TIRESIA

Volume 15, Issue 3

The Editorial Board

-Beckoning Creati'wit'y

July Issue

Perpetual Panorama

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#International Tiger Day

Interviewing

Mr. Nimit Endlay

Director (Engineering), Qualcomm India Pvt. Ltd.

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The Editorial Board

July, the radiant seventh episode of the year, unfolds in a display of warmth and life. In its embrace, the world basks under the sun's golden rays and gentle breezes. The land flourishes with blooming flowers, each petal a testament to nature's artistry in vibrant hues and fragrances. The air is rich with the scent of roses and lavender, casting a captivating spell. July is a time of joy and abundance, where each moment celebrates the season's bounty. This month, the festival of Rath Yatra becomes a focal point, showcasing India's rich cultural and spiritual heritage. Majestic chariots, adorned with elaborate decorations, traverse the streets, drawing large crowds of devotees. The atmosphere is filled with chants and devotional music, creating a setting for introspection and reverence. The blue skies of July, under the sun's generous gaze, bring a serene and joyful ambiance.

In a significant update, on May 6, 2024, Bengaluru's Flying Wedge Defence unveils India's first Indigenous Bomber UAV. Within the sports realm, Neeraj Chopra kicks off 2024 season with silver at Doha Diamond League on May 13, 2024, making India proud with his outstanding performance. On May 27, 2024, Jyoti Ratre becomes India's oldest women to conquer Mt. Everest at the age of 53. Again, in the field of sports, Dipa Karmakar etches history by clinching gold at Asian Gymnastics Championship on May 28, 2024. On June 9, 2024, Hon'ble Prime Minister Shri Narendra Modi was sworn in for his third term, marking a critical juncture in India's political landscape and, on June 19, 2024, he has inaugurated the new campus of Nalanda University, at Rajgir, Bihar.

Earlier in the year, the 60th Annual Sports Meet, Aayaas, was successfully organized by the Sports Sub-Council from February 16, 2024, to February 17, 2024. Following this, IEEE-SB and the SAE Collegiate Club jointly hosted the annual technical fest, techSRIJAN, from February 17, 2024, to February 19, 2024. **The Editorial Board** managed the Annual Debate Competition from February 22, 2024, to February 25, 2024, and the Annual Photoshoot on February 29, 2024. Abhyudaya '24, conducted by the Cultural Sub-Council, brought cultural vibrancy from March 7, 2024, to March 9, 2024. The Cultural Synod carried out its Induction Drive on March 16, 2024, followed by **The Editorial Board**'s Induction Drive from April 8, 2024, to April 24, 2024. On May 15, 2024, our Hon'ble Chief Minister inaugurated a new Pharmacy building, enhancing the facilities for B.Pharma students.

As July nears its end, it leaves behind a collection of sunlit memories and moments of reflection. The month, with its blend of energy and calm, offers a perfect backdrop for contemplation and growth. **The Editorial Board** enthusiastically encourages everyone to take this opportunity, a break from the routine, to connect with their inner selves in a genuine and thoughtful way. The days, marked by their perfect blend of flexibility and strength, come together to create a captivating setting for contemplation. With these thoughts, we proudly present the July edition of Tiresia, offering our heartfelt congratulations for the promise and good fortune that this month is set to bring.

bienvenidos!

Our Team

Final Year Members: Animesh Kumar Singh, Anoop Singh, Bhuwan Awasthi, Dilip Kumar Singh, Ishita Srivastava, Kaushki Tewari, Mohammad Ifham, Sankalp Sharma, Shivam Srivastava, Shreyashi Rai, Unnati Verma

Third Year Members: Abhijeet Yadav, Aditya Raj, Akanksha Pal, Akshat Saxena, Awantika Krishna, Harshita Mishra, Khwaab Jaiswal, Lavanya Gupta, Mayank Jaiswal, Nadeem Ahmed Warsi, Nikhil Tiwari, Saanvi Gupta, Shreyas Kumar, Swati Tiwari

Second Year Members: Aadrika Barnwal, Aastha Singh, Aashi Awasthi, Harshit Pandey, Jayant Singh, Jyoti Singh, Nandini Mishra, Prisha Agrawal, Shivam Pal, Shivam Rai, Sneha Verma, Vishal Kotak, Vishwadeep Singh, Vivek Mani Tripathy, Yash Pratap Singh

MESSAGE FROM Faculty Advisor

Dr. Abhijit Mishra
Faculty Advisor

Madan Mohan
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www.mmmut.ac.in
www.mmmut.ac.in/ViewNewsletter.aspx

I feel a profound obligation to leverage the illustrious stature of this revered platform to articulate and disseminate this message for the latest edition of Tiresia. The preceding months have been graced with many remarkable events and memorable occurrences. The college celebrated its annual Art, Cultural and, Literary fest, Abhyudaya, a dazzling showcase of the students' diverse talents and creative brilliance, from March 7, 2024, to March 9, 2024, with great fervor. Following this, the Hon'ble Chief Minister of Uttar Pradesh graced the occasion to inaugurate the new Pharmacy block in the University, a milestone marking the institution's continual growth and dedication to excellence. Also, the team NSS, MMMUT embarked on a compassionate campaign under Darpan Phase-1, an initiative to ensure that animals have access to clean water during the searing summer months. These events not only highlighted the academic and cultural vibrancy of the college but also underscored its unwavering commitment to social responsibility along with community welfare.

From academic accolades to pioneering research, from vibrant cultural festivals to impactful community outreach initiatives, our accomplishments epitomize the spirit of excellence that permeates every facet of life at Madan Mohan Malaviya University of Technology. The 60th Annual Sports Meet, Aayaas '24 was a spectacular display of athleticism and camaraderie, fostering a culture of sportsmanship and resilience. The annual technical fest, TechSRIJAN '24, was an extraordinary innovation extravaganza that provided a grand stage for showcasing the brilliant minds and inventive spirit of the students, and also fostered a spirit of collaboration and intellectual curiosity. **The Editorial Board** triumphantly hosted the Annual Debate Competition, a platform for intellectual rigor and eloquence that captivated participants and audience alike. Additionally, **The Editorial Board** orchestrated an engaging Annual Photoshoot for the final-year students, immortalizing the vibrant spirit and cherished memories of their university journey. The Cultural Synod organized Pintura De Pilares, a pillar painting competition, adding artistic flair to our campus. The University Innovation Cell orchestrated Innowizion '24, a celebration of ingenuity and creativity, allowing them to showcase their innovative projects and cutting-edge ideas. In addition, the NSS, MMMUT organized a blood donation camp, exemplifying our unwavering commitment to social responsibility and community welfare. Anchored by our core values of integrity and innovation, we are unwavering in our commitment to fostering an environment where students can flourish intellectually, socially, and personally.

