Silicon
...*beyond teaching*

First Issue SLATE 2023

SLATE

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"

From the Editor's Desk...

Global warming and climate change are stark realities today. Their effects are but too obvious now. While we are struggling with the surging heat wave, the recent incidents of thousands of fish unable to bear the heat in their natural habitat and squirming helplessly on the sea shore in the blistering heat in Puri beach was particularly disturbing. Similar footage was seen of millions of dead fish in a shore in Thailand too. These are evidence that the animal kingdom cannot live in their natural habitat anymore due to global warming. Unfortunately the situation is irreversible. Be it the alarming increase of cyclones, vast erosion in coastal districts, the melting ice-caps, the losses caused by the massive forest fires worldwide, increasing cases of heat waves in cold countries, or destructive floods, we can only stand and witness these as silent, helpless spectators now.

Although natural disasters occurred earlier, the recent years have seen an increase in their frequency and ferocity. A study by professors of NISER and Berhampur University corroborate this fact which points out that "the frequency of cyclones in coastal Odisha has gone up alarmingly since 1999. While the state faced 10 cyclones since 1737, between 1999 and 2021 it faced nine" (*The Times of India, 26 March 2023*).

Ironically, these devastating climate conditions today which we cannot bear are a result of our own thoughtless doing, lacking in perspicacity. It is late now and the damage we have done to the environment is beyond repair. However, sustainable activities on a massive scale can somewhat lessen the impact. How hot the climate become is only up to us, the humans, who have been making optimum use of the resources offered by mother nature. Let us all keep the environment in mind in every course of action.

Priyambada Pal
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EDUCATING US
Tech 2050: Shaping the Future of Life

When imagining the year 2050, it may seem like a distant future, but it is right around the corner, only about 30 years away. Given the many environmental and social challenges we face today, finding out how technology could provide solutions by 2050 is crucial. Influential figures like Ray Kurzweil, industry publications like *Business Insider* and *Forbes* provide insight into the potential technological breakthroughs that lie ahead. In this article, we look at some exciting predictions for future technology.

Nanobots and immersive virtual reality:

Renowned futurologist Kurzweil predicts that by 2050, nanobots will connect our brains directly to the cloud and allow us to experience fully immersive virtual reality.

Reincarnation by Artificial Intelligence:

Kurzweil also suggests that by 2050, AI could allow us to recreate virtual versions of our deceased loved ones. By using nanobots to extract memories from people's brains and combine them with DNA samples, we can recreate compelling virtual representations. While this idea may raise ethical and religious concerns, it offers exciting possibilities.

AI as a net positive employment motivator:

Contrary to fears that artificial intelligence will replace human jobs, Kurzweil believes that AI will serve as a net-work motivator. While certain tasks can be automated, AI technologies like ChatGPT, an advanced language model, can speed up and automate manual tasks like essay writing, code improvement, and contract creation. This efficiency frees up time for more creative and complex problem-solving tasks.

IoT Revolution:

Forbes predicts that by 2050, IoT (Internet of Things) technology will penetrate 95% of electronic devices used in new product designs. From household appliances to industrial machines, everything will be connected to the cloud and the internet enabling seamless communication and data sharing.

Renewable Energy from Unexpected Sources:

The quest for sustainable energy will continue, and by 2050 innovative solutions such as plant-based device charging and ocean thermal energy conversion (OTEC) could become mainstream offering promising avenues towards a greener future.

Drones to explore:

Advances in aerial robotics technology, such as flying, piloting, and climbing drones will combine with laser scanning to open up new possibilities for exploration. Companies like Inkonova are developing drones to reach and map previously inaccessible areas like deep underground mines and also expand our reach and understanding of the wild.

Future technologies show promise to tackle environmental, social and economic challenges. From nanobots connecting our brains to the cloud to self-driving cars making our streets safer, the possibilities are vast. However, ethical considerations and equal access to these technologies must also be carefully considered to ensure a positive and inclusive future.

Sandeep Kumar Pradhan
2nd Sem, EEE

HEALTH WATCH
No Health without Mental Health

TRIGGER WARNING //:

"Are you crazy?"

