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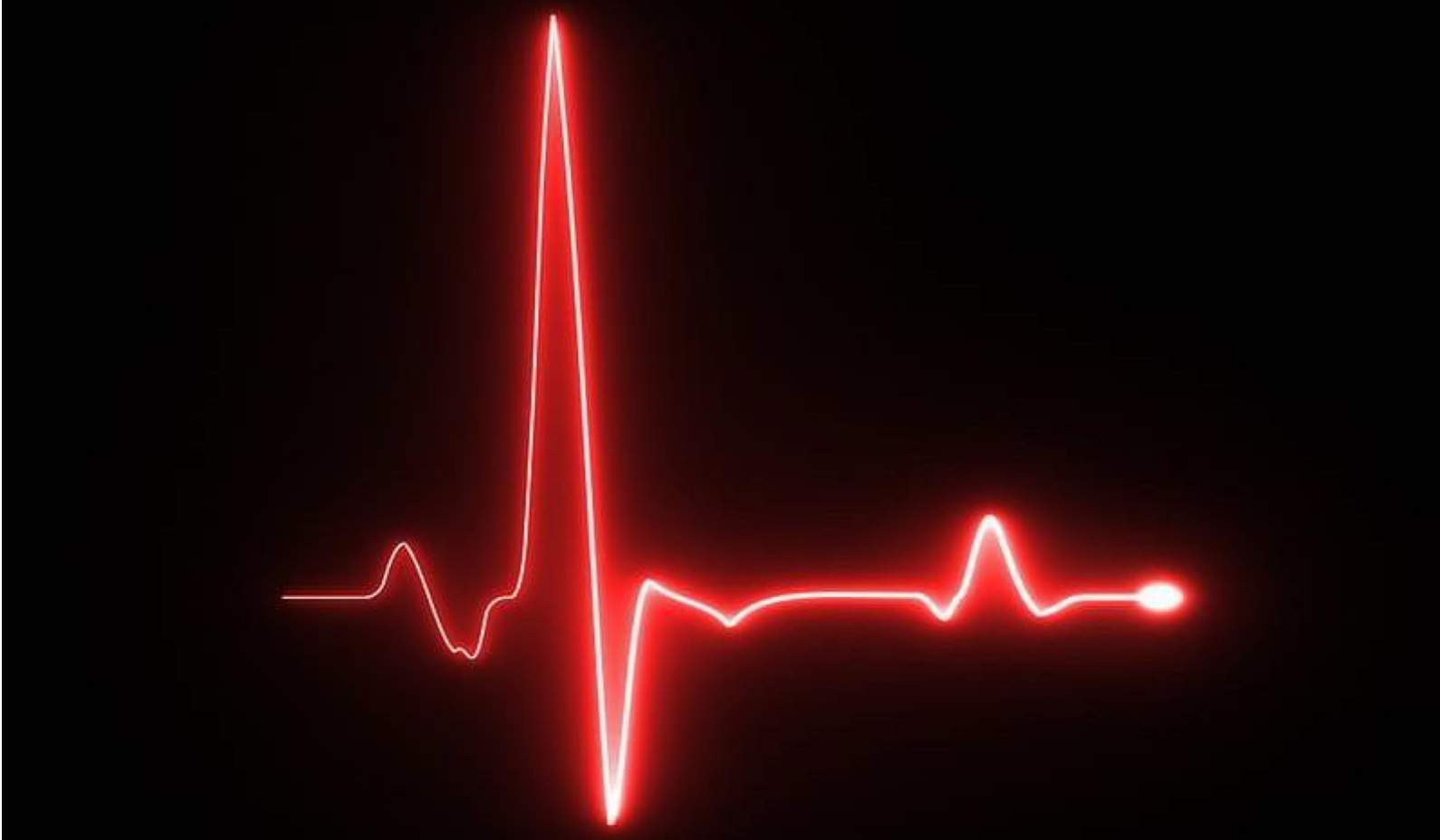
CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

THE PULSE

NEWSLETTER
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



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

MESSAGE FROM FACULTY

Default Entity Paradox

It was a hot summer class room scenario. All my classmates were restless, tired and bored of afternoon ("just after lunch") class. Faculty was having tough time controlling the noisy crowd, and she said, “I know how to “*create silence*” in the class, next person I see talking will be sent to HOD". Thanks to her English, a bright idea flashed in my mind- "*To invent a device that could create silence*".