I extend my heartfelt felicitations to **The Editorial Board** team for their unwavering dedication and meticulous effort in crafting a magnificent edition of Tiresia, which gracefully encompasses a rich tapestry of topics and perspectives.

With best regards
Dr. Abhijit Mishra
Faculty Advisor
The Editorial Board
MMMUT

Tête-à-tête

A talk with Mr. Nimit Endlay

Mr. Nimit Endlay, a distinguished figure in the field of digital design and development, has successfully executed numerous complex System on Chips (SoCs) in the realms of the mobile and automotive sectors. After completing his degree as a Gold Medalist in Electronics and Communication Engineering from MMMEC, Gorakhpur in 1998, he played key roles at ST Microelectronics Ltd. in crafting SoCs for automotive uses. And now he leads as the Director of Engineering for Mobile Station Modems at Qualcomm India Pvt. Ltd., where he is a pioneer in designing and developing the cutting-edge 5G Snapdragon series. **The Editorial Board** had the privilege to engage with his vast reservoir of knowledge and extract meaningful perspectives on his exceptional voyage. Presented here is a notable segment from the dialogue.

Q What changes have you noticed on the college campus between your time studying here in 1998 and now?

A Reflecting on my alma mater, I've observed lots of change in campus landscape since my days. The most conspicuous alteration is the introduction of an entry gate. Furthermore, a novel canteen has taken the place of the former post office, presenting students with a contemporary and accessible place. Moreover, the facades of department buildings have undergone a notable metamorphosis, contributing to a more pleasing campus ambiance. Amidst these tangible transformations, there remains a comforting continuity in the excellence of the faculty. The professors continue to embody the same dedication and mentorship that characterized my academic journey years ago.

Q How would you characterize yourself as a student at Madan Mohan Malaviya University of Technology? What additional pursuits did you engage in to enhance the quality of your college experience?

A During my first year at Madan Mohan Malaviya University of Technology, I was quite hardworking and succeeded in becoming the top performer across all branches. Additionally, as I had keen interest in cultural and literary activities, I was an active member of both literary club and cultural club. I was also part of the editorial team of the University magazine, which was a publication for the students, and by the students, at that time. These experiences were immensely fulfilling as I contributed to organizing various events such as debates, group discussion, dance shows, fashion shows, singing competitions, and instrumental performances. I collaborated with exceptionally talented students who excelled in their respective fields with exuberance. Moreover, I fondly recall the presence of a cricket team during that period, which represented our institute at the state level, adding another layer of excitement to my university journey.

Q What time management techniques did you use to balance extracurricular activities and academics simultaneously?

A Managing my time between academics and extracurricular activities was made easier by my genuine interest and passion for both realms. With a deep-seated fascination for subjects across various disciplines and a genuine enthusiasm for cultural and literary pursuits, I found myself naturally drawn to dedicating time to both. This intrinsic motivation served as a driving force, allowing me to seamlessly integrate my studies with club involvement. Whether delving into academic material or organizing events for the literary and cultural clubs, my enthusiasm propelled me forward, making the balancing act feel more like an enjoyable journey rather than a daunting task. This alignment of interest not only facilitated effective time management but also enriched my overall college experience.

Q Do you find yourself more drawn to writing or engaging in debates and discussions? What advice would you give to someone engaging in these literary endeavours?

A My inclination has always been towards debates and group discussions, a pursuit in which I've been engaged proficiently in both Hindi and English languages. Success in debating hinges

> *Decide what you want, decide what you are willing to exchange for it. Set your priorities and start working.*

greatly on confidence. It is essential to begin with laying a solid foundation of the topic, ensuring that every participant comprehends the subject matter thoroughly. One member of the team assumes the responsibility of gathering facts and verifying their accuracy during the debate, while the other focuses on articulating the arguments persuasively. This division of labour ensures a comprehensive approach, leveraging the strengths of each team member. The impartiality of judges underscores the importance of presenting well-researched facts confidently; when supported by compelling evidence, even the most sceptical adjudicators are compelled to acknowledge their validity.

Q Could you please detail your work experience at Qualcomm, including the challenges you encountered and the strategies you employed to overcome them?

A During my tenure at Qualcomm, I had the opportunity to engage with cutting-edge technology and contribute to pioneering projects that have shaped the telecommunications' landscape. The challenges encountered were multifaceted, ranging from stringent deadlines and complex problem-solving to cross-functional team collaboration. One significant challenge was the integration of new technologies into existing systems without disrupting service. This required meticulous planning, extensive testing, and continuous learning to stay abreast of the latest developments in the field. In response to these challenges, I proactively organized knowledge-sharing sessions within my team, promoted open communication, and encouraged innovative thinking. This collaborative effort not only accelerated problem-solving but also strengthened our team's resilience in the ever-evolving industry. That's why I believe that we invariably face challenges, yet it is imperative that we maintain a positive and organized demeanour, remaining solution-oriented in our approach. Also, working in such a largefirm like Qualcomm requires not only comprehensive technical acumen but also a curious and cheerful attitude toward new experiences.

Q What advice would you give to the Malaviyans?