"You can't say this to anyone!"

"Depression? You're just sad."

"It's all in your head, it's nothing serious."

The WHO constitution states: "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".

The mind and body, i.e., our mental and physical health, are usually viewed to be separate from each other, but they are very closely related.

To be fit, it's not just the physical health that we need to look after, it is the mental health, consisting of our emotional, psychological, and social well-being, which has a more significant role in the overall well-being of a person. Poor mental health, on the other hand, can lead to deteriorating physical health, and dangerous behaviors and is the reason for many chronic illnesses.

According to recent data collected by WHO, depression is one of the leading causes of disability and suicide deaths among 15-29-year-olds. According to the data collected by the World Bank, today, nearly one billion people live with a mental disorder, and in low-income countries, more than 75% of people with the disorder do not receive treatment. It is majorly the unawareness, generalized beliefs, stereotypes, and lack of proper information that cause the stigma around this issue. This is one of the main reasons why we, as a society, are ashamed to even accept that there might be something wrong with our mental well-being. And that's how the vicious cycle of untreated mental health leading to mental illnesses and deteriorating physical health, starts.

Another major problem that is very much prevalent today is the usage of words like "depression", "mental", etc. in a generalized manner and also, many times in-jokes. Such illusions of having a mental problem, when you do not have them, can, in reality, lead to the creation of illnesses in such people. It is high time that we break the silence around this issue and make people realize that it's okay not to be okay and that they are not alone in this. We need to make this world a space where people are comfortable enough to talk about any mental issue that they are facing. Fortunately, due to the pandemic, mental health and well-being have gained great importance. The reciprocal relationship between physical health and mental health is now being acknowledged by mostly everyone. Under Sustainable Development Goals-3, the issue of mental health awareness is being promoted on a large scale. The goal of the initiative is to give 100 million more people access to quality and affordable mental health care by 2023. Each country has already undertaken an initial assessment to get a broad picture of the mental health needs, available services, opportunities, and main challenges for scale-up. But, a lot of work still needs to be done to bring down all these closed doors around the globe. It is possible only if we, as a society, come together and break the stigma around this issue. The question is are you ready to break these walls down?

Sneha Sruti Sahu
4th Sem, CSE

MENTAL HEALTH:
Self-motivation: the Skill for Life

"I am not what happened to me, I am what I choose to become." – Carl Jung

The power and the force that keeps moving each human being to attain their desired goals in life is "Motivation". But once the individual takes charge of her/his motivation without depending on the extrinsic factors, and then s/he is a self motivated person.

Self-motivation is a skill which one can learn and train herself/himself. Before mastering the skill there are certain pre-requisites to be fulfilled.

- ✦ Primarily one has to internalize the concept of "Right to Life with Dignity" which promotes "Loving, Respecting and Accepting oneself as one is".
- ✦ Secondly, one has to analyze the perspectives in daily life with logical analysis.
- ✦ Thirdly, one has to condition the mind in a growth perspective to improve everyday and not to remain stagnant.
- ✦ Lastly, one must train one's mind to raise the right kind of questions and to be more solution focused.

There are many strategies to remain self-motivated and some of them are –

- ✦ Avoid ambiguity of thought: Be specific and clear about your needs and goals.
- ✦ Analyze and avoid potential distractions
- ✦ Be aware of possible failures
- ✦ Identify the nature of "Self-talk"
- ✦ Self pat yourself in every successful achievement (Ranging from small to big ones)

Self-motivation promotes the individual to initiate her/his life experiences in abundance and to get the perspectives clear at the cognitive level. Then only can the strategies supplement the process and progress of Self-motivation.

Dr. Saswati Jena
Counselling Psychologist, SIT-Bhubaneswar

MY CYBERSPACE
ChatGPT & Cyber Security

ChatGPT is a revolution in the chat bot domain and in simple terms is an AI driven NLP tool that facilitates human-like conversations, wherein the integrated language model can answer questions and assist with tasks like composing emails, code and also rejects inappropriate requests. As per Wikipedia, "ChatGPT is an artificial-intelligence chatbot developed by OpenAI and launched in November 2022. It is built on top of OpenAI's GPT-3.5 and GPT-4 families of large language models and has been fine-tuned using both supervised and reinforcement learning techniques".

