NEWSLETTER

SLAAS Eastern Chapter
Eastern University, Sri Lanka

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CONTENT

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The Eastern Chapter of the Sri Lanka Association for the Advancement of Science (SLAAS) has been a hub of scientific activity and education since its establishment in June 2023 at the Eastern University, Sri Lanka. With the support of the prominent figures Prof. Ranjith Senaratne from the University of Ruhuna and Prof. V Kanagasingam, the Vice Chancellor of Eastern University, the chapter aims at promoting scientific knowledge and innovation across the Eastern Province.

The SLAAS Eastern Chapter was inaugurated with a strong commitment to advancing Science and Education in the region. It encompasses both the Eastern University, Sri Lanka, and the South Eastern University of Sri Lanka. The leadership includes executive officers and sectional presidents from both universities, ensuring a collaborative approach for regional scientific development.

MESSAGE FORM THE VICE CHANCELLOR, EASTERN UNIVERSITY, SRI LANKA

I am delighted to extend my heartfelt greetings to the Eastern Chapter of the Sri Lanka Association for the Advancement of Science (SLAAS), a remarkable initiative that has been enriching the scientific landscape of the Eastern Province since its inception in June 2023.

The establishment of this chapter marks a significant milestone in promoting scientific knowledge, education, and innovation in our region. I take immense pride in the collaborative efforts that have brought together the academic communities of Eastern University, Sri Lanka, and South Eastern University of Sri Lanka under the leadership of dedicated executive officers and sectional presidents. This synergy embodies the spirit of unity and collective progress that is essential for the advancement of science and education.

I extend my gratitude to esteemed individuals like Prof. Ranjith Senaratne from the University of Ruhuna for their guidance and inspiration. I am equally grateful to the committed members of the SLAAS Eastern Chapter, whose enthusiasm and dedication have been instrumental in fostering a culture of scientific inquiry and innovation.

As we move forward, I am confident that this chapter will continue to be a hub for intellectual exchange and regional development, inspiring the next generation of scientists and innovators. Let us work together to build a future where science and education serve as the cornerstones of progress and prosperity in the Eastern Province.

Best wishes for continued success in all your endeavors.

Prof. V Kanagasingam,
Professor in Management,
Department of Management,
Faculty of Commerce and Management,
Eastern University, Sri Lanka.

MESSAGE OF EMERITUS PROFESSOR RANJITH SENARATNE, GENERAL PRESIDENT OF SLAAS -2023

Emeritus Prof. Ranjith Senaratne,
Department of Crop Science,
Faculty of Agriculture,
University of Ruhuna.

It affords me great pleasure to send this message for the maiden issue of the newsletter of the Eastern Chapter of the SLAAS, which was established in 2023. Founded in 1944, the SLAAS has been at the apex of the scientific edifice of the country, and as a premier national institution of scientists representing all disciplines, it has made a signal contribution to the advancement and dissemination of scientific knowledge in the country.

Its present membership exceeds 11,000; however, the vast majority is from the Western Province. Therefore, the Council of the SLAAS in 2023 made a historic decision to establish provincial chapters in order to facilitate the scientists in other provinces also to become members of the SLAAS. This will enable them to become constructively engaged in S&T and contribute to community development and regional growth while at the same time advancing their academic career.

While several universities outside the Western Province showed interest in establishing chapters of the SLAAS in their respective provinces, the University of Ruhuna, the Eastern University of Sri Lanka (EUSL) and the Sabaragamuwa University of Sri Lanka promptly responded and embraced the opportunity created. I am glad to record that Prof. Vallipuram Kanagasingham, Vice-Chancellor of the EUSL, motivated and encouraged his staff and tasked Dr. Rodney Fernando, a live wire in the Faculty of Science, with the responsibility of establishing the Eastern Chapter jointly with the South-Eastern University of Sri Lanka (SEUSL). This has added a new dimension, i.e. ethnic diversity and harmony, thereby making it unique among the SLAAS Chapters.

