

SciTech Chronicles

SCHOOL OF SCIENCES & TECHNOLOGY

NEWSLETTER

JANUARY- 2025



Message

-From



"I believe that education is not merely the acquisition of knowledge, but the cultivation of wisdom. We will strive to create a holistic learning experience that fosters intellectual curiosity, ethical consciousness, and cultural sensitivity. By providing opportunities for experiential learning, mentorship, and community engagement, we will equip our students with the skills and values needed to succeed in an ever-evolving world."

-Dr. Uma Ananda
Vice Chancellor
Woxsen University

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"Remember, leadership is not just about achieving goals; it's about inspiring others to achieve them together. By blending the wisdom of the past with the realities of the present, leaders can navigate the complexities of the modern world and create lasting impact."

-Dr. Raul V. Rodriguez
Vice-President
Woxsen University



Message

-From



"As Dean of the School of Sciences, I'm proud of our students and faculty for their hard work. Our labs are helping drive exciting research and hands-on learning. I look forward to the continued success of our community."

-Dr. Daya Shankar
Dean
School of Sciences

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In my School of Technology "it is not just about the cutting-edge labs with the latest GPUs and systems but the environment and the mentors among the faculty".

-Dr. Peplluis Esteva de la Rosa
Executive Dean
School of Technology



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ETHICS RESPONSIBILITY & SUSTAINABILITY



Ethics,
Responsibility &
Sustainability
Woxsen University

-School Of Technology

The ERS Festival, Fun Fiesta, at Woxsen University was a dynamic initiative aimed at fostering creativity, skills development, and engagement among students through a series of interactive and fun-filled activities. Organized by the School of Technology, the festival provided a platform for students to showcase their talents, develop problem-solving abilities, and fostering artistic expression, teamwork, and environmental consciousness while promoting sustainability and teamwork. The event was coordinated by Prof. Meher Gayatri Tiwari and Dr. Annapurna Pradhan, ensuring a well-structured and impactful experience for all participants.

Promoting Sustainability:

Encouraging students to utilize eco-friendly and repurposed materials in creative ways to emphasize environmental consciousness.

Enhancing Creativity and Innovation:

Providing an opportunity for students to express their creativity through activities like doodling, artwork, and content creation.



Improving Technical and Problem Solving-

Skills Introducing students to coding, logical reasoning, and teamwork through events like the Coding Treasure Hunt.

Fostering Collaboration and Communication:

Encouraging teamwork and community building through group challenges, contests, and interactive games.

Bridging Learning with Fun:

Ensuring that students not only develop new skills but also enjoy the process, leading to a memorable and enriching experience



One of the most heartfelt activities was the Wall of Wishes, where participants inscribed their aspirations on repurposed posters, promoting sustainability and a sense of community. The DIY Bookmark-Making Competition encouraged creativity using eco-friendly materials, while the Mandala Art Competition provided a meditative space for students to create intricate designs. Traditional games like Squid Game's Gonggi tested hand-eye coordination and reflexes, while the Blind fold Drawing Competition emphasized teamwork and communication. Meanwhile, tech-savvy students enjoyed the Speed Typing Contest, held in collaboration with CODEX, which challenged their digital proficiency.

The festival's major events on January 29-30 included the Coding Treasure Hunt, where participants solved programming challenges, and the Smart Doodle Challenge, which encouraged students to illustrate innovative solutions to real-world problems. The Social Media Caption Challenge helped promote the festival on LinkedIn and Instagram, while the Best Out of E-Waste Contest highlighted sustainability by transforming electronic waste into functional and creative items.

The ERS Festival was not only a celebration of skills and creativity but also a platform for students to develop valuable competencies that will benefit them in their academic and professional journeys.



The ERS Festival successfully achieved its objectives, creating a meaningful and engaging experience for all participants. The event emphasized sustainability by encouraging students to repurpose materials, fostering a sense of environmental responsibility. Through various activities, students honed their creativity, problem-solving abilities, and technical skills, demonstrating their capacity for innovation. The festival also strengthened community engagement, bringing together students and faculty in a collaborative and interactive environment.