Many critics, researchers and analysts have brain stormed and come up with the potential risks and benefits of ChatGPT in the context of Cyber Security. Some of the major risks reported are:

- ✦ Attackers with limited programming abilities & technical skills can use the tool to write malware programs for Cyber attacks
- ✦ Helps attackers not proficient in English to effectively distribute malwares, Trojans, loaders and droppers making Phishing and Social Engineering a lot easier
- ✦ Some opponents say it is outdated as it has been trained using 2021 data and it lacks originality and emotion

But the proponents say the benefits outweigh the risks. Some of the security related benefits are listed below:

- ✦ It helps in automating security incident analysis to understand whether an attack is real or not. This exercise entails humongous work otherwise
- ✦ It reduces the knowledge gap of security experts at an accelerated pace specially for top executives of the company
- ✦ Could generate a great simulation environment for penetration testing

Dr. Sushree Samita Rout
Associate Professor, CSE Dept.

IN CONVERSATION WITH ...
Dr. Sanjay Kumar Pattnaik

This edition of SLATE interviews Dr. Sanjay Kumar Pattnaik, Founder & CEO of PeopleBetter. He talks elaborately about his vision related to the manufacturing sector and its various factors to Sayeda Mahenoor of CSE 4th sem.

Sayeda : In recent years the manufacturing sector has seen immense growth. How do you see the manufacturing sector in the future?

Sanjay : India is emerging as the most progressive nation and provides an ecosystem of ease of doing business. It has the most talented human resource, rich mineral reserves, investor-friendly policies, and most importantly a burgeoning market that is eager to try innovative products. Manufacturing, therefore, is key to India's growth story. It is observed that the big international companies are shifting their large operations from other countries to India and this trend will be increasing more evident. As a nation we are determined to reduce import bills and increase export to have more forex coming in. Hence, we are investing in deep research in most of the new areas to innovate products and make India not only self-reliant but also to emerge as a manufacturing powerhouse for the world to benefit from.

Sayeda : Do you think software-enabled manufacturing start-ups are poised to have a large economic impact?

Sanjay : With a higher degree of automation in the manufacturing sector, technology shall be used as an engine to constantly propel the sector to newer heights. As the world transitions to a green and connected future, opportunities are arising in the areas of renewables, aerospace, and hi-tech semiconductors. This calls for intense focus on R&D, technology transfers, global tie-ups, and collaboration between academia, industry, and government. With Industry 4.0, manufacturing sector is largely witnessing an integration of IOT, AI, ML, Cloud Computing and Data Analytics across the entire value chain. In my opinion start-ups are going to provide an ecosystem of technology in product development and services for large manufacturing establishments to augment their capacity, quality and competitiveness.

Sayeda : What message would you like to give the students of Silicon aspiring to have a career in the manufacturing sector?

Sanjay : My suggestion to the young future technocrats (students) from Silicon will be to participate in the Practice School program actively, know their future workplace, work with Industry research and consulting projects, and tap the world of opportunities with knowledge, skill, and confidence.

Bytes from ... *Samarpan*

The Team Samarpan (the music band of Silicon) had a trail of success recently and has been interviewed by Aradhana Dash of 2ⁿᵈ Semester, CEN branch.

We Siliconites have always taken pride in upholding our very famous Tagline and Mantra *"beyond teaching..."* Silicon has been home to outstanding academics', disciplined student life, and great extracurricular activities. One of the hobbies of engaging with music can be done at the Silicon Music Club (SMC). Samarpan happens to be the music band of the institute and is a product of the SMC Students' Group.

Team Samarpan has a group of like-minded musicians as vocalists, guitarists, drummers, and keyboard players. This Music Band of Silicon has won several competitions recently. It was a wonderful experience for all of us to be a part of the winning experience.