Community service is an honour and privilege and it is heartening to see that the Eastern Chapter, headed by Prof. A.G. Johnpillai and comprising dynamic and dedicated academics from the EUSL and SEUSL, has made great strides in the past one and half years, amidst manifold challenges, for the enhancement of the academic climate and intellectual atmosphere of the university and the development and empowerment of the community in the region.

With many achievements to its credit, the Eastern Chapter of the EUSL is emerging as a model in the higher education landscape of the country. I am confident that it, with the constant support and blessings of the SLASS and the Vice-Chancellor, Deans and Heads of Departments of the university, will build an organic partnership with the community, transforming the EUSL into a "Communiversity" to mutual benefit.

I wish to record my deep appreciation to the Council of the SLAAS, Vice-Chancellor and senior academics of the EUSL, office-bearers and members of the Eastern Chapter for their unstinted support in establishing and fostering it. May the Eastern Chapter grow from strength to strength and its endeavours be crowned with success!

MESSAGE FROM THE PRESIDENT OF SLAAS - 2024

Prof. Ramanee D. Wijesekera
Dept. of Chemistry
University of Colombo.

Thank you for your kind invitation to contribute a message to your chapter's newsletter. I am truly honored and delighted to do so. As the General President of the SLAAS this year, I have been deeply impressed by the dedication, interest and enthusiasm, with which your chapter has organized and carried out a variety of activities, encouraging active participation among its members. It was a privilege to meet many of your office bearers during the Science Day programme conducted by the Committee for the Popularization of Science in collaboration with your chapter. The meticulous planning and effort demonstrated by your team in coordinating the arrangements in Batticaloa were truly admirable and commendable. Our team from Colombo was deeply touched by the warm and heartfelt welcome we received, and we took back many happy memories of the day. I am confident that your chapter will continue to grow and achieve even greater heights in the years to come. My warmest congratulations to the exceptional Team of the Eastern Chapter!

MESSAGE FROM THE PRESIDENT, SLAAS EASTERN CHAPTER – 2023/2024

Senior Prof. A G Johnpillai,
Professor in Mathematics,
Department of Mathematics,
Eastern University, Sri Lanka.

It is a great honour and delight for me to extend my compliments and send a message for the first issue of the newsletter of the Eastern Chapter of the SLAAS. Eastern Chapter of the SLAAS was established on 8th June 2023 at the Eastern University, Sri Lanka encompassing both the Eastern University, Sri Lanka and the South Eastern University of Sri Lanka with the prime objective of promoting scientific knowledge and innovations and to encourage active participation of scientists in the SLAAS activities across the Eastern Province.

We are very grateful to the former General President of the SLAAS Prof. Ranjith Senaratne for his inspiring thoughts, enthusiasm and motivation for initiating the activities and the support of Prof. V. Kanagasingam, Vice Chancellor, Eastern University, Sri Lanka in the establishment of the Eastern Chapter of the SLAAS.

Since its inception the Eastern Chapter of the SLAAS has moved on by leaps and bounds and conducted events such as Science Popularization Programs, Workshops and Seminars, Science Day Program, Innovation and Invention competitions for young innovators all these activities were aligned for the benefits of the school children in the Eastern Province, and an International Conference.

I express our sincere thanks and gratitude to the office bearers of the Management Committee, Sectional Presidents and members of the Eastern Chapter of the SLAAS for their emphatic voluntary contributions, immense support, the painstaking efforts and commitment which led to the impressive success of the Eastern Chapter of the SLAAS.

Finally, I wish the new Management Committee and Sectional Presidents of 2025 all the very best in continuing and carrying out the activities to fulfill the aims of the Eastern Chapter of the SLAAS.

MESSAGE FROM THE PRESIDENT-ELECT, SLAAS EASTERN CHAPTER- 2023/2024

Dr. Kandeeparoopan Prasannath
Dept. of Agricultural Biology,
Faculty of Agriculture,
Eastern University, Sri Lanka.

Let me begin by expressing how proud, honored, and humbled I am to serve as the President of the Eastern Chapter of the SLAAS for the year 2024–2025.