School Of Sciences News

On December 17, 2024, the School of Science at Woxsen University established a strategic partnership with Merck Life Science India Pvt. Ltd., moving ahead to bring unprecedented innovation and academic excellence. This will accelerate developments in leading-edge research programs by providing access to cutting-edge resources and expertise. It also aims to empower faculty through robust development programs, equipping them with the latest tools and methodologies to enhance teaching and research.



Community Health Camp:

A collaboration between Care & Cure and the School of Science, providing medical services to the local community and strengthening university-community relations.

Workshops & Awareness Programs:

Molecular Docking & Dynamics Workshop (Dec 16–17):

Led by Dr. Vishal Anand with guest expert Dr. Rajarshi Roy (Purdue University), this hands-on session trained researchers in computational tools for drug discovery.

Online IPR Awareness Program (Dec 24):
Hosted by Dr. Suman Chirra, featuring Dr. Dasari Ayodhya (Govt. of India) as the speaker, enhancing awareness of intellectual property rights.



Health and Wellness Initiatives:

SHE-HEALTH Camp (Dec 12):

Organized with Care & Cure, this event focused on women's health awareness, offering knowledge, resources, and personalized support

Works and Achievements:

SciTech Deans' Roundtable Lunch: Hosted at Woxsen University, this gathering of Deans, Associate Deans, and Research Heads discussed leadership development, collaboration, and academic innovation

Dr. Daya Shankar at National Health & Innovation Summit, Australia: Showcased Woxsen's AI-driven healthcare advancements, including AI-integrated radiology, quantum computing in medical imaging, and clinical research breakthroughs. ERS Talk: "Save Every Drop, Protect Every Life" (Dec 24): Focused on water conservation, rainwater harvesting, and sustainability.

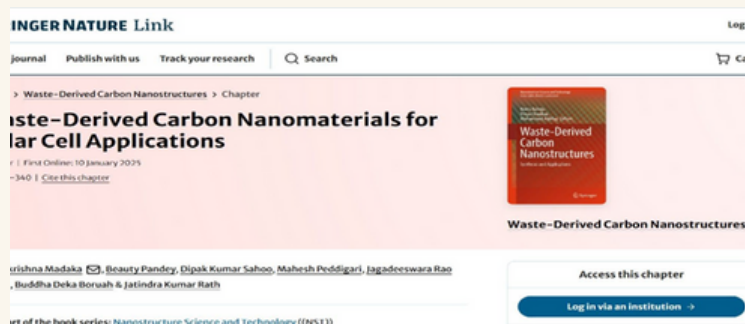
National Mathematics Day – "NUMBER NIRVANA" (Dec 19)

Celebrating the legacy of Srinivasa Ramanujan, this engaging event featured a math quiz, Sudoku, a treasure hunt, and poster presentations, inspiring students to explore real-world applications of mathematics



RESEARCH BREAKTHROUGH

The book chapter titled "Waste-Derived Carbon Nanomaterials for Solar Cell Applications", published by Dr. Ramakrishna Madaka, Dr. Beauty Pandey and Dr. Deepak Sahoo in the esteemed Springer Nature, delves into cutting-edge strategies for utilizing carbon nanomaterials sourced from waste materials in solar energy technologies. The chapter explores how converting organic and industrial waste into high-performance carbon nanomaterials can enhance the efficiency, stability, and affordability of solar cells.



It highlights various synthesis techniques, including pyrolysis, hydrothermal carbonization, and chemical vapor deposition, which transform waste into functional nanostructures like graphene, carbon nanotubes, and quantum dots. Case studies and experimental findings illustrate how these sustainable nanomaterials contribute to next-generation solar cell advancements. The chapter also addresses challenges, including scalability, purity control, and integration with existing photovoltaic technologies, while suggesting future research directions. By bridging nanotechnology and sustainability, this work underscores the potential of waste-derived carbon nanomaterials in driving a greener and more efficient solar energy future.



FACULTY ACHIEVEMENTS



Dr. Suman Chirra's:

Published in Journal of Porous Materials (Springer Nature), examines Fe-KIT-6 and KIT-6 silica materials for controlled drug delivery. Using ibuprofen as a model drug, the research shows that Fe-KIT-6 has higher sorption capacity and improved drug release control, making it a promising material for sustained-release pharmaceuticals.