A It's first and foremost, take pride in your affiliation with the college and recognize the esteemed reputation that Malaviyans hold across industries. Their excellence echoes loudly, and their impact is indelible. Embrace this association knowing that you have a network of accomplished individuals who are readily available to offer support and guidance whenever needed. Secondly, uphold a commitment to the fundamentals of your chosen field. Whether you're delving into VLSI, artificial intelligence, machine learning, or any other discipline, remember that a solid grasp of the basics is paramount. In today's dynamic landscape, the ability to efficiently acquire new knowledge is invaluable. This adaptability and aptitude for learning are precisely what companies are seeking, and Malaviyans are renowned for possessing this inherent spark. Therefore, nurture and preserve this innate capacity for growth and innovation to thrive in your academic and professional pursuits. Just to end I would say the famous dialogue from 3-Idiots, "*Beta kamyaab nahi kabil bano, kamyaabi to jhak maar ke peeche aayegi.*"

Mr. Nimit Endlay with his professional associates.

FEB 16 **Sports Sub-Council, MMMUT** flagged off the 60th Annual Sports Meet, **Aayaas '24**, a two-day extravaganza held from **February 16, 2024** to **February 17, 2024**, a celebration of athletic excellence, spirited competition, and unforgettable memories.

FEB 17 **IEEE-SB** and **SAE Collegiate Club** collectively organized the annual technical fest, **techSRIJAN '24** from **February 17, 2024** to **February 19, 2024**.

FEB 21 **Electrical Engineer's Legation** organised the **Labyrinth** event with a plethora of treasure hunt competitions from **February 21, 2024** to **February 22, 2024**.

FEB 22 **The Editorial Board** successfully conducted the **Annual Debate Competition** from **February 22, 2024** to **February 24, 2024**, intending to cultivate critical thinking.

FEB 23 **Robotics Club** organized free workshop **Drone Symposium** for students to learn the art of drone system and explore its innovative application.

FEB 29 **The Editorial Board** successfully conducted the **Annual Photoshoot** capturing keepsakes that provide a beautiful memento of the college experience to look back fondly in the future.

MAR 05 **Cultural Synod** organized an 'Expert Talk' with **Mr. Pranesh Kumar**, an FTII actor to explore acting, drama, and theatre skills and scrutiny.

MAR 06 **Cultural Sub-Council** organized annual art, literary, and cultural fest, **Abhyudaya '24**, from **March 7, 2024** to **March 9, 2024**, a vibrant celebration of creativity, expression, and culture.

MAR 15 **Electronics and Communication Engineering Society (ECES)** organized **Explora** from **March 15, 2024** to **March 17, 2024**.

MAR 16 **Cultural Synod** announced the onset of its **Induction Drive** for the role of new executive members for the society.

MAR 18 **Google Developer Student Clubs (GDSC), MMMUT** organized **Immerse '24** technical fest under which events like Hackathon and many workshops were conducted.

APR 05 **Robotics Club** organized **Robomania '24** packed with various competition and electrifying robot battles.

APR 06 **Computer Engineering Society (CES)** launched **Ennexus '24**, an exciting 3-day extravaganza of various events from **April 6, 2024** to **April 9, 2024**.

APR 08 **The Editorial Board** successfully organized its **Induction Drive** from **April 8, 2024** to **April 11, 2024**.

BUZZ

APR 11 **Cultural Synod** organized **Pintura De Pilares**, a pillar painting competition to hone and admire the artistic skills of the students of the University.

APR 21 **Computer Engineering Society (CES)** successfully conducted its **Induction Drive** from **April 21, 2024** to **April 22, 2024**, to welcome new members to the society.

APR 24 **University Innovation Cell (UIC)** organized **Innowizion '24**, a dynamic three-day event from **April 24, 2024** to **April 26, 2024**, with a series of inspiring activities designed to ignite student passion for technology.

APR 25 **Robotics club** successfully completed its **Induction Drive** to welcome new members for the society.

APR 27 **Electrical Engineer's Legation** organized its highly anticipated annual fest **Electra '24** from **April 27, 2024** to **April 28, 2024**, with an impressive lineup of techno-cultural activities.

APR 30 **NSS, MMMUT** organized a **blood donation camp** to spread the message of vital role of individual and their impact on society health.

MAY 01 **Electronics and Communication Engineering Society (ECES)** completed its **Induction Drive** to welcome the newly elected members.

MAY 02 **NSS, MMMUT** organized a **Seminar** on drug deaddiction in collaboration with **Ehsaas Foundation**.

MAY 15 **Hon'ble Chief Minister Shri Yogi Adityanath** addressed the foundation stone laying ceremony of the new Pharmacy building and the distribution of tablets to 4000 students of the University under the **Swami Vivekananda Yuva Sashaktikaran Yojana**.

