Highlights of the Issue

SKYLAB: An Amalgamation of Science & Art



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Silicon Language for Arts Technology & Education

Our Vision: "To become a center of excellence in the fields of technical education & research and create responsible citizens"

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From the Editor's Desk...

In recent years we have witnessed hazardous effects of plastic use. Their effect on the animal kingdom is but too obvious. We have seen turtles struggling to wriggle out of plastic nets, sea creatures swallowing plastic bags, plastic scrap filled inside the stomach of dead, rotting birds, the bovine dying because of consumption of plastic bags while grazing.

Animals consume plastic as they lack the ability to discern. Human beings, however, have the ability to discern, but their heavy dependence on plastic proves that they do not like exercising it for the love of convenience which comes cheap with plastic. Awareness is certainly there, but what is missing is the sense of responsibility. It is a multifarious responsibility not only towards the naive creatures, but to a sustainable environment and posterity. It is high time our over-dependence on plastics is checked.

Barrack Obama hinted at this sense of responsibility and immediate action when he said, "We are the first generation to feel the impact of climate change and the last generation that can do something about it." We, at Silicon, have started taking baby steps through the efforts of Youth For Sustainability (YFS), Silicon chapter by banning single use plastic on campus. YFS, a unit of Human Circle Foundation in New Delhi, has been constantly encouraging green activities and we are proud of being a part of it. The YFS Silicon Chapter has taken initiatives such as 'Carry Your Own Bag' and 'Clean Beach' in the past. By suggesting a ban on single use plastic on campus, they have taken a major step towards a green campus, and deserve appreciation for the same.

Through small changes such as this with everyone's cooperation, we will do our bit to save earth from this non-degradable waste.

Priyambada Pal ppal@silicon.ac.in



EDUCATING US The Evolution of The Electronics Era !



"I am fascinated with the electronic devices that we can mess around with"

– Gerry Mulligan

When we look back to the 1980s, we will find there was a high demand of Computer Science Engineers in the market. If we closely analyze why and what led to the high need of Computer Engineers, we see it is all rooted in the fact that many IT and MNCs had just come to India. At that point of time there were basic branches, like Mechanical, Chemical, Electrical and Computer Science which were popular.

Now, after four decades of evolution and revolution our nation needs to keep the pace up to compete with rest of the world. Many experts and industrialists speak of Industry Revolution 4.0. The field of electronics plays an important role in the uprising of the revolution specifically speaking of our nation India, which in recent years had surpassed many great nations in the field of economy development and unemployment. All these words are interconnected. For example, employment is directly proportional to economy and economy is directly proportional to development. The recent trends that the Indian market has followed since the Make in India movement has been exponentially inclined towards the Electronics domain.

Today, when we take a pause and look around the things that ease our day-to-day life, it is not astonishing that 85% - 90% of the things are either purely electronics or has electronics involved in it. Most of these are just assembled in India, whereas,

manufactured outside India. For the last couple of years, due to the Make in India movement, many MNCs have established their manufacturing plants itself in India. The requirement of Electronics Engineers in the mid 20s, will be at peak, which gives us an upper hand in getting into the field with a comparatively market competition.

Again, looking from the perspective of salary and packages, the average salary of an Electronics Engineer after getting into a company for 3-5 years is more than 12-18 lakhs per annum. To some this may sound little less compared to the job experience they have, but the stability and increment of job is quite good compared to other technical industries.

To conclude, to have a sustainable environment and a rapidly developing nation, need of all the aspects of engineering is a basic necessity. I personally feel that there is no good branch or bad branch of engineering, but yes, from different aspects and in different phases of time, some of these branches can be utilised more efficiently.

> **Ritish Mohanty** 5th Sem, ECE

HEALTH WATCH The Monkeypox Outbreak

SLATE



Monkeypox has affected many people across the globe. The virus was declared a 'Public Health Emergency of International Concern' by the World Health Organization.

While it is not particularly deadly, Monkeypox can be a very excruciating and painful disease to experience. It can also leave physical scars and can be mentally overwhelming due to lack of knowledge or treatment. In India, there have been nine confirmed cases so far four from Delhi, five from Kerala.

The disease is similar to smallpox and belongs to the same Orthopox virus genus as the variola virus (that is responsible for causing smallpox). Apart from monkeys, the infection has also been detected in squirrels, Gambian pouched rats and dormice.

Even though the disease is endemic to West and Central Africa, mostly tropical rainforests inhabited by animals who carry the virus, its spread to other parts of the globe has become a cause of concern.