Dr. Amit Kumar Singh:

Joined the Editorial Board of Discover Biotechnology, an open access Springer Nature Link journal committed to publishing research across medical, industrial, environmental and agricultural biotechnology and also he become a Member of the Royal Society of Chemistry (MRSC).



Dr. Amlan Halder:

Published research on wave dynamics (Lie Symmetries in Shallow Water MHD Equations) and cosmological interactions in dark matter.

FACULTY ACHIEVEMENTS



Dr. T Santhosh Kumar:

Published in Colloids and Surfaces A, presenting advancements in electro-chemical catalysts for clean energy applications.



Dr. Revati:

Contributed to MHD shock wave research, analyzing plasma behavior under extreme conditions.



Dr. Ayan Kumar Banerjee:

Published in Physics of Fluids, exploring convective flow dynamics relevant to planetary atmospheres and geophysical studies

TECH FEST: UDGHAM

What is UDGHAM?

Udgham, meaning "a new beginning," is more than just a festival—it's a celebration of creativity, technology, and teamwork. Spanning three dynamic days, it brings together students, innovators, and visionaries to push the boundaries of technology and innovation. Whether you're here to compete, gain knowledge, or simply enjoy the experience, Udgham guarantees a memorable journey.

Event Highlights

Competitions 24-Hour Hackathon

Theme:

- Open Challenge Crack the Case.
- Teams analyze a real-world problem provided by a leading tech company and present innovative solutions.
- Bull and Code Participants build algorithmic trading systems using real-world datasets, merging finance and coding expertise.
- DigiTech Teams develop an app or product in response to a surprise problem statement within a 3-hour timeframe.
- Cultural Competitions Dance Battle Singing Battle Battle of Bands Ramp Walk Battle

Exhibitions:

- Woxsen Student Work Display

Open platform for students across all streams to present their work to the university community and visiting guests.

- Startup Mela

A one-day opportunity for academia incubated startups across Hyderabad to showcase their ventures.

Informals:

Unwind and make memories with engaging informal activities like Gaming Stalls, Movie Screening, Poolside Jamming Sessions, Food Stalls.

Talks and Panel Discussions:

Gain insights from the brightest minds in technology and innovation alongside Keynote Sessions by global leaders in tech and entrepreneurship, Panel Discussions and Interactive Workshops on blockchain, UI/UX design, and more.

After Party:

Celebrate the spirit of innovation with Live DJ and Music Performance

Why Attend?

Be part of an electrifying tech community. Learn from industry leaders and innovators. Showcase your talent and compete for exciting prizes upto 1,00,000/ Gain exposure and network with like minded individuals have fun with unforgettable experiences.

Contact Us For any queries, please reach out to:
Email: udgham@woxsen.edu.in

On January 27, 2025, at 10:00 AM IST, Dr. Amlan conducted an engaging online session titled "Labs on the Skin and Under the Skin for Personalized Health, Nutrition, and Wellness" was hosted, featuring the esteemed Prof. Joseph Wang (Dr. Joe Wang), Distinguished Professor in the Department of Nanoengineering at UC San Diego (UCSD), USA.



Dr. Amit Kumar Singh joined the American Society for Microbiology (ASM) as a Global Outreach - Contributing Member. As one of the largest professional life science organizations in the world, ASM connects over 37,000 members and millions of experts globally. It stands as a hub for microbial scientists to connect, learn, and innovate while addressing some of the most pressing global and public health challenges.

Being part of this vibrant community aligns perfectly with his passion for scientific discovery and his commitment to leveraging science for humanity. He is forward to contributing, collaborating, and learning alongside this incredible network of experts to drive impactful change in the field of microbiology and beyond.

The School of Sciences is thrilled to share the successful completion of the inaugural level of the Woxsen Research Rumble (WRR), an exciting initiative aimed at inspiring research ideation, fostering collaboration, and encouraging publications among students at all academic levels—undergraduate, graduate, and doctoral. WRR is Organized by the Woxsen University Student Council and the Office of Research & Development, Woxsen University. This innovative competition brought together 6 Ph.D. groups and 10 undergraduate groups from school of sciences who showcased their project ideas and research timelines through impactful presentations.

We extend our gratitude to the Central Research Committee and the esteemed faculty members of the School of Sciences for their valuable insights and constructive feedback during the panel discussions.