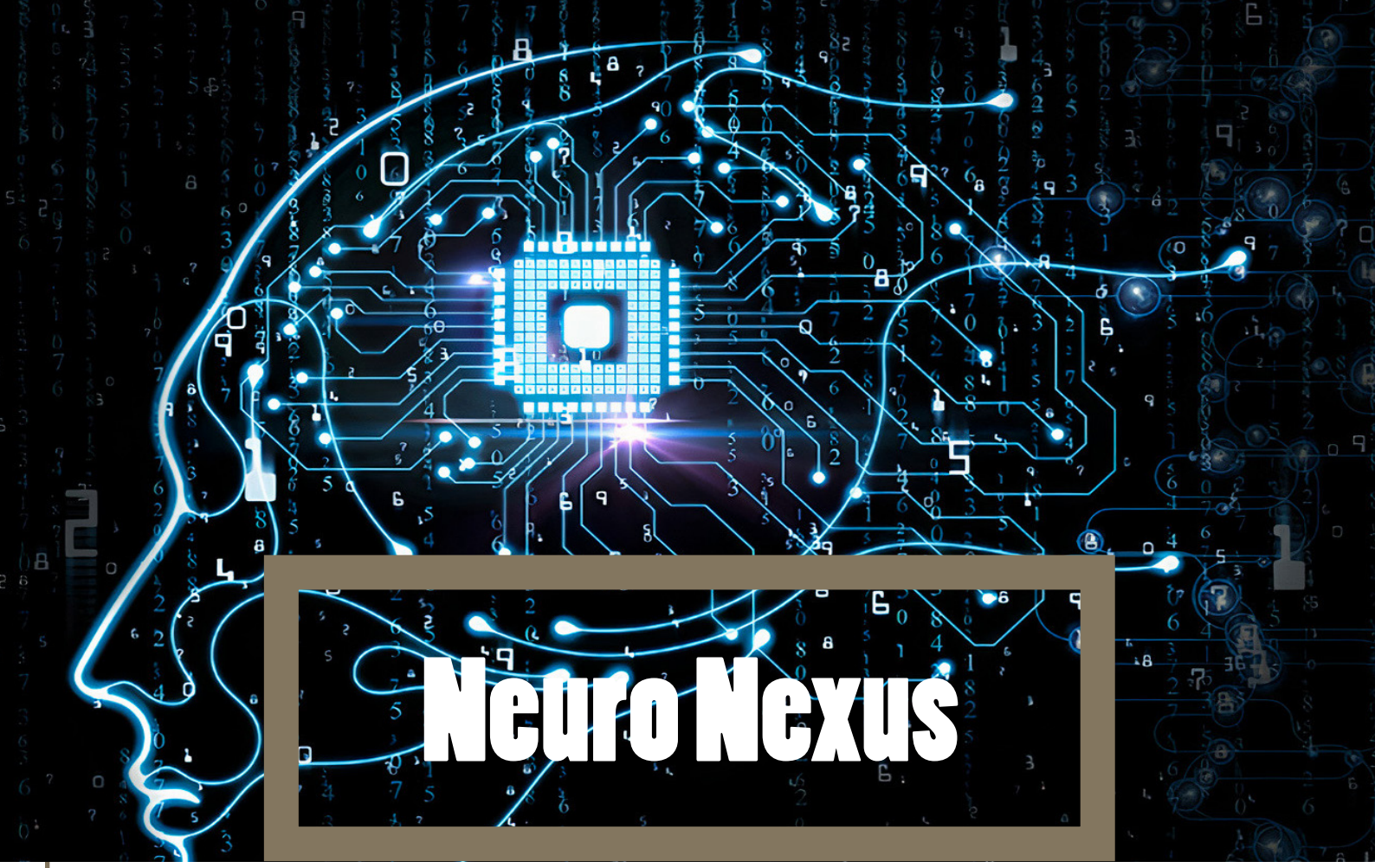
JUN 14 **E-Cell** completed its **Induction Drive** from **June 4, 2024** to **June 8, 2024**, to welcome new elected members to the team.

JUN 15 **NSS, MMMUT** launched a campaign under the event **Darpan Phase-1** in an effort to ensure that animals have access to clean water during the scorching summer.

JUL 14 **Training and Placement Cell** organized an Expert Talk on **"Pathway to Land Software Engineering Roles in Big Tech"**. The session's speaker was esteemed alumnus, **Ms. Anupriya Nishad**, currently working as a Software Engineer II at Intuit.

JUL 15 **NSS, MMMUT** started two-week (80 hours) social internship programme for the students as part of their academic curriculum for the session 2023-24.

JUL 27 **Training and Placement Cell** hosted an Expert Talk titled **"Campus Placement Strategies and Career Guidance"** featuring **Ms. Unnati Tiwari**, a Senior Manager at Grab.



Neuro Nexus

Bio inspired tech where problems wreck, future bright in every spec.

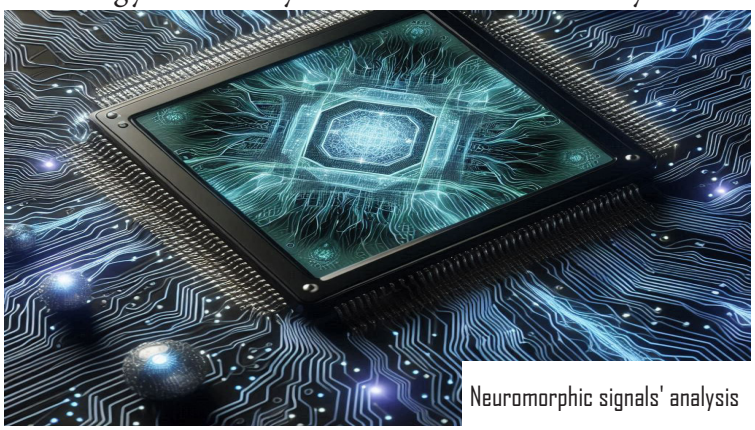
Neuromorphic computing is an emerging process that aims to mimic the structure and function of the human brain. Using artificial neurons and synapses, it simulate the way our brains process information, allowing them to solve problems, recognize patterns, and make decisions faster and more efficiently than the computers we commonly use today. The field of neuromorphic computing is still relatively new. It has few real-world applications outside of research by universities, governments, and large technology companies like IBM and Intel Labs. Despite this, it still holds great promise, especially in areas such as edge computing, autonomous vehicles, cognitive computing, and other applications of artificial intelligence where speed and efficiency are a must.

Neural structures are often modeled after the neocortex. This is where higher cognitive functions such as sensory perception, motor commands, spatial reasoning, and language occur. The layered structure and complex connectivity of the neocortex are essential for the ability to process complex information and allow humans to think. Neuromorphic computers attempt to replicate this effect. To do this, they form what is called a spiking neural network. These form when switching neurons, which carry data as if they were biological neurons, are connected through artificial synaptic devices that transmit electrical signals between them. A spiking neural network is essentially a hardware version of an artificial neural network (ANN), which is a series of algorithms running on a conventional computer that simulates the thinking logic of the human brain.