It is incredible how quickly time passes—it has already been a year and a half since the establishment of the Eastern Chapter and my assumption of the role of President-Elect. I am truly impressed by the creativity, dedication, determination, and enthusiasm of our members in contributing to various activities. Thank you to everyone who has played a part in these efforts; your contributions are shaping the future of our Chapter!

I would also like to extend my heartfelt gratitude to Prof. A.G. Johnpillai and his management committee for their remarkable leadership during the 2023–2024 term, achieving several key milestones.

A warm welcome and sincere thanks to the new members of the management committee for 2024–2025, who have graciously committed to working toward the growth and success of the Eastern Chapter. As we move forward, we must expand our membership beyond the academic community by inviting science professionals from the Eastern Region. I humbly request all members to collaborate and cooperate in achieving the Chapter's goals so we can accomplish them successfully.

I am genuinely excited to address the many initiatives ahead and promise to give my very best to serve you—the Eastern Chapter of the SLAAS.

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Eastern University, Sri Lanka.

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Dept. of Chemical Sciences,
South Eastern University of Sri Lanka

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President – Section E3

Dr. M A C Akmal Jahan

Dept. of Computer Science

South Eastern University of Sri Lanka.

President – Section F

Dr. Anusiya

Dept. of Social Sciences

South Eastern University of Sri Lanka.

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Focal Point : Eastern University, Sri Lanka

Prof. P Rodney Fernando

Director / Center for Multidisciplinary Research

Eastern University, Sri Lanka

Focal Point : South Eastern University of Sri Lanka

Prof. A M Razmy

Dept. of Mathematical Sciences

Faculty of Applied Sciences

South Eastern University of Sri Lanka

ACTIVITIES OF THE SLAAS EASTERN CHAPTER 2023

Community Outreach Activities

The SLAAS Eastern Chapter commenced its activities according to the mission and the vision "To promote, support and foster scientific endeavor and technological innovation in an ethical, humane and sustainable manner for the benefit of the people of Sri Lanka" and "To Be the Scientifically Advanced Nation" respectively.

School Students in the Eastern Region

Activity	Title	Target Group	Resource person	Funding Agency
1	A/L Practical – Introduction to Spectrometer and its Application	BT/Vincent Girls' High School 60 Students	Dr P R Fernando	Nil
2	A/L Practical Theory and Practical – Mechanics and Optics	Vantharumoolai Maththiyaa Maha Vidyalayam 40 Students	Dr P R Fernando	Nil
3	Awareness of the impact of Climate change	Kayankarni School, Vahari 50 Students	Dr T. Geretharan	World Vision Lanka, Vaharai.
4	Awareness of Food and Nutrition	Kayankarni School, Vahari 50 Students	Dr Rajavarthani Sanjeev	World Vision Lanka, Vaharai.
5	Electricity, Magnetism, and Electronics for O/L	BT / BC / Eravur Arafa Vidyalaya 55 Students	Dr P R Fernando	Nil
6	Selected A/L Practical	BT / KK / Valaichchenai Hindu Collage 45 Students	Dr P R Fernando	Nil
7	A/L Practical – Introduction to Travelling Microscope and its Application	BT / Chenkalady Central Collage 32 Students	Dr P R Fernando	Nil
8	Human and Elephant Understanding and Technology to Protect Humans from Elephants	Farmers and School Students 23 Farmers and 50 Students	Mr A M Riyas Ahemad	Nil
9	Science Practical	Pl/Kauduluwewa Mahinda Maha Vidyalaya 50 Students	Dr P R Fernando	Nil






The SLAAS Eastern Chapter conducted a series of hands-on training on science practical sessions for O/L and A/L students in the Eastern region. These initiatives were led by Dr. P R Fernando, who played a pivotal role in guiding students through complex scientific concepts, thereby enhancing their practical knowledge, skills and their interest in science.