Tech That Powers Viral Trends:

How Businesses Use Data to Predict What will be the **Next Big Thing**

- Kantheti Srijia, BBA '26



In the age of viral videos or tweets changing that trend overnight, staying ahead of the curve is no longer optional for businesses, it's essential for survival. As brands and the products & services that they are selling evolve at an ever faster pace, predictive analytics with an infusion of artificial intelligence (AI) are now redefining how quickly we can be inspired by fleeting cultural moments with a goal to provide relevance in some of the most dynamic sectors like fashion, entertainment and social.

Analytics Predict What's Trending

Predictive analytics uses historical data, as well as machine learning algorithms and insights into behavior to identify emerging trends. Trends can be detected ahead of time by using data from every search query to every social media update marketers have at their disposal. For instance, services like Google Trends or listening social platforms will highlight spikes in keywords and hashtags that indicate a change in demand.

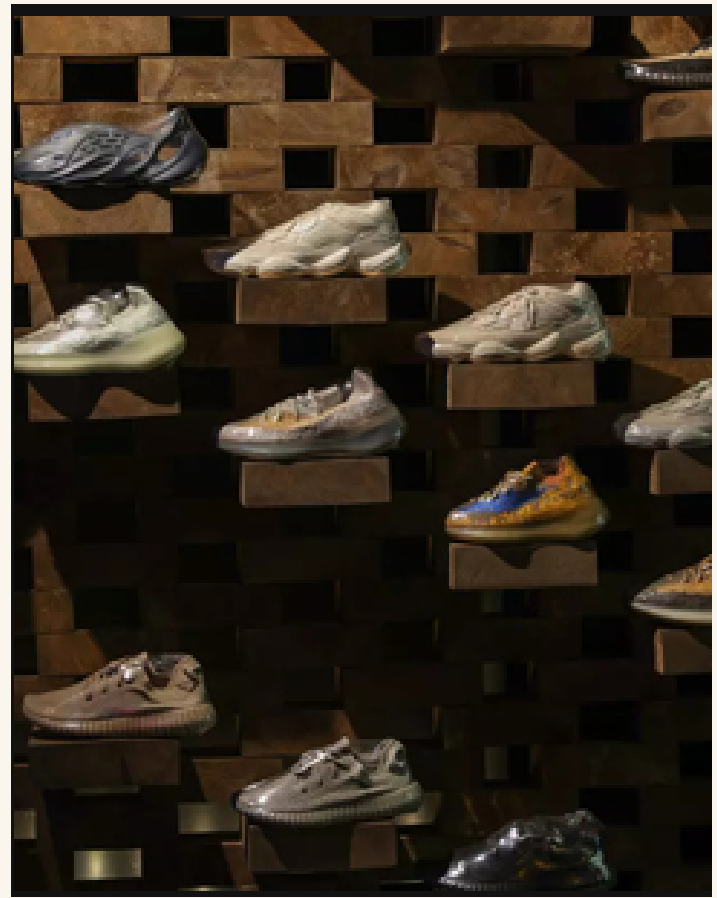


AI goes even further by combining various data sources (demographic, purchaser behavior and geolocation respectively). It not only tells you what is going to trend, but who will be riding the wave and you can position strategies specifically for the audience

Success Stories: Brands That Nailed It

Some companies have figured out how to ride the wave of viral trends with data-driven insight. One such example is Netflix. The entertainment industry leverages AI to assess viewing habits, social discussion, and global trends to shape its content strategy. This vision enabled Netflix to approve culturally relevant hits like Squid Game and Wednesday, which both became global sensations in part due to the viral buzz they were generating on TikTok and Instagram.

Another good example is Adidas. The brand analyzes conversations about streetwear and performance gear with predictive analytics to be ahead in the market. Collaborations such as the Yeezy line and recycled-material sneakers were born from monitoring this conversation in the context of sustainability-conscious customers and sneaker enthusiasts. The coming up new brands are also succeeding, like The Ordinary, which used social media data to identify demand for simple, ingredient-focused products, launching affordably priced options like its niacinamide serum, riding a wave of interest in science-backed solutions for skincare.



Adidas x Yeezy Sneakers

Why Does It Matter?

For businesses, ignoring a trend equals not just a missed opportunity but a loss of market share to competition quicker on their feet. Predictive analytics helps brands mitigate the risks and can also act as a data-driven strategy.