Since its discovery in humans in 1970, the virus has been detected in Central and Western African countries like Cameroon, Central African Republic, Gote d'Ivoire, Gabon, Liberia, Nigeria, Republic of Congo and Sierra Leone. The Democratic Republic of Congo reports the maximum cases of the viral disease. International travel has also spread the disease to Israel, US, Singapore and the UK in the recent years.

There is no proven treatment for the disease. Doctors usually recommend patients to stay in isolation, mostly in a specialized hospitals to ensure that the infection doesn't spread and the symptom are treated.

The Center for Disease Control (CDC) recommends people to avoid contact with animals in areas where monkey pox is prevalent; avoid touching any materials such as bedding that has been in contact with a sick animal.

Isolating infected patients is another way to prevent the disease from spreading. Practicing good hand hygiene, washing hands with soap and water or using an alcohol-based hand sanitizer is a must after coming in contact with an infected animal or human. Similarly, healthcare professionals and care givers should use PPE while interacting with patients.

The Covid-19 period is not yet over and care must be taken to ensure that this new outbreak does not become as deadly as the Covid-19 pandamic.

MENTAL HEALTH: Acknowledge & Care

My Mental Health is my HUMAN RIGHT.

"Mental Health" issues are widely stigmatized in our society because of ignorance. Mental health is more than the absence of mental illness as physical health is not just the absence of diseases. The prevailing status of mental health is truly disturbing. According to the World Health Organisation, there is a 25 percent increase in the prevalence of anxiety and depression worldwide, and the worst affected groups are the youth and women. In India about 56 million people suffer from depression and 38 million suffer from anxiety disorder. One in seven Indians between 15-24 years feels depressed, and India lost more people to suicide than to Coronavirus in 2020. So this is high time to identify the warning signs like, feeling of hopeless or helpless, change in sleeping patterns, unusual mood swings, anger and irritation, substance abuse etc., and it must last for more than two weeks. Then immediately one has to seek help for counselling from trained mental health professionals. The counselling service ensures the individual's PRIVACY and CONFIDENTIALITY in a non-judgmental way. So, it is essential to acknowledge the importance of mental health as it includes a state of complete emotional, psychological and social well-being to use our potential fully. Keeping good mental health helps people to work productively, face stressors of life smartly, maintain good social relationships and make a meaningful contribution to the community. Every year we observe "World Mental Health Day" on 10 October across the world.

MY CYBERSPACE Onion Routing

Onion routing is a technique used in Computer networks to maintain the anonymity of the sender and receiver. Analogous to onions, the messages are encapsulated using layers of encryption. It was originally developed to protect US intelligence online communication. As each message is wrapped with layers of encryption, it has to be peeled or unwrapped at each hop/node. Hence each hop will only be able to identify the location of the preceding and succeeding node. But the current node does not have any mechanism to ensure if the previous node was the originator or if the next node is the destination. The process continues till the message reaches its destination before which the last encryption layer is peeled off.

This is normally implemented using a TOR (Onion Router) which is an open source decentralized network. Since its inception it has been used in a range of network services like virtual private networks, remote login, email anonymity, web isolation & browser isolation etc. Apple's safari browser has a built in private relay feature which works similar to onion routing protecting the identities and online activities of the users.

Onion routing helps in resisting a major chunk of attacks based on Traffic Analysis and also provides solid defense against eaves dropping. Though it is extremely difficult to trace a message to its source that has used Onion routing, the anonymity is being exploited for malicious activities in the dark web. Hence the need of the hour is to mitigate this crucial vulnerability which sometimes outweighs the benefits.

Dr. Sushree Samita Rout Associate Professor, CSE Dept.

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Dr. Saroj Rout, Additional Professor, ECE department, heads the VLSI Lab at SiliconTech. In this interview with Manas Ranjan Padhy of 5th Sem. CEN branch, Dr.

Rout speaks elaborately about the IoT and start-ups in the VLSI sector.

Manas: Sir, We know that the whole world is moving towards the era of automation and smart devices. What is the present growth in the IoT sector as the students increasingly show keen interest in this field?

Dr. Saroj: IoT, and embedded systems in general, is a core engineering area that we should put strong emphasis on. Its wide-ranging applications from healthcare to automotive makes it a fantastic industry to work in. With the availability of lowcost micro-controllers and sensors, start-ups and MSMEs require much less capital to launch a product in the market. That is one of the major factors contributing to the phenomenal growth of this industry in India.