Silence is absence of sound. It is a default entity in the universe. That is, when there is no source which creates sound, the universe is by default silent. I was very much fascinated with the idea of designing a machine for “Silence”, but I could not, due to complexity. Now, me being in the profession of teaching, how much I wished that I should have tried harder so that I could have used it for my classes.

One day in my Optical Communication Class, I started sharing the idea of “*creating silence*” with my students. There are currently many successful softwares involved in voice cancellation from an audio file. But real time sound cancellation system is still far away from reality. My proposal was to design a system which can predict the speech and cancel it out instantaneously. So, when a person speaks, it cancels out and nobody hears anything. Although the students didn't make much sense out of it, but I always felt that it was a Nobel Prize worth concept.

On a similar note, our class discussion shifted from '*creation of silence*' to the '*creation of darkness*'. What if, we could cancel out the light? Imagine a source or a machine that could actually produce darkness. Students were confused. One said, "Sir, we can create darkness by blocking all the light from entering, say, a room". I gave a disagreement nod and repeated, **"A SOURCE THAT CAN PRODUCE DARKNESS THE WAY A BULB PRODUCES LIGHT"**. Students started to freak out. One of them said that its sounds so evil. May be another Nobel Prize worth concept.

If there was no sun or stars, there would have been only darkness. It is ironical that it is difficult to have a system that can produce default entities like silence and darkness, or **PARADOXICAL**. Hope in our *loud* and *bright* future somebody invents system of *silence* and *darkness*. Also, I believe research on default entities may give us a better understanding of our inconceivable universe, its origin and its composition.

After the class, one of the “nerds” who was actually inspired, came to me and said, "*Sir, what about a machine that can produce emptiness*?"

