SEMESTER 5

B TECH PROGRAMME IN
ELECTRONICS AND COMPUTER ENGINEERING

BATCH 2022-26

empowerEd...

Beyond the Clock Pulse and the Code Loop, We Engineer Every Possibility. The Power of Two Streams, One Vision.

Serves as a dynamic platform to share knowledge, innovations, and updates in the rapidly evolving tech world. Its primary motive is to foster a culture of learning, collaboration, and creativity among students by showcasing projects, technical articles, and industry trends.This initiative helps bridge the gap between academic learning and real-world applications, inspiring peers to stay informed and engaged in their field.

CONTEXT

NEWS LETTER OF ERE'26
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Editor : DRISHYA N

LBS Institute Of Technology For Women, Poojappura

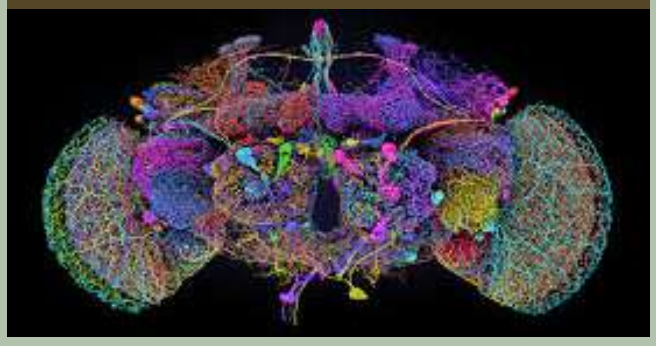
THE BREAKTHROUGHS

Google's Willow Quantum Chip Solves 10-Septillion-Year Problem in Under Five Minutes

Google's Willow quantum chip achieved a benchmark computation in under five minutes a task, that would take the fastest classical supercomputers an estimated 10 septillion years. This demonstrates the significant advantage quantum computing offers in solving complex problems, as Willow utilizes quantum mechanics to process information much faster than traditional computers. Traditional computers, like those found in supercomputers, process information using bits. Quantum computers, on the other hand, use qubits, which can exist in a superposition of both 0 and 1 simultaneously, enabling them to perform calculations in parallel and at a much faster rate. This chip also demonstrates significant progress in quantum error correction, a crucial aspect of building reliable quantum computers.

DO YOU KNOW ?

The first complete brain map of an adult complex animal was done on the fruit fly, Drosophila melanogaster, detailing the connections between 140,000 neurons.



Biodegradable Plastic Dissolves in Seawater, Offering Sustainable Alternative

The new biodegradable plastic with reversible bonds developed by the RIKEN Center for Emergent Matter Science was published in Science on November 22, 2024. This innovative plastic, designed to break down quickly in seawater, offers a promising alternative to traditional plastics.

THE BREAKTHROUGHS

DO YOU KNOW ?

Recent studies reveal that many dinosaurs, including theropods, had feathers, reinforcing their evolutionary link to modern birds.

Chinese Robot STAR1 Sets New Speed Record, Becomes World's Fastest Humanoid at 8 mph

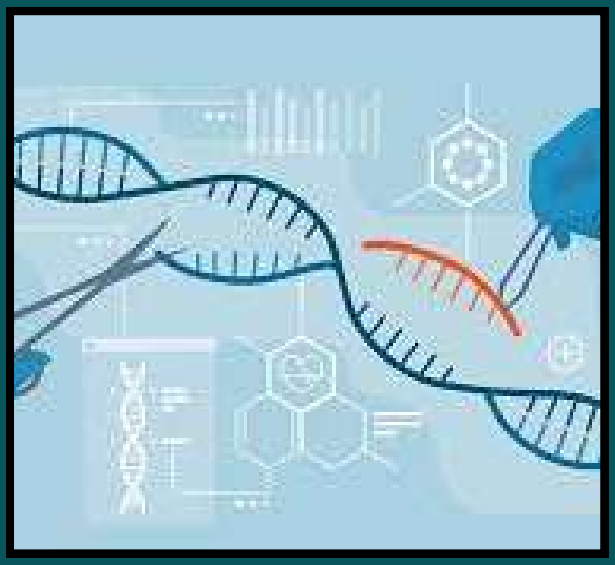
On October 21, Robot Era unveiled its STAR1 Bipedal Robot, claiming it to be the world's fastest humanoid robot. The STAR1 reached a top speed of over 8 mph, surpassing previous records set by other humanoid robots like Tesla's Optimus and Boston Dynamics' Atlas. This was achieved through the use of high-torque motors, advanced AI algorithms, and even running shoes for added speed and grip. The use of sneakers demonstrates the potential for human-inspired solutions to improve robot performance. The tests in the Gobi Desert showcase the robot's ability to navigate diverse terrains.