Neuromorphic computer architecture is a departure from the traditional computer architecture we commonly use today, known as Von Neumann architecture. Von Neumann computers process information in binary, meaning everything is either a one or a zero. And they are inherently sequential, with a clear distinction between data processing (on the processor) and memory

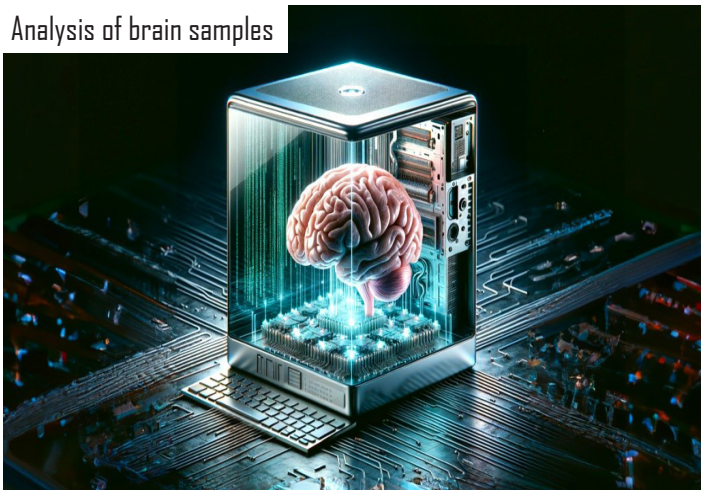
storage (RAM). Meanwhile, neuromorphic computers can have millions of artificial neurons and synapses processing different information simultaneously. This gives the system more computational options than a Von Neumann computer. It also integrates memory and processing more tightly, accelerating more data-intensive tasks. Von Neumann computers have been the standard for decades and are used for many applications, from word processing to scientific simulation. However, they are not energy efficient and often suffer from data transfer congestion that slows performance. And over time, it will become increasingly difficult for the Von Neumann architecture to scale the computing power we need. This has led researchers to look for alternative architectures such as neuromorphic and quantum architectures.

Using neuromorphic hardware and software, self-driving cars can perform tasks faster than when using traditional computers, all with lower energy consumption. Using it, drones can respond as quickly and sensitively to aerial stimuli as a living organism. This technology could enable vision-based drones to autonomously traverse complex terrain or avoid obstacles. Neurally designed drones can also be programmed to only increase energy consumption when dealing with environmental changes, allowing them to respond quickly to unexpected crises. Selfdriving cars must make instantaneous decisions to navigate accurately and avoid collisions, which can require significant computing power. The power efficiency, adaptability, and real-time data processing capabilities of neuromorphic computing make it particularly suitable for edge AI, in which calculations are performed locally on the machine rather than in a centralized cloud computing facility or offsite data center, which requires real-time data processing from things like sensors and cameras. With its parallel and event-driven processing capabilities, it can enable rapid decision-making with low latency. Its energy efficiency can extend the battery life of



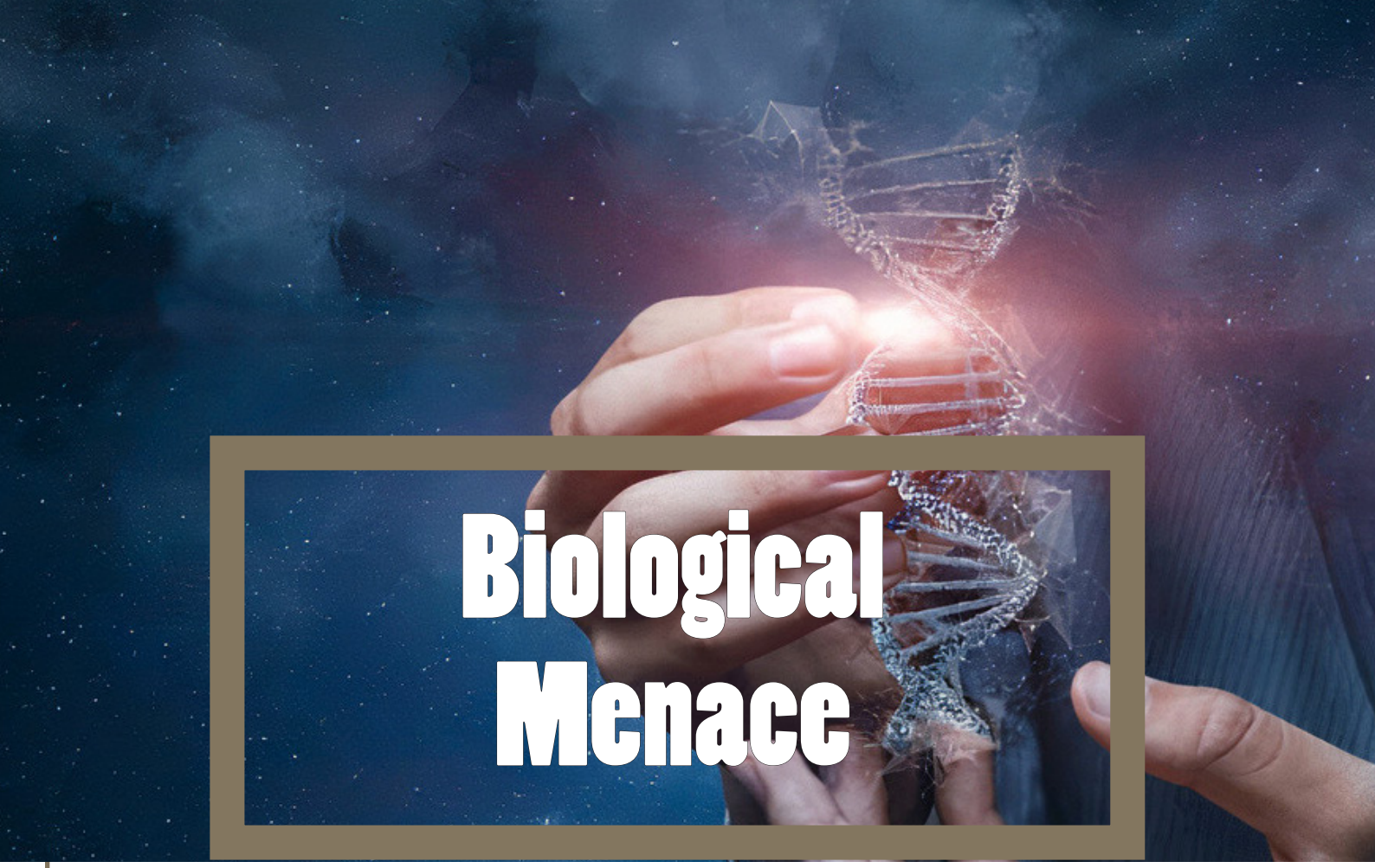
Neuromorphic signals' analysis

Analysis of brain samples



these devices, reducing the need to recharge or replace high-tech devices in the home. Several studies have shown that it is 100 times more battery-efficient than conventional computing. Neuromorphic computing has the potential to revolutionize artificial intelligence applications, data analysis, and even our understanding of human cognition, its development still faces challenges. This involves training a deep neural network, converting it into a spiking neural network.