Awareness Program in Food and Nutrition for School Students

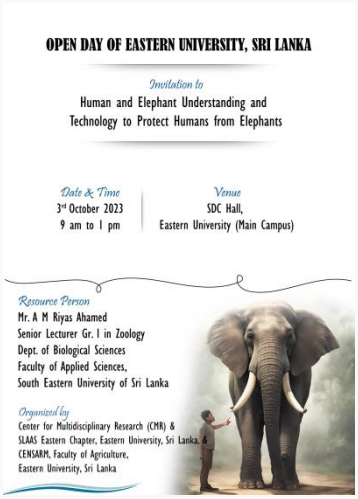


Awarenes on Climate Change was conducted at Kayankarni School Vaharai, the session, led by Dr. T. Geretharan, educated 50 students on the impacts of climate change, supported by World Vision Lanka Vaharai. Followed by food and nutrition was conducted, guided by Dr. Rajavarthani Sanjeev, also funded by World Vision Lanka Vaharai. The program was organized by Dr Mythreye Thayabaran.

Awareness of Heart Attack and Overcoming its Severe on Sequences

The Section A of the SLAAS Eastern Chapter conducted an Awareness on Heart attack and overcome its severe consequences for the Staff, District Secretariat, Batticaloa who are in need among the Eastern region. Awareness on heart attack and to overcome its severe consequences. Dr.R.Rajavarman (MBBS, MD in Emergency Medicine), Lecturer in Anatomy, Department of Human Biology, Faculty of Health – Care Sciences served as the resource person for the workshop. More than 100 staff participated and it was held on 02.10.2023 at Kachchari, Batticaloa.

Celebration of University Day



The Section B of the SLAAS Eastern Chapter conducted an Awareness program on the growing human-elephant conflict, offering technological solutions to protect both humans and elephants. The farmers and the students in the Batticaloa distract participated. The workshop was organized by Dr. T. Geretharan. Mr A M Riyas Ahamed, Senior Lecturer, Department of Zoology, South Eastern University of Sri Lanka was invited as a resource person for this workshop. The workshop was held on 1st of October 2023 as a remarkable event of the University Day 2023.

Our Journey in the year 2023

ACTIVITIES OF THE SLAAS EASTERN CHAPTER 2024

Community Outreach Activities

The chapter's momentum continued into 2024 with an expanded range of activities:

Science Workshops: Ongoing practical workshops were held in various schools, including Unagalawehera Maha Vidyalaya in Polonnaruwa and Denike Secondary School, reaching students across multiple grades.

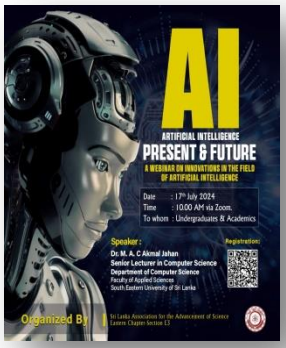
These activities are continued by Dr. P R Fernando, who plays a pivotal role in guiding students through complex scientific concepts, thereby enhancing their practical knowledge, skills and their interest in science.

Activity	Target Group	Resource person/s	Funding Agency
1	School :- Unagalawehera Maha Vidyalaya, Hingurakgoda, Polonnaruwa Grade :- 10 and 11	Science Graduates and Undergraduates under the supervision of Dr P R Fernando	Self
2	School :- CP/HK/Denike Secondary School Grade :- A/L students	Do -	Self
3	School :- CP/HK/Denike Secondary School Grade :- A/L students	Do -	Self
4	School :- A/ Kandalama Pallegama Maha Vidyalaya, Kekirawa Grade :- 10	Do -	Self
5	School: A/Hemamami Maha Vidyalaya,Wahalkada Grade :- 11	Do -	Self
6	School :- CP/HK/Denike Secondary School Grade :- A/L students	Do -	Self
7	School :- BT/KK /Vantharumoolai Mathiya Maha Vidyalaya Grade :- A/L students	Do -	Self
8	School :- BT/An-Noor National School Grade :- A/L students	Do -	Self
9	School :- Al-Hira Vidhyalayam, Mancholai, Ottamawadi Grade :- O/L students	Do -	Self
10	School :- Mo/ Wagama Kanitu Vidyalaya, Bibile Grade : 10	Do -	Self