Gene Editing Milestone: Casgevy Becomes First FDA-Approved CRISPR Therapy

In December 2023, the U.S. Food and Drug Administration (FDA) approved two gene therapies for sickle cell disease: Casgevy (exagamglogene autotemcel) and Lyfgenia (lovotibeglogene autotemcel). Casgevy is particularly notable as it is the first FDA-approved therapy utilizing CRISPR/Cas9 gene-editing technology. This treatment involves editing the patient's hematopoietic (blood) stem cells to correct the genetic defect causing the disease. Casgevy was also approved in the United Kingdom in November 2023 for the treatment of sickle cell disease and transfusion-dependent beta thalassemia.These approvals mark significant milestones in the application of gene-editing technologies to treat genetic disorders.

BYTES

CRISPR Gene Editing: A Decade of Breakthroughs and the Road Ahead



What Is CRISPR and How Does It Work?

CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) technology is derived from a natural defense mechanism found in bacteria and archaea. These microorganisms use CRISPR sequences and associated proteins (like Cas9) to recognize and cut the DNA of invading viruses. Scientists have adapted this system to edit genes in other organisms. The CRISPR-Cas9 system works by guiding the Cas9 enzyme to a specific location in the genome using a piece of RNA that matches the target DNA sequence. Once there, Cas9 cuts the DNA at that location, allowing genes to be removed or added. This method is more efficient, accurate, and cost-effective than previous gene-editing techniques.

Future Scope of Gene Editing

- Beyond sickle cell disease and beta thalassemia, researchers are exploring CRISPR-based treatments for conditions like cystic fibrosis, muscular dystrophy, and certain forms of blindness.
- To modify immune cells to better target and destroy cancer cells.
- To make individuals resistant to infections like HIV.
- To develop crops that are more resistant to pests, diseases, and environmental conditions, potentially improving food security.

Key Milestones in Gene Editing

- 2012: Jennifer Doudna and Emmanuelle Charpentier publish a seminal paper describing the CRISPR-Cas9 system as a gene-editing tool.
- 2015: The FDA grants breakthrough therapy designation to betibeglogene autotemcel (Zynteglo) for beta thalassemia.
- 2019: Victoria Gray becomes the first patient in the U.S. to be treated with CRISPR for sickle cell disease, showing promising results.

I BUILT A PLUGIN

So You Never Have to Struggle with Placing Logos Again

So, couple of months ago I built LogoPlacer — a little Figma plugin that solves a very specific, very real pain: manually placing logos in designs. If you've ever dragged a dozen logos into a Figma frame, resized each one (hoping it doesn't stretch weird), tried to line them up with perfect spacing, and then cried just a little when one logo was 3px off — I see you. I've been you. And that's exactly why I built this.

Where It All Started ?

I was leading the Marketing Team for TinkHerHack, an initiative by TinkerHub Foundation. As we geared up for the event, I found myself helping out with the designs. But then came the challenge. We had 50+ posters to do and each one needed a different combination of logos and every single time, we had to resize, align, and space those logos manually. It was repetitive. It was frustrating. And it was very, very time-consuming. That's when it hit me: "Why isn't there a plugin to just... do this?" I searched. Nothing. So — sitting right there, I opened up my laptop and built the first version of Logo Placer.

It started as a quick fix for that one event. I realized others might need it too. I cleaned it up, published it — and recently released Version 2 with even more features like multi-frame support and a sleek dark mode. What began as a small side tool during a late-night design sprint has now 60+ users in Figma.

(contd...)
What Logo Placer Does ? Here's the magic trick:

- You select one or more frames in Figma.
- You open the plugin.
- You upload up to 4 logos.
- Boom — they appear inside the frame, perfectly spaced, neatly sized, and aligned like a pro did it.

I never planned to make a plugin. I just wanted to stop spending 30 minutes aligning logos. But now, designers are using LogoPlacer — and it blows my mind. So whether you're a design pro or someone who just Googled "how to place logos in Figma without going insane," I hope this plugin saves you time, stress, and sanity.

~ AKSA ROSE

IEDC SUMMIT'24

On **October 19**, 2024, the **National Institute of Technology Calicut** (NITC) hosted the 9th edition of the Innovation and Entrepreneurship Development Centre (IEDC) Summit, in collaboration with the Kerala Startup Mission. Recognized as one of Asia's largest student entrepreneurship events, the summit featured over 70 distinguished speakers and more than 100 events, including lectures, workshops, and exhibitions, spread across multiple venues on campus. Attendees had the opportunity to engage in hands-on workshops, such as AI/ML chatbot development, and participate in interactive community meet-ups and product exhibitions. The summit also featured keynote addresses from prominent figures, including Sri. Anoop Ambika, CEO of Kerala Startup Mission, and Dr. B.K. Das, Director General of Electronics and Communication Systems at DRDO, who emphasized the importance of developing indigenous products. The IEDC Summit 2024 at NIT Calicut was not only informative but also inspiring, offering valuable insights into the latest technology trends and fostering a spirit of innovation among participants.