Despite these challenges, neuromorphic computing remains a well-funded field estimated to be worth around $8 billion, according to one report. Experts are excited about its potential to revolutionize various fields of technology through its unique ability to mimic the brain's ability to learn and process information. Through the use of brain-inspired neural networks, it's hardware is being used to advance our understanding of human cognition. When researchers try to recreate our thought processes through electronics, they can learn more about the inner workings of the brain. In 2020, Intel partnered with Cornell University to essentially teach their Loihi neural computer chip to identify smells. Ultimately, the researchers say they want to expand their approach to processes such as sensory context analysis and decision-making, helping them understand how the brain's neural circuits solve computational problems. The Human Brain Project, an EU-funded group of around 140 universities, teaching hospitals, and research centers, has spent 10 years trying to create a human brain using two supercomputer simulations nerve. They concluded their work in September 2023. Even though neuromorphic computing poses physical and technical obstacles and challenges, it is still developing at a rapid pace, is remarkable, and is expected to change computing in the coming years.



Biological Menace

Science strides ahead, ethics often misled, biological weapons loom with dread.

Biological weapons, often termed bioweapons, have posed significant ethical and geopolitical dilemmas throughout history. Their capacity for mass destruction and indiscriminate targeting of civilian populations raises profound moral questions. This article delves into the history, geopolitical context, social implications, and political ramifications of bioweapons, emphasizing the ethical concerns surrounding their use.

They generally consist of two parts – a weaponized agent and a delivery mechanism. Virtually any pathogenic organism like bacteria, viruses, fungi, prions, or rickettsiae or toxin, whether derived from natural sources such as animals, plants, or microorganisms, or synthesized artificially, can be weaponized. These agents can be engineered to enhance their suitability for mass production, storage, and dissemination. Biological weapons delivery systems have been engineered in diverse forms. Previous programs have developed missiles, bombs, hand grenades, and rockets specifically for deploying biological agents. Moreover, several initiatives have designed spray tanks to be installed on aircraft, cars, trucks, and boats. Selecting an agent necessitates aligning the attack's objectives with the agent's attributes, such as pathogenicity, incubation period, virulence, lethality, and transmissibility. Consideration of countermeasures like treatment and vaccination is also crucial.

Biological warfare is not a modern invention. Historical records indicate that bioweapons have been employed since antiquity. During the Middle Ages, the Mongols famously catapulted plague-infected bodies over the walls of Kaffa in 1346, potentially contributing to the spread of the Black Death in Europe. In the 20th century, bioweapons development became more systematic and scientific. World War I saw limited use of biological agents, but it was World War II that marked significant advancements. Both the Axis and Allied powers explored it. Japan's Unit 731 conducted gruesome experiments on prisoners, leading to outbreaks

of plague and cholera. Meanwhile, the United States and Soviet Union launched extensive bioweapon programs during the Cold War, driven by the potential for strategic advantage. The development and deployment of bioweapons have profound geopolitical implications. During the Cold War, they were seen as a counterbalance to nuclear arms, part of the broader strategy of deterrence. Nations engaged in an arms race not only in nuclear capabilities but also in the realm of biological warfare. This led to the proliferation of bioweapon research and stockpiling.

The threat posed by them include non-state entities such as terrorist organizations. The 2001 anthrax attacks in the United States, where letters containing anthrax spores were sent to media outlets and government offices, highlighted the potential for bioterrorism. Such incidents underscore the difficulty in controlling bioweapons once they are developed and disseminated. The use of bioweapons can have catastrophic social consequences. They can cause widespread panic, disrupt economies, and overwhelm healthcare systems. Unlike conventional weapons, the effects of bioweapons can be delayed, making them insidious and difficult to counter. The psychological impact on populations can be profound, leading to long-term social instability. Politically, their use can isolate a nation on the international stage. The use of such weapons is a blatant violation of international laws and norms, specifically the Biological Weapons Convention (BWC) of 1972, which prohibits the development, production, and stockpiling of biological and toxin weapons. Any state found to be in violation of the BWC faces severe diplomatic repercussions, including sanctions and loss of international standing.

International efforts to control and eliminate bioweapons have been significant. The BWC is the cornerstone of global efforts to prevent biological warfare. Signed by over 180 countries, the BWC aims to eliminate bioweapons and promote peaceful use of biological research. Furthermore, international

Biological experiments in labs

Biological samples

organizations such as the World Health Organization (WHO) and the United Nations (UN) play crucial roles in monitoring and responding to bioweapon threats. Their efforts focus on disease surveillance, rapid response to outbreaks, and promoting biosecurity measures. Collaborative initiatives like the Global Health Security Agenda (GHSA) aim to strengthen global capacities to prevent, detect, and respond to biological threats. The ethical issues surrounding bioweapons are profound and multifaceted. At the core is the principle of non-maleficence, which mandates that actions should not cause harm to others. Bioweapons inherently violate this principle due to their indiscriminate nature and potential for mass casualties, including innocent civilians.

The ethical debate extends to the development and research of bioweapons. Even defensive research, aimed at developing countermeasures, raises ethical questions about dual-use concerns, where scientific research intended for good can be repurposed for harm. From ancient warfare to modern bioterrorism, the use of biological agents poses significant moral dilemmas. The indiscriminate and disproportionate nature of bioweapons, combined with their potential for uncontrollable consequences, makes them ethically indefensible.

International efforts, including treaties like the BWC and the work of global health organizations, are crucial in addressing the threats posed by bioweapons. However, the challenges of enforcement and verification remain significant obstacles. Strengthening global biosecurity, enhancing international cooperation, and fostering a robust ethical framework for biological research are essential steps in mitigating the risks associated with bioweapons. Ultimately, the ethical imperative to protect human life and dignity must guide global efforts to prevent the development and use of bioweapons. The pursuit of security should not come at the expense of ethical principles that safeguard humanity.

inSights

TECH

Mail your answers at
literaryedb@mmmut.ac.in

```
#include<stdio.h>
#include<stdlib.h>
    int main(){
    int count=0;
    char *p=(char*)malloc(sizeof(char));
    *p=65;
    printf("%c",*p);
    p=realloc(p,4*sizeof(char));
    *p=256;
    printf("%d",*(int*)p);
    return 0;
    }
```

What is the output of above C program?