Ardhendu Mishra, the vocalist says, "We began as a team in 2019, and of course, there was a lot to learn. Initially, we performed in Rhythmnova, which boosted the confidence of the team to go to competitions. The first win was from SSU, and the feeling was ecstatic. I recall the judge saying, "It has to be Samarpan". That one sentence had a real effect and it motivated us to continue as a team. Then we went to XIM University, NISER, IIT, NLU, and a lot of other competitions and won most of them."

Talking about the effort and hardwork that went behind the success, Akash Jena the vocalist says, "Honestly, it does take a lot of effort to maintain and balance a team. It was tough gathering the members at a particular time for practice, everyone's dedication and hard work did pay off well in the end when we brought pride to our band with all the achievements. The joy and happiness of performing as a team is the sole reason why

Samarpan is different from other bands."

In this respect Alok Mishra, our musician says that to function properly in a band, the members must grow and give their best not only as individuals but also as a team. "You will surely succeed and keep the achievement graph of Samarpan increasing. Stay honest, and stay musical!"

"For a guitarist, nailing a guitar solo and having the crowd cheer for you is a dream. Thanks to Samarpan for allowing me to cross something off my bucket list! And all the best to the juniors. – stay musical" says Rohan the guitarist.

"The vocalists, percussionists, and all other mates with their talents, expertise, harmonisation capabilities, and zeal would of course reap what we together have sown. With great expectations and wishes, rock on! ~ stay musical," says Abhisekh Chatterjee the vocalist.

In the words of Bratiranjan, "Joining Samarpan was one of my great decisions and I am grateful to all the members including former ones to push my ability... We will always try to maintain the uniqueness of our performance. I just want to say that belief is the only key to the first door to success."

Aradhana Dash
2nd Sem, CEN

STUDENTS' CORNER

Her

The world was waiting by her yard
For a company, to all the lonely hearts
The way she jumbled up her words,
Straight for the one, with bare starts
She felt what she saw and didn't,
Beneath the roots, ambivalent
Knew thoughts; born or decay
Heard night in someone's day
Noticed every part
Esse cycled carat,
Laughs and cries,
The wet, that dries
Appeared All heavy, unless;
It was the real beauty of the Flesh;
And she chose art for solace
And a single life for appreciation,
Seemed so less!
For they convey the brush of soul
For the eyes, to cajole
The warmth of reverent rashes,
The smile of salted wounds,
Of all that corner her lashes
She lived for those, alive in her
Bury was never a choice
Moments repeated, avant-some
Became, the deemed voice
Her power chimes,
Flourishing the Times,
She's forever evergreen
A thousand lives more;
Chanted the deity unseen
Now she's within you,
To love and grow every fur,
Darling, blessed it is,
You're her
You're her.

-        **Aradhana Dash**
2nd Sem, CEN

The 7ᵗʰ Sense

Our generation is ruled by modern technologies and innovations. However, with the motive to provide a better lifestyle,   full of comfort, the overexploitation of technologies has resulted in a very drastic change in our health, especially our mental peace and psychological health.

Let me ask you a few questions to understand this. Has it ever happened to you that you suddenly woke up to an alarm, although it was not there? Have you checked your phone, thinking that you got a notification, but there was no such thing? Have you checked your phone for calls after hearing the ringtone and feeling its vibration, but there wasn't a notification? Why do these things happen?

When we use phones or laptops extensively, our mind gets used to it in such a manner that it expects the body to receive such impulses. Our minds recreate certain scenarios that, in fact, are not present in the real world. This particular thing is another angle of the PLACEBO EFFECT.

Certain scientists call these phenomena the "seventh sense of the human body." The main symptoms affected are physical health problems such as eye strain, neck pain, and headaches. Addiction to phones causes people to distance themselves from real-life social networks and engage themselves in virtual social media, as well as isolation from the real world.

This trait is generally found in people aged between 16–28. It was even found out during a survey that the average screen time of a common human being is roughly 3.5–4 hours a day! This majorly contributes to an irregular sleep schedule and lack of concentration, which, in the long run, reduces the productivity of the individual.