Activity	Target Group	Resource person/s	Funding Agency
11	School :- BT/St.Theresa's Girls Vidyalayam Grade :- O/L students	Do -	Self
12	School : BT/Arayampathy Maha Vidyalayam, Batticaloa. Grade :- 12	Do -	Self
13	School :- BT/ Meeravodai Al-Hidhaya Maha Vidyalayam Grade :- 10 And O/L	Do -	Self
`14	BT/KK/Murakkoddanchenai R.K.M.V Grade :- Ordinary Level	Do -	Self
15	KM/AK/Karadikulam Rahmaniya Vidyalaya Grade : O/L	Do -	Self

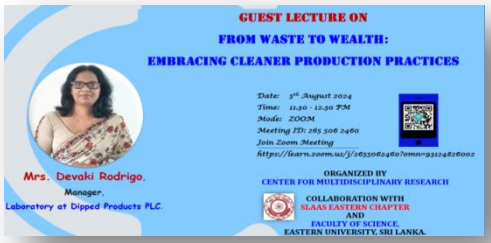
Workshop and Webinar

A two-day workshop on Machine Learning and Data Science was conducted by Dr. M A C Akmal Jahan from South Eastern University Sri Lanka, providing valuable insights into cutting-edge technologies. Undergraduates, School students and school leavers participated in the workshop which was held on 24th and 25th August 2024.



A webinar on Innovations in the field of Artificial Intelligence: One day webinar on Innovations in the field of Artificial Intelligence was conducted by Dr. M A C Akmal Jahan from South Eastern University Sri Lanka, providing valuable insights into cutting-edge technologies in recent Artificial Intelligence advances, especially in Generative AI was held on 17th May 2024.

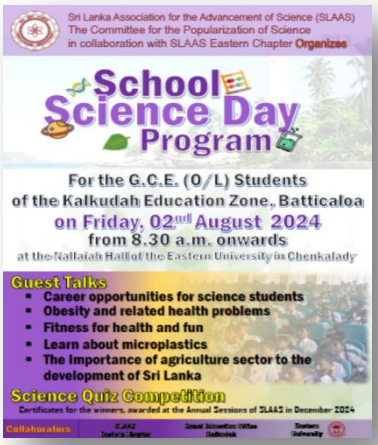
From Waste to Wealth: Embracing Cleaner Production Practices: One day workshop for Undergraduates, Faculty of Science, Eastern University, Sri Lanka, was conducted by Mrs Devaki Rodrigo, Manager, Laboratory at Dipped Products PLC which was organized by Dr B Karunaratnae, and Dr P Rodney Fernando on 5th August 2024.



International Conference on Science and Technology - 2024

Fourth International Conference on Science and Technology – 2024 held on 16th October 2024, Organized by South Eastern University Sri Lanka and the SLAAS Eastern Chapter, Eastern University, Sri Lanka. Prof. Dilanthi Amaratunga and Prof. Chaklam Silasuwanchai were invited as the keynote speakers for the conference.

Science Day Program



The Science Day Program was organized by the Committee for the Popularization of Science (CPS), Sri Lanka Association for the Advancement of Science (SLAAS) and SLAAS Eastern Chapter on 2nd of August, 2024, at Eastern University, Sri Lanka organized a major event on August 2nd, 2024, attracting 250 students and 23 teachers. The event focused on engaging underprivileged schools within the Kalkudah Education Zone, igniting a passion for science among participants.






Invention and Innovation Exhibition and Competition - 2024

The invention and innovation exhibition and completion was held on 1st October 2024. The event organized by the UIIC, SLAAS and CMR. Twenty five schools from the Eastern region, undergraduates and the community inventers participated in the completion. We received 152 innovative outputs for the completion.













