of exploration. With the advancement of technology, we are now able to detect and explore planets outside of our solar system. This is allowing us to search for possible signs of intelligent life and potentially discover new forms of life that may exist beyond our world.

The possibility of alien life is further enhanced by the fact that the universe is billions of years old. This means that there is plenty of time for life to have evolved on other planets, and for intelligent civilizations to have developed.

The search for extra-terrestrial life is an ongoing endeavour. Scientists are constantly scanning the skies for signs of radio signals that might indicate intelligent life. They are also searching for planets in other solar systems that could potentially be hospitable to life.

- **Chennoju Sathwika**  
B. Tech. 2021-25 Batch  
ECE department

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**Kindly share your thoughts and research experiences via e-mail to our team, and be featured in next month's issue!**