COMPUTER SCIENCE AND ENGINEERING

Assume that we have an ordered file with r = 60000 records stored on a disk with block size B = 2048 bytes. File record are of fixed size & are unspanned with record length R = 200 bytes. Now assume that the ordering key field of the file is V= 18 bytes long, a block pointer P = 12 bytes long, and we have construed a primary index for the file. Let p and q be the number of blocks required to access a record in case of without index and with primary index using binary search respectively. Find the value of p + q.

INFORMATION TECHNOLOGY

A full-wave rectifier circuit is powered by the AC mains. The power transformer has a center-tapped secondary winding. The RMS voltage across each half of the secondary is 20 V. The DC winding resistance of each half of the secondary is 5 Ω and the value of DC power delivered to the load is 4.98 Watt. If the equivalent load resistance is 50 Ω ,then what is the forward resistance of the diode ?

ELECTRONICS AND COMMUNICATION ENGINEERING

To reduce the concentration of pyridine in 500 kg of aqueous solution from 20 wt. percent to 5 wt. percent in a single batch extraction, some chlorobenzene is used as a solvent. Equilibrium concentrations (end points of the tie line) in terms of wt. percent of pyridine-water-chlorobenzene are (5, 95, 0) and (11, 0, 89).Find the amount of pure solvent required in kg for this operation.

CHEMICAL ENGINEERING

A 220 V, 15 kW, 1500 rpm shunt motor with armature resistance of 0.30 Ω, has a rated line current of 60 A and a rated field current of 1.1 A. What is the percentage change in the field flux, required to obtain a speed of 2500 rpm while drawing a line current of 45.8 A and a field current of 1.2 A?

ELECTRICAL ENGINEERING

An evacuated insulating material consists of outer layers of aluminium with emissivity of 0.11 and three polished aluminium shields having emissivity of 0.04. These shields are placed 2 mm apart. The total thickness neglecting the thickness of the outer layers is 8 mm. Calculate the radiation heat transfer across the assembly for temperature of 300 K and 85 K.

MECHANICAL ENGINEERING

An effective rainfall of 3-hour duration produced a flood hydrograph peak of 250 m^3/s. The flood hydrograph has a base flow of 25 m^3/s. If the spatial average rainfall in the watershed for the duration of storm is 4 cm and the average loss rate is 0.3 cm/hour, then what is the peak of 3-hour unit hydrograph ?

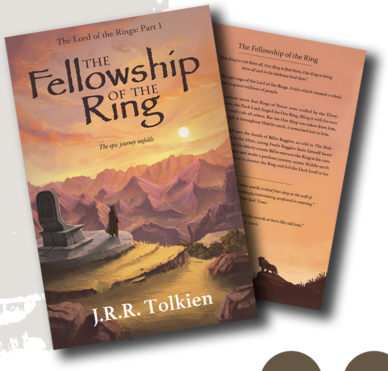
CIVIL ENGINEERING

Winner of the Tech inSights of Tiresia Volume 15, Issue 2 couldn't be decided as the answers received were either late or unsatisfactory.

"Quotiloquy"

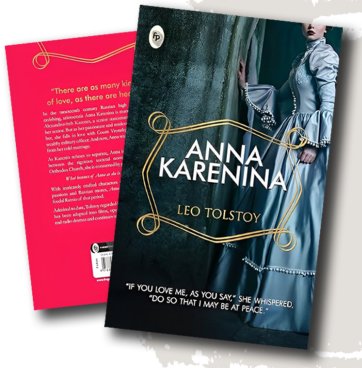
"All we have to decide is what to do with the time that is given us."

-The Fellowship of the Ring



This quote emphasizes the importance of making conscious choices about how we spend our time and prioritizing what truly matters to us.

-Vivek Mani Tripathy, IT 2nd year



"Happy families are all alike; every unhappy family is unhappy in its own way."

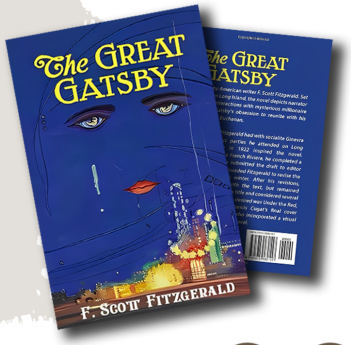
-Anna Karenina

This quote reminds us that happiness in families is often the result of a combination of factors, while unhappiness can stem from a wide range of individual circumstances.

-Nandini Mishra, CE 2nd year

"So we beat on, boats against the current, borne back ceaselessly into the past."

-The Great Gatsby



This quote portrays that no matter how hard we strive for the future or try to move forward, the weight of our past experiences and choices will always pull us back.

-Sneha Verma, CSE 2nd year

We invite all the students to share the book quotes that have profoundly impacted their lives. Also, provide a brief description of how that quote had such a significant influence on you at literaryedb@mmmut.ac.in. Best ones will be published in the next issue of Tiresia.