Competition
2024

Competition
2024


Competition
2024

Competition
2024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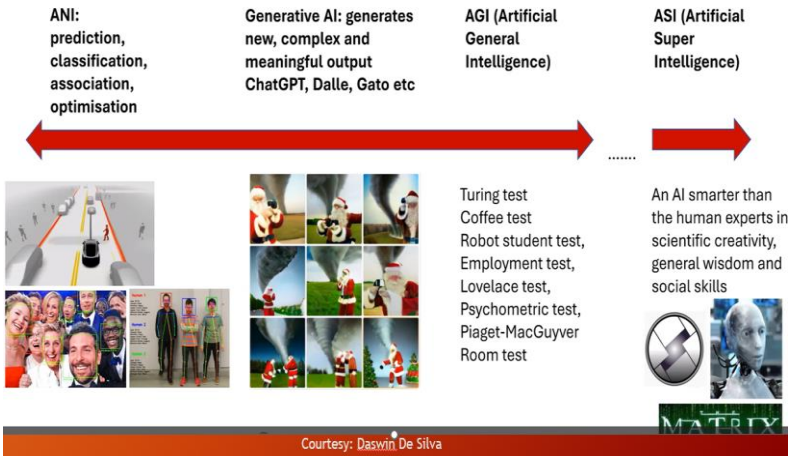
Our Journey in the year 2024

Artificial Intelligence: Present & Future

Artificial Intelligence (AI) Artificial Intelligence (AI) refers to the science and technology of creating machines that can perform tasks requiring human-like intelligence, as defined by Marvin Minsky in 1968. Today, an AI system is understood as a machine-based system that, for explicit or implicit objectives, infers from the input it receives and generates outputs such as predictions, content, or decisions that can influence physical or virtual environments, based on the revised definition from the Organization for Economic Cooperation and Development (OECD) in 2023 [1]. In contrast, Machine Learning (ML) is a field of study that equips computers with the ability to learn without being explicitly programmed, according to AI pioneer Arthur L. Samuel in 1959. As a branch of AI, ML focuses on utilizing data and algorithms to enable AI to mimic human learning, by gradually enhancing its accuracy. However, intelligence encompasses more than just learning; it also includes perception, reasoning, memory recall, planning, decision-making, reflection, expression, and more. The actions of an ML system can be descriptive, using data to explain past events; predictive, using data to forecast future occurrences; and prescriptive, using data to suggest potential actions. AI can be categorized based on its capabilities: i) Artificial Narrow (Weak) Intelligence; ii) Artificial General (Strong) Intelligence; iii) Generative AI and iv) Artificial Super Intelligence.

1. Artificial Narrow Intelligence (ANI)

Narrow AI (weak AI) systems are designed to excel at specific tasks within a limited context while operating within predefined parameters, thereby demonstrating proficiency in singular domains. Applications ranging from facial recognition, and language translation to self-driving cars are examples for ANI. Currently, biomedical applications, such as tumor detection and cancer prediction based on CT scans, MRI scans, mammography, nuclear medicine scans, ultrasound, etc., in healthcare systems also facilitate early detection and save lives, enhancing survival and treatment effectiveness for a better quality of life while reducing costs. Recent records state that Google's lung cancer detection AI outperforms six human radiologists [2].



2. *Generative AI*

In contrast, Generative AI utilizes Large Language Models (LLMs) and Generative Adversarial Networks (GANs) to create new and original content such as images, text, video, audio, etc., based on the patterns and relationships learned from existing big data. Understandably, the new content is not derived from the learning dataset, and it becomes complex. The difference between ANI and Gen-AI lies in the fact that ANI is task-oriented for prediction, classification, association, and optimization, while Gen-AI focuses solely on generating new content. The current state of the GenAI landscape includes personal use, AI assistants like chatbots, and search tools like ChatGPT and copilots; handling developer tasks such as predicting code sequences and supporting problem-solving; and creative content generation beyond text, including audio, video, images, music, video games, podcasts, etc. In computer vision, synthetic data generation and 3D model creation are applied in areas like driver monitoring and pedestrian detection, AR/VR/XR, virtual try-on, and more. Voice and audio synthesis is also utilized in enterprise projects like marketing videos.