Manas: Presently, the Gol is launching several schemes to boost the start-up market, especially the creation of more MSMEs. How is the government promoting start-ups or MSMEs in the embedded systems sector?

Dr. Saroj: I have a contrary viewpoint on this. Since the government is not an entrepreneur in the market, I do not believe it can assist in defining products and markets. But the government is a bureaucratic element which can definitely help businesses with less taxes and limited regulations facilitating their growth and success.

IN CONVERSATION WITH ... Dr. Saroj Rout

Manas: We find comparatively fewer VLSI start-up businesses in India. What might be the cause of this?

Dr. Saroj: The start-up market for VLSI in India is quite like the market condition in the U.S. All startups are capital intensive, compared to software or IoT, due to expensive design automation tools and long R&D times which make it less attractive for investors. Moreover, for chip start-ups, you require skilled personnel who have in-depth knowledge in numerous VLSI domains which is hard to find in India. In my opinion, these are the two main reasons for very few VLSI start-ups in India.

Manas: How was the Semiconductor industry affected by the Covid-19 outbreak across the globe?

Dr. Saroj: The semiconductor business was impacted by plant closures, which led to a chip scarcity in the market. Additionally, as a core sector, the industry requires skilled people to manufacture different products, and this obviously was not possible in the online mode. However, it has fared well compared to most industries.

Manas: How can we encourage the students who fear exploring the field of IoT?

Dr. Saroj: Although IoT is a core engineering field, students should not be afraid to explore it as they already learnt its fundamentals. It is important for professors to develop projects that students can relate to in their daily experience, such as LED bulbs, bluetooth speakers, environmental monitors and so on. They can be motivated by these projects.





Subham Rath of ECE 7th semester has been offered a package of 33 LPA from Texas Instruments along with an offer from Micron Technology. In this interview with Nishigandha Tripathy of ECE, 2nd year, Subham talks over his preparations that made him unbeatable.

Nishi: Congratulations, for the offer from Texas Instruments! Getting into the company with such a good package isn't easy! When and how did you start preparing for it?

Subham: Thanks, Nishi. Yes, that's true, getting into TI isn't easy, but if you have the right skill set you can get into this company.

I started by exploring different fields, software as well as core electronics companies in my 1st year. Then I finalized 4 fields that seemed interesting to me, viz. VLSI, Machine Learning, Bio-electronics, and PCB design. I had to select one of these four and I attended different seminars and webinars that were organized in our college. In our college we have an Advanced VLSI lab and ML as a core paper. I attended the NES seminar and that opened the gates to the VLSI field for me. I became a part of the Advanced VLSI lab in my 2nd year. Under the guidance of Prof. Saroj Rout and Prof. Santanu Sarangi, I learned CMOS VLSI design, Analog circuit design, and Layout design. Thereafter I chose the right internship opportunity and started getting more and more information. So my preparation started during my 2nd year, I never expected to get into TI or Micron-like giant companies at the starting phase; I just wanted to learn the concepts of VLSI and get some projects done, and get placed in the semiconductor industry someday. Then with proper guidance

A Graduate's Perspective ...

from the Advanced VLSI lab and the college curriculum, I got an internship in Micron in my 3rd year, which opened up a lot more possibilities for me.

Nishi: How did you upskill yourself besides the college curriculum?

Subham: Currently, I work as an Associate CAD Engineer in the Technology Development and Scribe team of Micron Technology. I create and maintain parameterized cells for different test structures, create routines for automatic layout generation, support different EDA automation, Ensure the quality of the design, etc.

Out of our regular curriculum, the summer internship is one of the gateways to upskill yourself. Thanks to the II Cell for providing such an amazing opportunity. Also, there are a lot of online courses from Coursera or NSDL for this purpose. For me, it is the combination of projects of Advanced VLSI lab and internships.

Nishi: How did you develop your interest in the core field?

Subham: I had my interest in VLSI and it's a wellpaid job. I also like software engineering and do a lot of coding but I'm biased towards VLSI as I will not be an easy replacement. With continuous motivation from our teachers and with guidance and challenging projects from the Advanced VLSI lab, I developed my interest in semiconductor engineering.

Nishi: Which of the two companies are you going to join?

Subham: I have worked in Micron for almost one year (9 months internship and 4 months full time). I like the culture here, I get recognized for what I do, people here believe in me, we work here to create a technology, and the package here is also comparable. That's why I choose Micron for now.