PRAYAAG 4.0 EVENT HEADS

- Game Stop : Alfiya N, Aleena Shajeed
- Telekinesis : Adithya Ramesh, Gopika R
- ESP32 Nexus : Aswathy Raj S
- Trace Hunters : Abinaraj A, Abhirami A R
- Play Folio : Adithya B

S4 Toppers

Gopika M Sharma
Sgpa : 9.09
Cgpa : 8.43

Anudhyana A S
Sgpa : 8.55
Cgpa : 8.62

B R Kavya Prabhakar
Sgpa : 8.45
Cgpa : 8.52

Gopika R
Sgpa : 8.45
Cgpa : 8.02

Neshwa Fathima K
Sgpa : 8.36
Cgpa : 7.91

ABOUT US

We are the first batch of the newly introduced Electronics and Computer Engineering course at LBSITW, launched in the year 2022, with Electronics and communation Engineering as our parent department. Our class comprises 49 students, and according to the result analysis of the S4 examinations, we have achieved an overall pass percentage of 61.22%.

Class Representatives : Drishya N, Nivedya G S

Staff Advisors : Dr. Reena M Roy, Dr. Deepambika

BUILT WITH HEART :

The Soul of Yagna Dhruva 2024

April 5, 6, and 7, 2024—dates I will carry in my heart forever. As the Chairperson of the College Union at LBS Institute of Technology for Women, I had the rare privilege of leading our flagship event—Yagna Dhruva (YD 2024)—our inter-collegiate techno-cultural fest. It wasn't just an event; it was an emotional roller coaster, a test of courage, leadership, and endurance that has left an indelible mark on me and my team.

A Test of Faith : The Sponsorship Struggle

YD 2024 began as a dream, but reality soon struck hard—money was a massive concern. Sponsorships were scarce, and convincing students about the importance of financial support was no easy task. It took relentless effort and countless conversations to build understanding and raise the required funds. Even then, our budget remained painfully tight. But we didn't let that stop us. With whatever resources we had, we gave it our all. And in the end, when I saw smiling faces, cheering crowds, and the glow of celebration - I knew we had made it. Our event may have been limited in budget, but it was limitless in joy.

When the Law Stood in the Way

Perhaps the most agonizing part of the journey was dealing with the government restrictions on the proshow. I remember the countless times, I found myself at the Secretariat navigating through the endless red tapes, all in hopes of getting that one piece of paper - the permission. Time was running out. Conflicts arose. People doubted us. Tensions ran high, both inside and outside the college. And then, just one hour before the grand inauguration, we finally received the permission to conduct the proshow.

I was exhausted, but my heart overflowed with relief and pride when Mr. Siddharth Menon and his band took the stage. That moment made every sleepless night and every ounce of stress worth it.

(contd...)
Very few appreciated the effort, but I will always remember Dr. Jayamohan J, our beloved principal, who, despite being limited by the law, stood by me with constant encouragement. Seeing pride in his eyes after we secured the permission is something I'll never forget. I owe my deepest thanks to Prof. Mujeeb Rahuman, our Union Staff Advisor, and Prof. Sandeep, our Union Arts In-Charge. Their steady support and faith in us never wavered. In moments when I was breaking inside, they stood firm beside me, reminding me of the leader I could be.

From Emptiness to Energy: The Participation Worry
Just a week before the event, our registration numbers were worryingly low. It felt like the entire effort might go in vain. But this is when I witnessed something magical—my team didn't panic—they acted!! With unstoppable energy, they campaigned, reached out, and brought in numbers that none of us expected. The entire LBSITW family came together, showing that when we unite, there is no challenge too big. We proved that "Unity is Strength" is more than just a phrase—it's a lived reality.

The Team That Carried Me.
No words can do justice to the dedication of my team. Behind every light on stage, every beat of music, and every cheer in the crowd was a group of young women who worked tirelessly, driven by nothing but passion and belief in what we were creating. There were moments of breakdown, moments of doubt, and moments where we had no idea how we'd manage the next step—especially with the funds still falling short during the event itself. But somehow, without letting the crowd sense even a glimpse of chaos, we held it together. YD 2024 took place under a scorching sun, with unbearable heat bearing down on everyone. And yet, I watched in awe as students worked tirelessly, running across campus, setting up, coordinating, managing crowds and handling all the technicalities—all without a complaint. They didn't stop. They didn't break. The passion they had for this event kept them moving when even standing felt exhausting. Their strength and spirit are what made YD shine.

(contd...)