कर्मयोग

> कर्म ही तो साधना है,
> कर्म ही आराधना है।
> कर्म के बल से तू बन जा महान,
> कर्म करता जा तू बस कर्म करता जा।।

सभी प्राणी हर पल कुछ ना कुछ कर्म करते रहते हैं, यही कर्म हमारे भविष्य के नियति का निर्माण करते हैं। कर्म का प्रत्येक व्यक्ति के जीवन-चक्र में घटित घटनाओं में महत्वपूर्ण भूमिका है। यह कर्म ही हैं जो हमें बंधनों से बांधते हैं और यह कर्म ही हैं जो हमारे मुक्ति का मार्ग प्रशस्त करते हैं। अब प्रश्न यह उठता है कि हम अपना कर्म किस प्रकार से करें, जो हमारे उत्थान का कारण बने? इसके लिए भगवान श्री कृष्ण ने गीता जी में कहा है-

'योगः कर्मसु कौशलम्'

अर्थात् अपने निर्धारित कर्म को पूरी कुशलता से करना ही कर्मयोग है। हम जब भी जिस काम को करें, उसे पूरी तल्लीनता से करें।

कर्मयोग, जिसे श्रीमद्भगवद्गीता में भगवान श्रीकृष्ण ने प्रतिपादित किया, एक ऐसा सिद्धांत है जो जीवन के प्रत्येक क्षेत्र में सफलता और संतुष्टि प्राप्त करने के मार्ग को दर्शाता है। कर्मयोग का अर्थ है, "कर्म के माध्यम से योग" अर्थात कर्म करते हुए आध्यात्मिकता प्राप्त करना। यह जीवन जीने का एक ऐसा तरीका है जिसमें व्यक्ति अपने कर्तव्यों का पालन करते हुए भी आध्यात्मिक उन्नति की ओर अग्रसर होता है। कर्मयोग के अनुसार हमें बिना किसी फल की इच्छा के अपने कर्तव्यों का पालन निःस्वार्थ भाव से करना चाहिए। श्रीमद्भगवद्गीता में भगवान श्रीकृष्ण ने अर्जुन को यही शिक्षा दी है कि अपने धर्म का पालन करो और कर्मफल की चिंता मत करो। कर्मयोग का यह सिद्धांत हमें सिखाता है कि जब हम अपने कार्यों को निष्काम भाव से करते हैं, तभी हम जीवन में स्थिरता और शांति प्राप्त कर सकते हैं।

कर्मयोग का पालन करने के लिए सबसे महत्वपूर्ण बात यह है कि हम अपने कार्यों को धर्म के अनुसार करें। धर्म का अर्थ है सही एवं गलत का ज्ञान, और इसका पालन करना हमें अपने जीवन को सही दिशा में ले जाने में मदद करता है। कर्मयोगी वह व्यक्ति है जो अपने कर्तव्यों को सही तरीके से निभाता है। कर्मयोग का एक और महत्वपूर्ण पहलू यह है कि यह हमें हमारे अहंकार को त्यागने की शिक्षा देता है। अहंकार हमारे कार्यों को स्वार्थपूर्ण बना देता है और हमें अपने असली उद्देश्य से भटका देता है। श्रीमद्भगवद्गीता में कर्म के

महत्व पर प्रकाश डालते हुए कहा गया है कि-

कर्मण्येवाधिकारस्ते मा फलेषु कदाचन।
मा कर्मफलहेतुर्भूर्मा ते सङ्गोऽस्त्वकर्मणि।।

अर्थात् तुझे केवल कर्म करने का अधिकार है, केवल कर्म करना तेरे हाथ में है, कर्मों के फल पर तेरा अधिकार नहीं है। अतः तू कर्मफल की इच्छा न रखकर कर्म कर।

इन वाक्यों को पढ़कर तथा श्रवण कर अनेकों महापुरुषों ने कर्मयोग को अपनी साधना मार्ग के रूप में चुना है। गाँधी, तिलक, स्वामी विवेकानंद इत्यादि महापुरुषों ने इस कथन को जीवन में धारण कर श्रेष्ठ मानव जीवन को चरितार्थ किया है। योग की विभिन्न साधनाओं - ज्ञान, भक्ति, ध्यान इत्यादि में भी कर्म के महत्व को सहज ही स्वीकार किया गया है। श्रीमद्भगवद्गीता एवं अथर्व वेद में जिस धर्म का वर्णन है वह कर्म ही है। मानव जाति का कल्याण एवं सद्गति उसके कर्मों में निहित है, उसके निष्काम भावना से किये गए कर्म (कर्म योग) ही उसके विजय का पथ प्रशस्त करेंगे।

ब्रह्मांड के इस बंधन से आजाद होने के दो मार्ग हैं। इनमें से एक है 'नेति-नेति' (यह नहीं, यह नहीं)। यह नकारात्मक तरीका है और मुक्ति पाने का सबसे दुर्गम मार्ग है। केवल कुछ ही लोग सबकुछ नकार कर मुक्ति पा सकते हैं, जो कि 'नेति-नेति' का तात्पर्य है। दूसरा मार्ग 'इति' या 'यह' का है। यह सकारात्मक रास्ता है। इस मार्ग पर चलते हुए आप संसार और इसके बंधन का अनुभव करते हैं और फिर धीरे-धीरे उसके परिणामों का परित्याग कर देते हैं। यह कर्मयोगी का मार्ग है। सरल शब्दों में कहें तो, कर्म का मतलब मानवीय क्रिया या कार्य है। स्वामी विवेकानंद जी ने कहा था कि मनुष्य के कार्य का उद्देश्य सिर्फ खुशी पाना नहीं, बल्कि ज्ञान अर्जित करना होना चाहिए। कर्म ही व्यक्ति का चरित्र गढ़ता है। किसी भी कर्म का अच्छा या बुरा प्रभाव हो सकता है। स्वामी जी कहते हैं- "यदि आप किसी व्यक्ति के चरित्र का निर्णय करना चाहते हैं, तो उसके शानदार प्रदर्शन को न देखकर उसके साधारण क्रिया-कलापों पर नजर डालें।" कर्म बहुत ही महत्वपूर्ण है, इसलिए हमें अवश्य ही उसकी प्रकृति, स्वभाव और उसे करने के तरीके को समझना चाहिए। इसके महत्व को दर्शाते हुए स्वामी जी ने कहा कि, "हमें अपने मन-मस्तिष्क की शक्ति को बाहर लाने और अपनी आत्मा को जगाने के लिए कर्म करना चाहिए।"

इस प्रकार यह स्पष्ट है कि यदि मनुष्य सभी परिस्थितियों में सम रहते हुए अपने निर्धारित कार्य को पूरी कर्तव्य - परायणता और सुचिता के साथ करे तो वह अपना आत्मिक एवं सर्वांगीण विकास कर सकता है, यही कर्मयोग का मूल सिद्धांत है।

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