This is a growing issue in our world and needs to be addressed properly in order to curb it.

Is your 7th sense under control?

Ritish Mohanty
6th Sem, ECE

The Relevance of *Bhagavad-Gita*

So, how its related to us? What is the importance in our life? *Bhagvad Gita* is not a religious text. It isn't a book with rules and regulations, it's a book containing a way of living your life more efficiently, more happily and more successfully. It's a book which makes you know yourself in a better way. It teaches you your duty and responsibility for which you're born. It's a text of India and ironically very few Indians have gone thoroughly through the book. As the only motive to "earn money is to become rich" has been the only criteria whether by the hook or crook in the short period by not hesitating to adopt unfair methods which gives temporary pleasure.

A tiny fraction of the population's billions of members plan to achieve immortal Moksha. The majority of people do not even attempt to leave this mortal world because they believe that the material luxuries of this world are real. In *Bhagvad Gita* Lord Krishna gave a wonderful message to the public through Arjuna about the mysteries of world and how to lead a meaningful life by following "Dharma". The Bhagavad Gita applies to everyone, not just Arjuna. It includes knowledge such as how to control wants, to know about Soul, about God, Practice of Yoga, Devotion and Moksha etc. The supreme Lord Krishna gives advice that "truth can never be destroyed, so one should not be afraid of telling truth and doing good." All wants, emotions, and ideas originate in the mind, which causes attachment and wrath. Desire and anger are the greatest enemies of a person. "A person is their own best friend and worst enemy; hence one must work to improve themselves."

Here's a story for you all-

An elderly farmer and his young grandson made their home at a farm in the mountains. Every morning, Grandpa read the *Bhagavat Gita* while seated at the kitchen table. His grandson made every effort to emulate him since he wanted to be just like him. The grandson questioned, "Grandpa! Like you, I attempt to read the *Bhagavat Gita*, but I am unable to comprehend it, and what little I do get, I quickly forget after finishing the book. What benefit is there of reading the *Bhagavat Gita*?

The Grandfather quietly turned from putting coal in the stove and replied, "Take this coal basket down to the river and bring me back a basket of water."

The boy obeyed the commands, but before returning to the house, all the water leaked out. You'll have to go a little quicker next time, the grandfather chuckled, before sending the boy back to the stream with the basket to try again. The boy ran quicker this time, but once more the basket was empty when he got home. He told his grandfather that it was hard to carry water in a basket since he was out of breath and went to acquire a bucket in its place. I want a basket of water, not a bucket, the old man declared. You're just not trying hard enough," he said before leaving the room to observe the child make another attempt. The boy knew it was impossible at this point, but he still wanted to prove to his grandfather that no matter how quickly he raced, the water would leak out before he reached home.

Once more, the youngster ran quickly while dipping the basket into the river, but when he arrived at his grandfather, the basket was once again emptier. He exhaled, "See Grandpa, it's useless!". "So, do you think it is useless?" The elderly man said, "Look at the basket."

The child noticed the basket's differences for the first time when he took a closer look at it. It was now spotless on the inside and out after being turned from a filthy, old coal basket. "Son, when you read the *Bhagavat Gita*, that is what happens. Even if you don't fully comprehend or retain everything, reading it will change you on the inside and out. That is Krishna's job in our life. Even if sceptics say Mahabharata was just an imagination, then it's the best imagination and Lord Krishna is the best character ever.

Prayas Raj Mahapatro
6th Sem, CST

ALUMNUS SPEAKS…

Nitish Kumar, our alumnus from the 2018–2021 batch, CSE, is currently a senior software engineer at Mindfire Digital LLP. In this interview with Aradhana Dash of 2nd Semester, CEN, he shares his experiences with his proficiencies.

Nitish's domain is iOS application development, which is the process of making mobile applications that support Apple devices. In recent times, he, along with Sumit Kumar Sah one of our other alumnus, have immaculately bridged the gap between industrial professionalism and an educational degree through their start-up. Nitish says, "While working in our initial companies, Sumit felt this difference between education and the practical atmosphere of any enterprise. Only if this void was filled during one's college life, the job seekers would have an enhanced employment opportunity ahead. That's where we started. A genuine wave of effectiveness is all we create."