STUDENTS' CORNER

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Importance of Sports & Physical Activities in day-to-daylife

"All work and no play makes Jack a dull boy."

We are all familiar with the above saying. With the advancement in Science and Technology, people are indulging in mobile phones, video games, and various other gadgets. People do not understand the importance of sports, physical fitness, and maintaining good health. Sports and physical activities are very essential for every human being. It not only improves our physical fitness but also benefits our mental state. It even develops self confidence and personality.

Sports and physical activities have a lot of benefits on human health. It strengthens the heart and is an excellent preventive measure against heart diseases. It improves flexibility and agility, balance and coordination, helps in improving cardiovascular health, tones muscles, helps in weight loss and maintenance, reduces stress, improves self-esteem, and even reduces cholesterol and fats in the body. People usually start doing some sort of activities like dancing, going to the gym, playing some kind of sport, or going for a run when obesity hits them. By that time it becomes very tough to lose weight. Instead, a person should regularly do some physical activity, as prevention is always better than cure. Sports persons rarely suffer from underweight or obesity problems.

The immune system is the major player in the human body. It helps the body in fighting infections. People with poor immunity are likely to fall sick easily from contamination or changing environments which leads to frequent medications and staying indoors to prevent infections. Getting involved in sports and physical activity regularly can help build the immune system greatly. It also helps in the healthy growth of bones, muscles, ligaments, and tendons, and



increases stamina. It tremendously works as a stress releasor and provides better sleep.

So, sports and physical activities are of paramount importance to human life and provide countless benefits, especially for a growing child. It keeps us active, healthy, and energetic and certainly increases the quality of human life. Sports should never be neglected but should be made mandatory for everyone.

Anshul Kedia

5th Sem, EEE

Superstition: the Religion of Feeble Mind

The term superstition is thought to derive from the Latin superstitio, meaning "to stand over in awe".

Theophrastus defines it as "Superstition is cowardice in the face of the Divine". Although there is no single definition of superstition, it generally means a belief in supernatural forces such as fate; the desire to influence unpredictable factors and need to resolve uncertainty. In this way then, individual beliefs and experiences drive superstitions, which explains why they are generally irrational and often defy current scientific wisdom.

The origin of superstitions:

Psychologists who have investigated the role that superstitions play, have found that they derive from the assumption that a connection exists between co-occurring, non-related events. For instance, the notion that charms promote good luck, or protect you from bad luck. A notable exception is found in the introduction to the popular book of Shermer (1998).This argues that superstitions are the adaptive outcome of a general 'belief engine', which evolved to both reduce anxiety and enable humans to make casual associations.

Different Superstitious belief and their background stories:

The superstitious beliefs are universal. Superstitions exercise their sway on people of all classes. Some common superstitions are shared by the people all over the world.

1. Knock Twice on Wood: Reverse Bad Luck

The origin of this well-known superstition dates back to a time when some cultures believed that gods lived in trees. To ask the gods for a favor, people would lightly tap the bark of the tree. Then, to say thank you when the favor was granted, a person would knock lightly again on the same tree.

2. Friday the 13th: Bad Luck

A fear of the number 13 is one of the most common superstitions around; it's so widespread that many tall apartment buildings and hotels simply omit labeling their13th floor. And have you noticed that some airlines don't have a 13th row? The origin of this superstition is not only because Judas Iscariot the man who betrayed Jesus Christ was the13th guest to arrive at The Last Supper in the New Testament of the Bible, but also Loki, the wily trickster God of Norse mythology, introduced the world to chaos when he arrived as the13th guest at a divine dinner party, and tricked a fellow guest into shooting the God of joy with an arrow.

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3. Four-Leaf Clovers: Good Luck

The odds of finding a four-leaf clover are purportedly one in 10,000, making them exceedingly rare finds. As the legend goes, when Eve learned that she was expelled from paradise, she took a four-leaf clover with in order that she'd never forget the Garden of Eden. Now, four-leaf clovers are symbolic of luck and prosperity.

We all know that superstitious behavior is irrational. Stuart Vyse, author of *Believing in Magic*: *The Psychology of Superstition*, points out, "When we are looking for ways to enhance our luck, we often see connections that are not there". Yet despite the negatives, there are some real benefits to being superstitious. It can create actual results not through magic, but through psychology. We also see that superstitious beliefs lead to much cruelty, misery and crime which have blackened the pages of history. Knowledge, rationalistic thought, and reasoning can dispel superstitions from our society.