Article by

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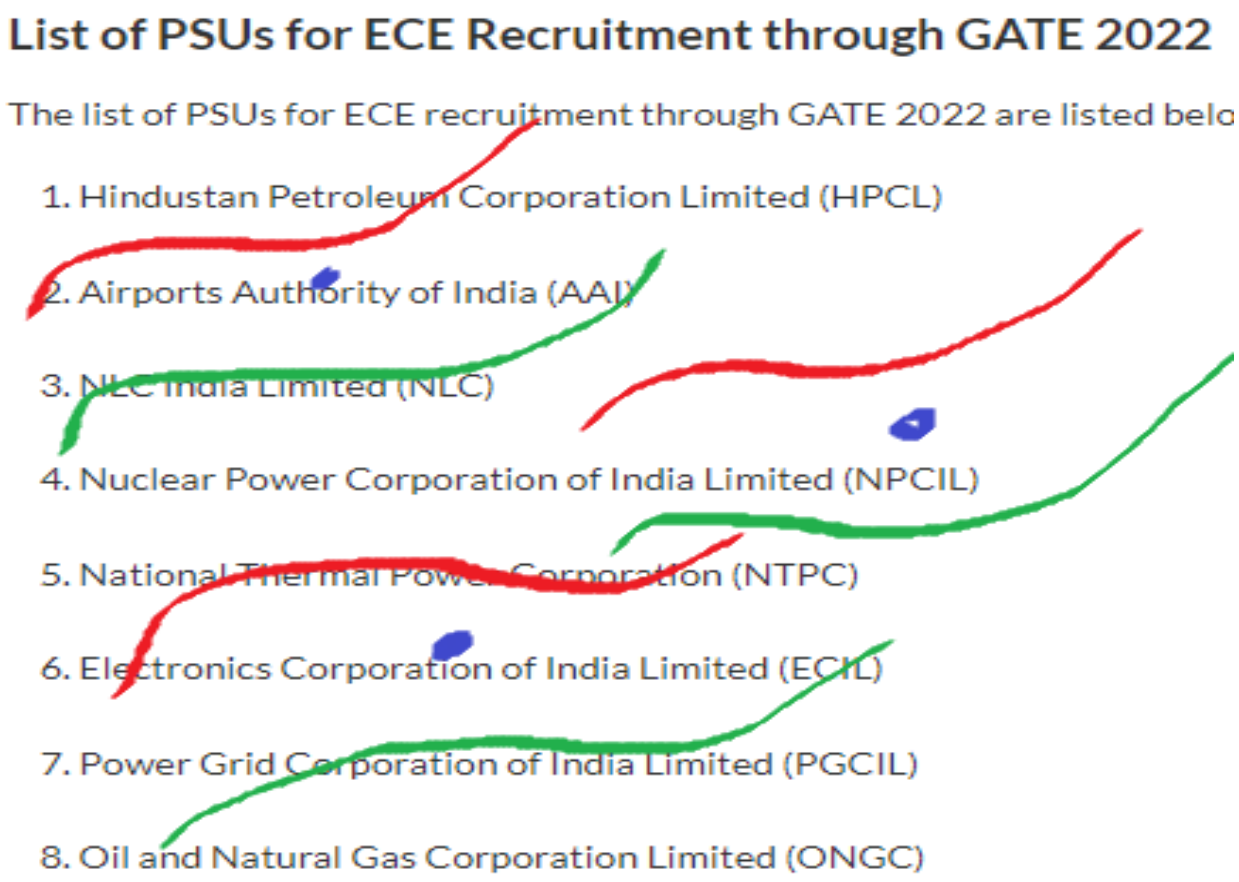
EVENTS

Highlights of the Month:

- Dr.Chidambaram.S invited as a key note speaker on “Satellite Image Enhancement”, in International Conference on Recent Advances in Electrical, Electronics and Communication Networks(ICRAEECN-2022) Organized by Hindusthan Institute of Technology, Coimbatore, held on 25-04-2022.

- Dr. Deepak Jose have participated in induction program Organized by Christ (Deemed to be University), on 07-04-2022.

- Dr Naveen Kumar have participated in training program on “Good Citation Behaviour”, Organized by clarivate, on 24-04-2022.



