



GENESIS

IGNITING THOUGHTS

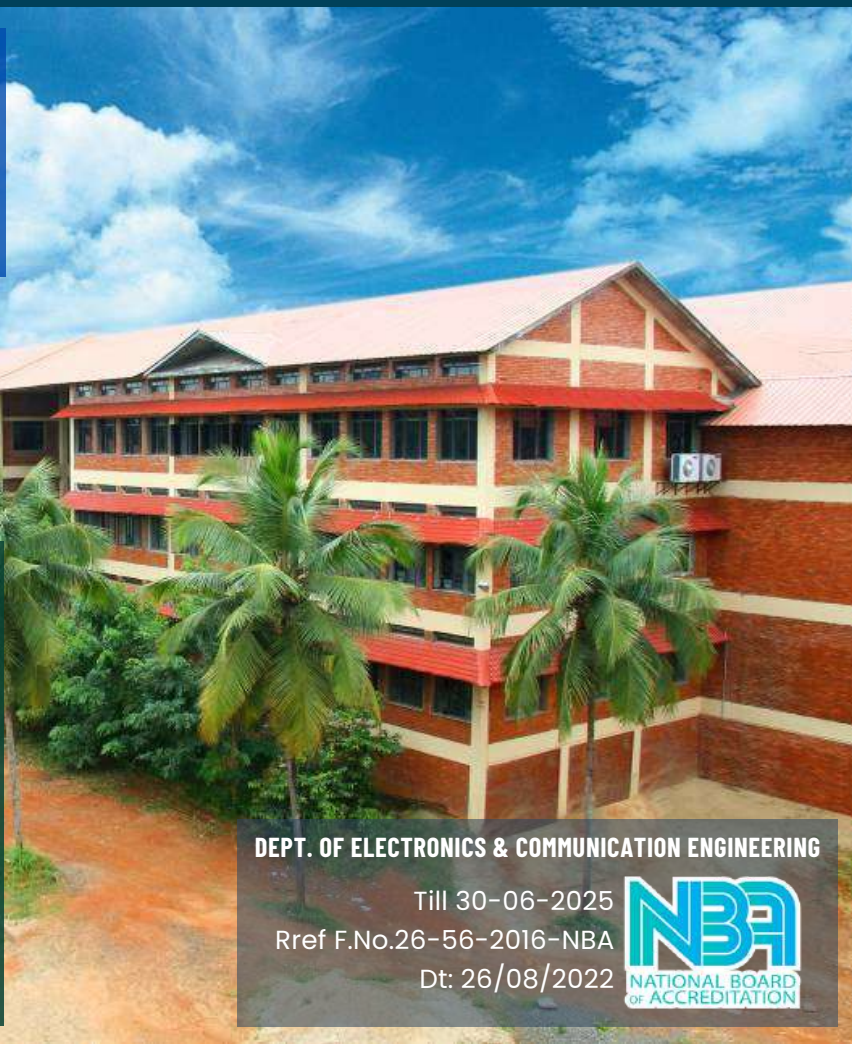
Department of Electronics and Communication Engineering

VISION >>>

- To be recognized at the national and international level for excellence in Education and Research in Electronics and Communication Engineering.

<<< MISSION

- Inculcating leadership qualities, adaptability, and ethical values.
- Imparting quality education in the field of electronics, communication, and related areas to meet the challenges in the industry, academia, and research.
- Nurture the growth of each individual by providing a dynamic and conducive learning environment.



DEPT. OF ELECTRONICS & COMMUNICATION ENGINEERING

Till 30-06-2025

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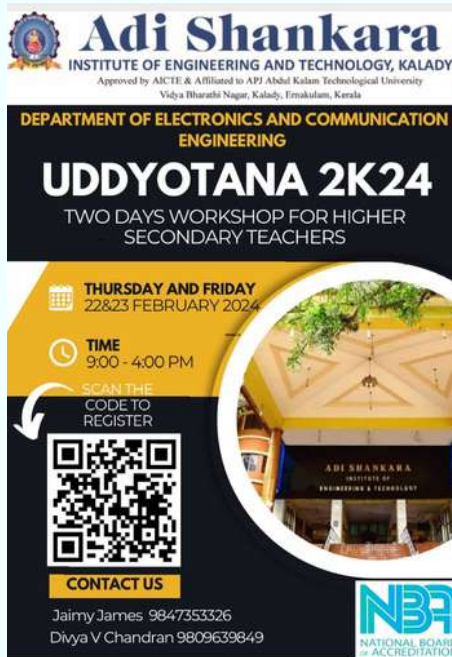
HIGHLIGHTS OF THIS EDITION