YD Was Not Just an Event — It Was a Life Lesson Yagna Dhruva 2024 taught me more than any classroom ever could. It taught me how to make the toughest decisions under pressure, how to stay mentally strong when everything falls apart, and most importantly—how to lead with heart. We were challenged, tested, and stretched to our limits. But in the end, YD 2024 was a grand success. From the vibrant techno-events to the magical performance by Job Kurian and Sidhharth Menon, every moment was a testimony to resilience, teamwork, and the spirit of our college. Gratitude, Always To my fellow students, my unwavering team, my faculty, and my principal—thank you for trusting me. To Prof. Mujeeb Rahuman and Prof. Sandeep, your support was my anchor. And to every volunteer who stood under the blazing heat, working without rest—you were the soul of this fest.

Yagna Dhruva 2024 wasn't just an event—it was a journey of fire that we walked through together. And I will always wear that journey as a badge of honor.

~ SULTHANA SAYED
CHAIRPERSON
COLLEGE UNION'24

EMPOWERED WITH INTELLIGENCE

GEN AI TRENDS RESHAPING 2025

~ DRISHYA N

The field of Generative AI has entered a new era, with innovations that are not only redefining how machines create but also how we learn, work, and engineer the future. From coding assistants to multimodal reasoning systems, AI is quickly becoming a co-pilot in both industry and academia.

One of the most exciting arrivals is DeepSeek, a Chinese AI venture gaining global attention. Its model DeepSeek-V3, launched in December 2024 with 671 billion parameters, delivers advanced text and image generation capabilities. The upcoming DeepSeek-R2, expected in April 2025, is designed to handle complex reasoning, code generation, and multilingual tasks with remarkable precision—all in open-source. Meanwhile, OpenAI continues to evolve with ChatGPT, now powered by GPT-4 Turbo, which supports text, image, code, and even real-time web browsing. It is also integrated into Microsoft Copilot, enabling AI-assisted workflows across Word, Excel, and programming environments—tools that many students and professionals already use daily. The next version, GPT-5, is on the horizon and promises even more intelligent interactions and creative potential. The future of Generative AI lies in multimodal and generalist agents—models that can understand and generate across multiple formats (text, images, code, audio) with human-like context retention. Google's Gemini 1.5 and Anthropic's Claude 3 are leading this shift with vast memory capabilities and deeper reasoning frameworks.

Industrially, we are witnessing a major transition. From healthcare diagnostics to automated manufacturing, from personalized education tools to AI-powered R&D, generative models are driving productivity and innovation. For engineers, this means a future where we collaborate with AI—not just as users, but as designers, validators, and innovators. As students and future engineers, staying informed and skilled in AI systems, ethics, and implementation is not just valuable—it's essential. The wave is here, and it's generative.

NOBLE PRIZE 2024

Physics

Chemistry

Medicine

Economics

Literature

Peace

AI research leaped into the highest ranks of scientific honors this year, nabbing the Nobel Prize in both physics and chemistry. The physics prize, awarded to Geoffrey Hinton and John Hopfield for their pioneering work in developing artificial neural networks and machine learning algorithms, surprised many scientists, with some even arguing that AI is unrelated to the fields it won prizes for. Hinton compared advancements in machine learning to the industrial revolution, "but instead of exceeding people in physical strength," he said, "it's going to exceed people in intellectual ability."

Meanwhile, the chemistry prize went to David Baker, Demis Hassabis and John Jumper, for their work in using computer and AI technology to revolutionize our understanding of how proteins fold. The Nobel Prize in Literature was given to Han Kang for her "intense poetic prose" and in Medicine the prize was given to Victor Ambros and Gary Ruvkun, for the discovery of microRNA and its role in post-transcriptional gene regulation. The Nobel Peace Prize was awarded to Nihon Hidankyo for its efforts to abolish nuclear weapons. The Sveriges Riksbank Prize in Economic Sciences was awarded to Daron Acemoglu, Simon Johnson, and James Robinson for their work on the relationship between institutions and prosperity.

VISION & MISSION

- **VISION OF THE INSTITUTION**

To be a centre of academic excellence empowering women in technical domain.

- **MISSION OF THE INSTITUTION**

Imparting value based technical education for transforming young women to professionals excelling globally in academics, research & development and industry meeting societal challenges.

- **VISION OF THE DEPARTMENT**

To become a centre of excellence in Electronics, Communication, Instrumentation and Computer Engineering to facilitate professional education and research keeping higher level of value systems.

- **MISSION OF THE DEPARTMENT**

M1 : To transform young women to high quality engineers, entrepreneurs and researchers with ethical values.

M2 : To contribute creative engineering solutions to industry by keeping pace with latest technological advancements.

M3 : To provide intellectual services to the society by the application of Electronics, Communication and Computer Engineering.