On being asked about the contribution of his college life in the development of their idea of the start-up, Nitish reminds us of the despondent times of the pandemic, COVID-19. But on the contrary, it worked like an elixir for their growth. The uncertainty of that period pushed them to upskill themselves in search of a job. They felt the need to grow to an industrial level. They expanded their domain in subjects like data analysis, machine learning, IOTs, Android development, IOS development, and a lot more. Those 6–8 months resulted in efficacy. Opportunities, when they dawn, are to be grabbed.

Alluding to his interest in entrepreneurship, Nitish talks about his former start-up named 'First Harvest', which was a B2C business. It delivered fresh farm products to consumers. But the crunch of time and absence of manpower ceased the entreprise. "It gave me experience of handling a start-up" , Nitish says. "I learned to be ready with my shield of ideas and ascertain the functioning of my company. That sparked my hunger for entrepreneurship. My teaching, as well as Sumit's passion added to it."

About preparing the freshers for their recruitment, Nitish states, " The year 2023, the post-COVID era, has indeed suffered losses because of fervent layoffs. But layoffs occurred for those who weren't well-equipped with the latest technologies." Through their start-up, they built a network of tech-industry knowledge, inclined towards the overall growth of a student.

To juniors, Nitish conveys his message, 'to utilise and learn'. He says ," There's a lot to discover, create, and grow from. Given that you've got the internet now, let your curiosity win. Know the world around you and develop your skills. Life is a long way ahead."

SunDeck:
SILICONITES' SPORTING SPACE

Spread beneath the ever-changing colors of the vast horizon, carpeted with lush green grass, SunDeck - the sprawling sports complex of SiliconTech- has led numerous Siliconites to their victories in different sports.

Recently, the sports complex underwent major renovations to render it with a top-notch look and feel. The SunDeck has three tracks, each 440 meters in length, running parallel to one another. These tracks have been coated with synthetic flooring, specifically engineered to provide high resistance and reduce the risk of injury in case of an accident. The other available facilities include:

- ➢ 2 Basketball Courts (1 Men's & 1 Women's)
- ➢ 2 Badminton Courts (1 Men's & 1 Women's)
- ➢ 1 Volleyball Court
- ➢ 1 Football Pitch
- ➢ 1 Cricket Pitch

All the courts and pitches have been coated with synthetic flooring. In addition to these, there are two separate changing rooms for men & women, a store room containing the sports kits & equipment, and a cafeteria. Adjacent to the sports ground lies the North Lawn- a well-maintained, beautiful garden with a huge center stage where the cultural activities of the institute are hosted. The expansive complex can be accessed through seven gates surrounding it from different directions.

To nurture and maintain the SunDeck, innovative technologies are used. A Waste Water Treatment Plant (WWTP) is installed to treat the used water and remove the pollutants. The treated water is then used for gardening and watering the lawn.

The students train in various sports under the

Photo courtesy: SPC

guidance of Mr. Balaram Mohanty and Mr. Debasish Rout. Mr. Gyana Ranjan Biswal, Faculty-in-Charge, Sports Club, coordinates all sports activities and competitions. On being asked about his favorite memory, Mr. Mohanty reminisced that it was in 2011 when the Silicon team won the Engineer's Cup in Cricket in the inter-college sports of CET, presently OUTR (Odisha University of Technology & Research). He added that it was special because our team had won numerous runners-up trophies before, but that was the first Champions' trophy win.

Sports must be an integral part of a student's life as it inculcates discipline, self-confidence, patience, perseverance, decision-making, and teamwork within them. Most importantly, it prepares them for the larger game of life by teaching them how to accept defeat and continue to persist. It brings home the lesson taught by the basketball legend Michael Jordan, who states:

"I've missed more than 9000 shots in my career. I've lost almost 300 games. Twenty-six times I've been trusted to take the winning shot and missed. I've failed over and over again in my life. And that is why I succeed."

Sweta Mohanty
Assistant Professor, (BSH)

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