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DEPARTMENTAL ACTIVITIES

UDDYOTANA 2024



Adi Shankara
INSTITUTE OF ENGINEERING AND TECHNOLOGY, KALADY
Approved by AICTE & Affiliated to APJ Abdul Kalam Technological University
Vidya Bharathi Nagar, Kalady, Ernakulam, Kerala


DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

UDDYOTANA 2K24
TWO DAYS WORKSHOP FOR HIGHER SECONDARY TEACHERS

THURSDAY AND FRIDAY
22&23 FEBRUARY 2024

TIME
9:00 - 4:00 PM

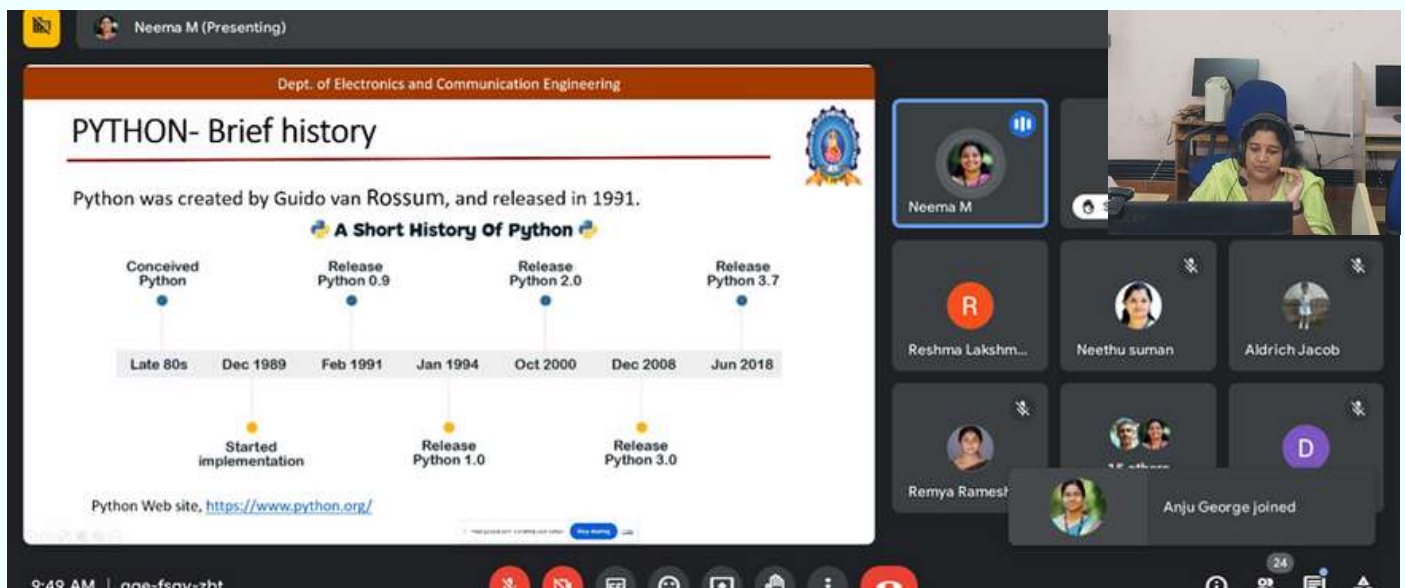
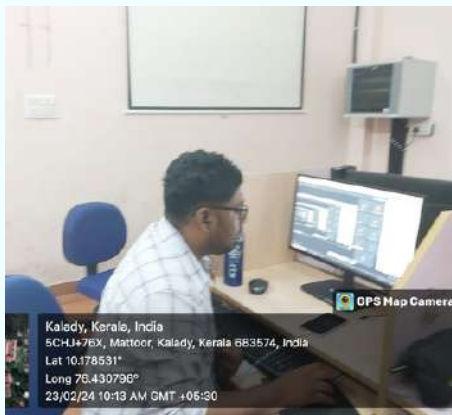
SCAN THE CODE TO REGISTER



CONTACT US
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Divya V Chandran 9809639849

NBA
NATIONAL BOARD OF ACCREDITATION

Uddyotana 2K24, a two-day workshop held on February 22nd and 23rd, 2024, under the auspices of the Department of Electronics and Communication Engineering (ECE) at ASIET Kalady, aimed to enhance the proficiency of higher secondary mathematics, physics, and computer science teachers. With the primary objective of bridging the technical gap between school and college-level academics, the workshop introduced educators to modern engineering tools and applications. Through expert talks, hands-on sessions on Python programming and Arduino board usage, and a mind empowerment session, facilitated by esteemed professionals and counselors, participants were equipped with essential skills such as design mindset and computational thinking. The enthusiastic engagement of 20 teachers from various schools underscored their commitment to adopting innovative teaching methodologies, reflecting a collective dedication to fostering excellence in technical education and nurturing a generation of adept problem solvers and innovators.