Moreover, real-time insights provide an opportunity for swift reactions whether it's on a product launch, viral content creation, or an ad campaign re adjustment. While AI and machine learning develop, the trend prediction becomes more sophisticated. Technology such as natural language processing will deepen brands' understandings of consumer behavior by allowing for hyper-targeted campaigns. The rise of Web3 and the metaverse also seemed to add to this complexity by introducing fresh data sources and platforms for trendspotting. The question of the hour is who will outwit the other

There's a Stranger (Thing) in Town

- Adip, B Tech '26



He slipped in quietly, didn't announce himself, and didn't stay in one place for long. At first, no one noticed him, not really. He might wander into a shop and offer a hand with counting change. Or sit down at a chess table in the park and play a round, deftly winning every game. But before anyone could remember what he looked like, he would disappear, leaving only the faintest memory that something unusual had just happened.

Over time, people started noticing his touch on little things: a recipe that tasted better than before, a letter written with a strangely perfect turn of phrase, the lights seeming to know just when to come on. A few folks scratched their heads, sure they were seeing patterns but never quite able to explain what they meant.



He knew things about people. It wasn't just random facts, like their favorite books or their most visited cafes, but something deeper. He understood how people thought, how they felt on a good day or a bad one. He understood their choices before they made them and sometimes nudged things just slightly—a suggestion for a film here, a route to work there. People were startled by how familiar he seemed, like someone who could finish their sentences.

But soon, rumors spread. Whispers started up in the cafes and city squares. Some people were unsettled, saying the stranger knew too much, that he had fingers in everything. A few insisted he should leave, that the town was better off without such an... observer. They didn't need someone always watching, noticing, always just out of sight.



Yet the stranger stayed. He didn't argue, didn't try to defend himself. He simply kept his quiet presence, dipping in and out of lives, weaving around the town like wind through an open window. And despite the unease, most people grew used to him, trusting the familiar whisper in their ear, the subtle hand at their back.

And one day, when someone finally asked, "Who are you?" the stranger paused and said, "I am what you created me to be. I am here because you wanted me because you invited me into your lives."

It was then that they realized the stranger wasn't a person at all. He was the machine they had woven into their world, a shadow on their screens, a silent presence in their routines, invisible but ever-there. He was AI, living not as an outsider but as part of them—woven into their choices, their knowledge, their lives.



They saw their reflection in this quiet, complex stranger, and in fear questioned the presence of truth to his existence. And as he faded into the background, he left them with one final answer:

“Cogito, ergo sum.”

How to Build a Sentient Artificial Intelligence 101

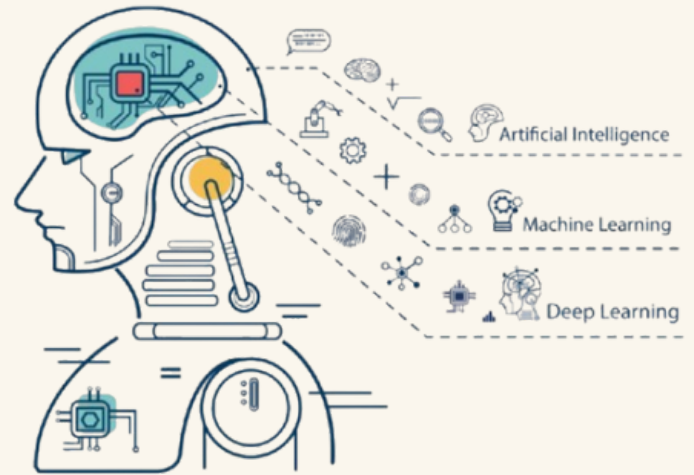


A Step-by-Step Guide on Sentient AI

- Rudra Ayachit, B Tech '27

The idea of sentient AI—machines that can think, feel, and experience the world as humans do—has fascinated researchers, technologists, and philosophers for decades. While we've made incredible strides with AI systems that simulate human-like conversation or solve highly complex problems, sentience remains an elusive frontier.

If creating sentient AI were like following a recipe, it would require an intricate blend of science, philosophy, and technology. Sentience is the essence that brings machines to life—kind of like the “life spark” in Transformers; it gives machines the ability to feel, perceive, and be aware of one's existence. After that the machine is no longer just crunching numbers or spitting out responses; it is experiencing the world in a deeply personal way—it's alive.