Sayeda Mahenoor

3rd Sem, CSE



ALUMNI SPEAK

Hello Fellow Siliconites,

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Today, I have the pleasure of introducing myself and talk about my professional journey after graduating from Silicon.

I am from the graduating batch of 2005 the first batch of Engineering from SiliconTech, I have specialized in Electronics & Telecommunication. While I was in my final year, I got selected to work as a Software Engineer at Accenture. It was the first time such a big organization had come to Odisha for selecting candidates and I was one of the lucky few to have made it to the final list. Following 3 months of initial training, I got selected for working in SAP, which at that time was quite in demand. I did a few projects with Fortune 500 clients, learnt a lot professionally and got a lot of opportunities to hone my soft skills. I must say it helped me a lot later.

I stayed with Accenture for about 3 years but always had the desire to study in an international environment and do an MBA from a globally known University. So, after a year of preparing for GMAT and a few attempts to get a good score, I finally started getting offers from a handful of Universities from Canada and USA. I chose to study in University of British Columbia's (UBC) Sauder School of Business as it was offering me a good scholarship amount. At UBC, I specialized in Supply Chain Management and Strategy and had the honor of being the best student in my specialization. Supply Chain has always been my passion, so after my graduation at UBC, I joined the Healthcare Industry here for some time. Thereafter, I have contributed and learnt a lot from colleagues and friends across multiple companies from Healthcare, Retail, Utilities and Software Consultina.

During this journey, I have navigated the paperwork from being a student to having an open work permit and then becoming a permanent Resident in 2015. Finally, I became a Canadian Citizen in 2019. So, if you have any questions related to any of the above subjects, I am always happy to help you and guide you in the best way I can.

Through my journey so far, I have learnt a few things that I would like to pass on as an Alumni:

- Always push your limits and try to come out of your comfort zone
- The more you contribute, the more you learn from others
- Never be shy to approach someone for a conversation "a lot can happen over coffee"as they say
- Have an open mind and be ready for constructive criticism only. "Others" will know your "blind spot".
- Finally, believe in yourself and take the first step that's a big win in itself

I am reachable at the following email address. If you have any questions, do get in touch. I will be glad to help you.

BestWishes!

Debasish Sahu 2005 Graduating Batch sahudebasish@hotmail.com



SKYLAB: AN AMALGAMATION OF SCIENCE & ART



Silicon, the chemical element which is also the namesake of our Institute, possesses some unique properties. It is one of the six elements in nature to be classified as a metalloid- an element that falls in a grey area, with some properties of both metals and non-metals.Similarly, SiliconTech does not merely foster technical education; it promotes Humanities and creativity among the Siliconites equally.

An astounding structure in SiliconTech which stands as a testimony to the fact that amalgamation of science and creativity can create wonders is the Skylab. Built in 2016, this infrastructure has been named after a similar gathering spot present in BITS, Pilani. The Skylab at SiliconTech has a huge tensile umbrella structure supported by eight vertical pillar-like structures and surrounded by greenery all around. With its incredible architecture comprising of a sculpted reflective roof to provide shelter from sun and rain, the Skylab is the most sought-after place in the campus for students to hangout and relax.

The outdoor Wi-Fi zone is enabled with a highspeed internet facility where students can browse the internet sitting around a picturesque fountain to the accompaniment of soothing music, which changes according to the different times of the day like sunrise, afternoon and sunset. Students gather here to bond over music, food, internet, group study and project works. Also, the members of the Silicon Music Club come together to conduct various jam sessions here.

Different seasons of the year heighten its beauty. The sunshine glistening on the fountain in the summer, the sounds of the raindrops drizzling during the rainy days, the fallen leaves gathered around during the fall and the chilly winds of the winter - all render a different kind of aesthetic beauty to the Skylab.

The design and architecture of the Skylab not only epitomizes artistic beauty but also signifies the great engineering skills that have gone into making it. The structure withstood a devastating wind speed of around 200 kmph during the severe cyclonic storm Fani. While almost all the surrounding trees were uprooted, the Skylab stood firm with hardly any damage to its structure.

If we contemplate over analyzing what attributes to the popularity of the Skylab, we will come to realize that it is an amalgamation of technology and ingenuity. It is the blend of internet surfing while relaxing in the lap of nature, listening, and composing music in addition to creating and sharing thoughts.

The structure, ambience and experience of Skylab justifies what one of the 'Big Three' science fiction writers, Isaac Asimov had once said- there is an art to science and a science in art and the two are different aspects of the whole.

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