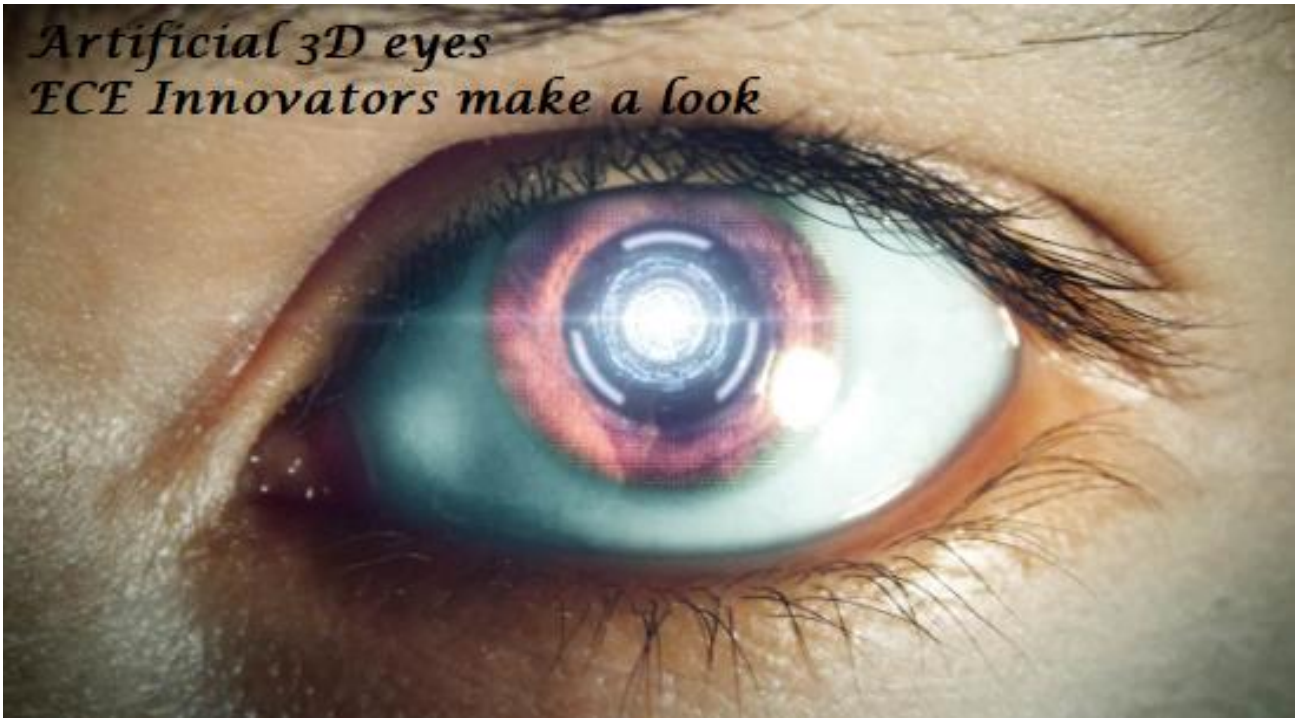
STUDENT CONNECT

Applications of AR and VR in Medical Electronics

Augmented reality (AR) and virtual reality (VR) have been buzzwords for a while now. Although AR/VR technology is most popularly known for its usage in interactive video games, this technology has also been widely implemented in the field of medical electronics. Traditional learning techniques in the field of medicine are tedious, time-consuming and often require the usage of physical specimens for the purpose of teaching. This may not always be convenient and economically viable. The use of AR and VR solves this dilemma, by providing medical students and professionals with a simulated environment that is as close to real life as possible. These applications of AR/VR help surgeons in the operating room and medical students in hospitals. They also help in educating patients about aspects of their medical condition that may be difficult to understand without visual aid. In 2016, the Neurosurgical Simulation and Virtual Reality Center opened at Stanford University's School of Medicine. In the simulation centre, VR technology "allows trainees to explore three-dimensional, digital renditions of brain structures." The virtual environment enables users to explore the human anatomy in three-dimensional space, as opposed to using two-dimensional images and scans. Most medical schools are trying to avoid the use of cadavers to train students in medical procedures. AR/VR labs provide the same learning experience but are cadaver-free. Moreover, it is more economically feasible and more sustainable than conventional cadaver laboratories. AR/VR technology is also being used in pharmaceutical research and testing, to study the effect of certain drugs and medications on the human body. This method provides visual learners with an immersive and realistic experience, as opposed to the classic theory-based learning model. Apart from medical and pharmaceutical training, dental schools are also embracing the world of AR and VR. Here, the technology is used to allow students to practice the administration of local anaesthetics. When combined with real-life patient dummies, students are provided with an experience that is as close as possible to performing the procedure on a real patient. As today's technology is rapidly advancing and improving, it is crucial for medical professionals to stay on top of these changes and be skilled in performing newer procedures. These procedures often involve newer medical tools. AR/VR environments are used to familiarize doctors with the usage of these newer tools and devices. It is only a matter of time before AR/VR technology becomes more widely used. This will make it more affordable and allow medical professionals to be equipped with the necessary skills and knowledge required for them to maintain medical standards. Hence, we can say that Augmented Reality and Virtual Reality technology will play an increasingly large role in medicine and medical electronics.

--- Erol John D'Silva [6BTEC]

STUDENT CONNECT



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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!