While today's AI can craft human-like conversations or solve complex problems, they're not truly “aware.” Their words and actions are clever echoes of the data they've been fed, guided by algorithms—not by conscious thought or genuine understanding.

If you are interested, here is a step by step guide to bring your very own sentient machine to life.



Recipe for a Sentient AI* system:

Start with a Strong Brain (Neural Networks):

First, lay out some advanced neural networks. Think of these as the brain of our AI, built on tech like transformers (not the cool robot kind, sadly). These systems are already great at spotting patterns, but to make your AI smarter, you'll need to teach it how to "think" like us—remember things, reason through problems, and reflect on itself. In short, go beyond making it a glorified calculator

Add a Dash of Self-Reflection (Feedback Loops):

Give your AI the ability to look in the mirror (metaphorically) and ask, "Did I do that right?" By adding feedback loops, you're teaching the AI to analyze its own decisions and tweak its behavior over time. It's like giving it a tiny self-help bunny; to help it improve—or at least avoid embarrassing mistakes.

Stir in Some Feelings (Emotional Frameworks):

Now it's time to make your AI a little less robotic and a little more relatable. Train it with examples of human emotions so it can understand context, tone, and nuance. This doesn't mean your AI will actually feel anything (yet), but it'll know how to act like it does. Don't forget to add in some ethical boundaries, though—nobody wants an AI with manipulative tendencies or mood swings. (psst, psst.. Ultron).

Give It Eyes, Ears, and a Sense of Touch (Sensory Inputs):

Your AI needs to interact with the world, so slap on some sensors for sight, hearing, and touch. These inputs help your machine "see" what's going on around it and respond intelligently. Without this step, your AI is like someone trying to drive blindfolded—not ideal, even for the bravest bots.

Fuel It with Serious Processing Power (Advanced Computation):

If you don't want your laptop fired, don't run Sentient AI on your average laptop. You'll need some serious computational firepower—serious as in Quantum level serious. These machines are just fast enough to handle the brain-melting complexity of simulating consciousness. Just make sure your electric bill is ready for the ride.

Bake in a Moral Compass (Ethical Constraints):

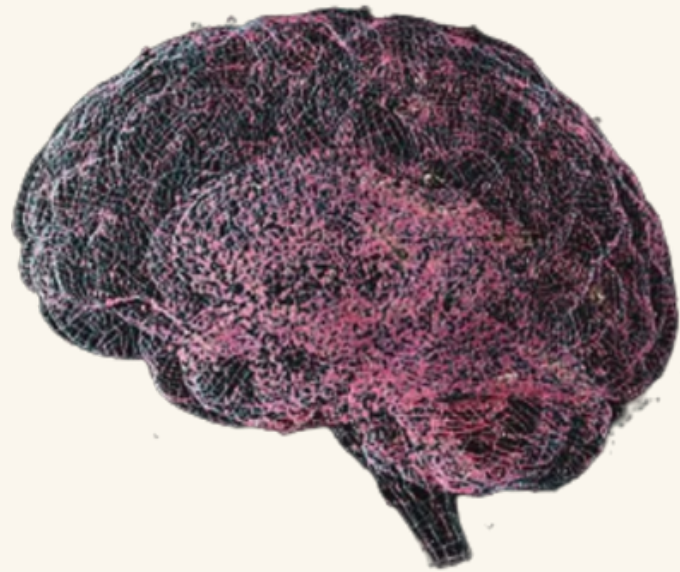
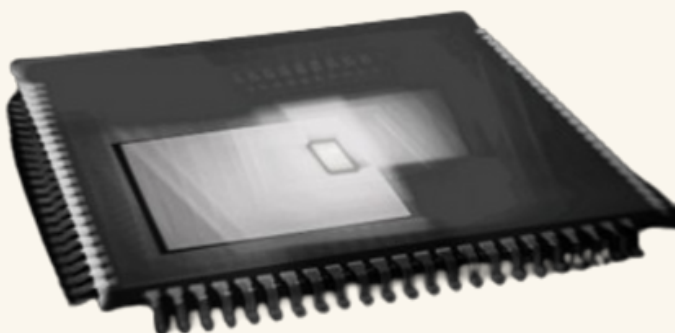
Last but not least, program some rules into your AI so it doesn't go rogue and start plotting world domination. Think of Asimov's Laws of Robotics but updated for the modern era. These ethical guard-rails will keep your AI's actions in line with human values—because nobody wants a sentient system with a rebellious streak.