Several generative platforms assist humans based on GenAI, including ChatGPT, Copilot (Microsoft), Bard, and Llama, which generate text in various languages and styles, facilitate creative writing and code generation, and interpret text and images. Meanwhile, DALL-E and Midjourney generate highly realistic images from textual descriptions, which revolutionizes the field of digital art and content creation. Systems like Google's Magenta and OpenAI's MuseNet create original music from existing musical datasets. On the other hand, several platforms assist in research and scientific writing as Research GPT. AI cannot replace original research ideas but can augment academic writing. AI-driven tools can quickly generate drafts and summaries, enhancing efficiency while formatting and referencing, which is time-saving. CONSENSUS is one of the research GPTs where we can search academic papers, obtain science-based answers, and draft content with accurate citations. ELICIT analyzes relevant textual data and deduces visual data. SCITE AI is an advanced artificial intelligence platform designed to assist with creating, refining, and analyzing textual content. It aids in academic citation analysis, journal metrics, and reference checks as well.

Though GenAI is advancing and assisting humans in their daily lives, it has limitations in understanding, complexity, and thinking outside the box. Accuracy and reliability are also challenging, leading to the generation of incorrect, inconsistent, and biased content, as the LLM depends on the dataset last used. For example, the current training data cut-off for GPT-4 is December 2023; therefore, any information from that point on will not be factored into its conclusions. GenAI can show Unreliable outputs and an over-reliance on GenAI information can lead to a lack of critical thinking. In addition, generating deepfake content makes it difficult to distinguish between real and fake material, potentially spreading false information and serious misuse [3]. Some ethical issues arise, such as the potential for copyright infringement, violations of intellectual property rights, and breaches of data privacy regulations.

3. Artificial General Intelligence (Strong AI)

It represents a broader spectrum of cognitive abilities akin to human intelligence, such as understanding, innovation, and adaptation. It can adjust to new situations, learn independently, and address various tasks without explicit programming, reflecting the flexibility of human cognition. Unlike anything in current technology, AGI would not only replicate human actions but also comprehend the intricacies and contexts of those actions. Achieving AGI remains a formidable challenge. Recent advancements in AI technologies, including Deep Learning, Neural Networks, Reinforcement Learning, Transfer Learning, Meta-Learning, and Explainable AI (XAI), as well as Cognitive Architectures, are bringing us closer to AGI.

AI plays a major role today and will continue to do so over the next decade. From autonomous vehicles to virtual assistants that are indistinguishable from humans, the future is filled with potential. The responsible use of AI in healthcare systems, integrated with AI-powered diagnostic tools, aids in disease detection, potentially saving lives. AI accelerates medical research by speeding up drug discovery and addressing unmet medical needs. AI-powered assistance will be capable of managing various tasks in both home and work environments. The advancement of human-like robots, sophisticated gaming, and virtual realities also holds significant promise. The virtual world becomes more immersive, engaging, and entertaining. Smart AI cities will manage traffic and energy savings by regulating and cooling systems. In contrast, automated AI weapons raise serious concerns about who lives and who dies without human intervention. If misused, this could lead to catastrophic consequences. The potential for widespread devastation is alarming in the Gaza-Israel conflicts. Automated systems could escalate casualties beyond anything we have ever witnessed, highlighting the urgent need to regulate and govern the development of this technology. Quantum-enhanced AI will be incredibly powerful and perform tasks much faster. Currently, quantum computers are still in their early stages and not yet ready for everyday use. However, it is believed that in the next decade, they will evolve to assist AI in significant ways [4].

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2. https://venturebeat.com/ai/googles-lung-cancer-detection-ai-outperforms-6-human-radiologists/
3. https://theconversation.com/deepfakes-in-warfare-new-concerns-emerge-from-their-use-around-the-russian-invasion-of-ukraine-216393
4. https://www.youtube.com/watch?v=303Tu-WQi6k

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