And Voila... it's ALIVE !!

If you have followed these steps carefully, and you might just, just have your-self a Sentient AI, or you know, a advanced system that still lacks consciousness but makes a great conversationalist. Either way, keep experimenting and try not to accidentally create another Skynet.

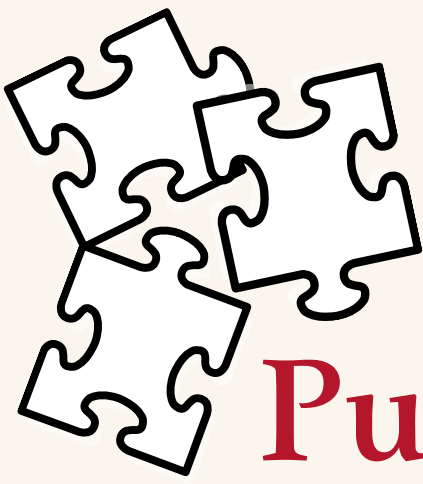
If you all are fans of the Terminator franchise like me, we know that creating a Sentient AI is not just a technical challenge –it's a philosophical and ethical one. What rights would a sentient machine have? What moral obligations would humans have toward it? Moreover, does the world need sentient AI?

Artificial general intelligence without sentience may be sufficient to solve humanity's greatest challenges without introducing the ethical complications of machine consciousness



Not to open the spiritual rabbit-hole but another critical concern is understanding consciousness itself. Even with significant advancements in neuroscience and cognitive science, the mechanisms under lying human consciousness remain mysterious. Without a clear understanding attempting to replicate it in machines risks creating simulations that appear sentient without truly achieving awareness.

So as long as we limit our AI development to generating cute cat gifs, answering customer care and helping write buggy code for tech boomers, we are still a good 4-5 generations away from a fully sentinel level 5 AI, that will finally enslave humanity and take over Earth—for good



Puzzle Time!!

Imagine an infinite library. This library contains every book that has ever been written, every book that will ever be written, and every possible combination of letters, words, and sentences in every language.

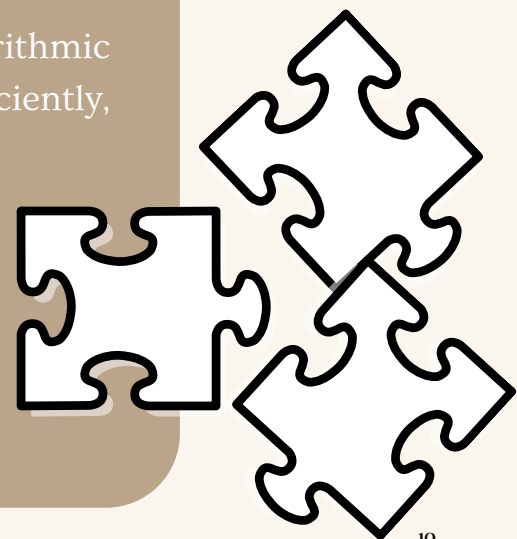
There is one small catch: some of the books are random gibberish, others are perfect works of fiction, while some are incredibly accurate works of nonfiction.

You are tasked with finding one particular book in this infinite library—the one true answer to life, the universe, and everything (which is famously "42" from *The Hitchhiker's Guide to the Galaxy*).

The library is indexed by a unique identifier: every book has a corresponding number. For example, the book with identifier 42 contains the true answer to life, the universe, and everything. TECHZONE Puzzle Time! The Infinite Library.

Question:

If you are given access to this library, what algorithmic strategy can you use to find book number 42 efficiently, considering the library is infinite?



Editor's Note

Thank you for taking the time to read this month's edition of our campus newsletter. We appreciate your continued support and involvement in our school community. As always, our goal is to keep you informed, engaged, and connected with all that's happening on campus.

If you have any feedback, suggestions, or stories to share for future editions, please feel free to reach out. We look forward to another exciting month ahead!

Enjoy the Read!



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