Neema M (Presenting)

Dept. of Electronics and Communication Engineering

PYTHON- Brief history

Python was created by Guido van Rossum, and released in 1991.

A Short History Of Python

Event	Date
Conceived Python	Late 80s
Started implementation	Dec 1989
Release Python 0.9	Feb 1991
Release Python 1.0	Jan 1994
Release Python 2.0	Oct 2000
Release Python 3.0	Dec 2008
Release Python 3.7	Jun 2018

Python Web site, <https://www.python.org/>

Participants: Neema M, Reshma Lakshmi, Neethu suman, Aldrich Jacob, Remya Ramesh, Anju George joined

CARRIER GUIDANCE PROGRAM

School outreach programs entail collaborations between educational institutions and entities such as corporations, organizations, governmental agencies, or municipalities, aiming to bring the resources of the partnering entity into the classroom. As part of this initiative, the Department of Electronics and Communication Engineering (ECE) organized a career guidance program for Govt Womens polytechnic college Kalamassery on 6th February 2024. The sessions were conducted by Dr. Rahul Krishnan, Assistant Professor in the ECE Department. The primary objective of the program was to open up the vast world of electronics for students, fostering a strong interest that could shape their future careers.



HONORING ACHIEVEMENTS

NPTEL CERTIFICATION APPRECIATION

NPTEL certified students were appreciated by refunding exam fee from Student welfare fund.





INDUSTRIAL VISIT S2 ECE - A



S2 ECE - A Industrial Visit @ Akashvani, Devikulam

FACULTY ACHIEVEMENTS

1. **Dr. Bobby Mathews C** was awarded an Indian Design Patent for the design of an “IoT Based Smart Cholesterol Monitoring Device”.
2. **Mr Manesh V M**, published a conference paper titled "Detection of Human Pancreatic Cancer using ML and DL Model: A State-of-the-Art Review" in 2023 Annual International Conference on Emerging Research Areas: International Conference on Intelligent Systems (AICERA/ICIS)
3. **Dr. Bipin P R** and **Mr. Manesh V M** served as the resource persons for a 2-day workshop on Machine Learning using Python at Rajadhani Institute of Engineering and Technology, Attingal.
4. **Ms. Neema M** : Reviewer for First International Conference on Trends in Engineering systems and Technologies (ICTEST) 2024 organised by Model Engineering College, Thrikkakkara
5. **Ms. Aswathy N** : Reviewer for 2nd International Conference on Integrated Circuits and Communication System
6. **Ms. Neetha K** attended FDP on "A Comprehensive Exploration of Cognitronics by Unravelling on Technologies
7. **Ms. Reshma Lakshmanan, Mr. Jayesh T P, Ms. Vidya V** and **Ms Neema Vijayan** attended FDP on "**Universal Human Values**"
8. **Ms. Neetha K** attended Micro Soft,SAP, & AICTE led Faculty Development Program on AI Evolution: From Foundations Generative AI
9. **Ms. Neema M, Dr. Rahul Krishnan and Ms. Arya Paul** served as the resource persons for Uddyodana 2k24 a two-day workshop for higher secondary mathematics, physics, and computer science teachers.

FDP ON “UNIVERSAL HUMAN VALUES”



BRAHMA ' 24

Brahma 2024 conducted on February 29, April 1 and 2 showcased a wide variety of both technical and cultural events. Students from across the nation participated in the festival with more than 40 events with a total of cash prize of 6 lakhs. Including thrilling competitions, exciting events, dynamic workshops, captivating live concerts and electrifying DJ night, Brahma 23 was indeed a spectacle.

The first day of Brahma commenced with thyagarajaradhana, tribute to the great maestro of Carnatic music Thyagaraja and his contemporaries, Teachers and students also participated in Sangeetara Dhana. Adi Shankara Trust Managing Trustee K. Anand honored the great violinist Sreeram Kumar. Followed by the performance Ranga Pooja, the events kick started with Raagam a classical treat of vocational expression. Other highlights of the day were Mime - Katharisis which showcased beauty of art, Stand up comedy, GDSC - Devnxt, Game Dev Using Unity, Spot Photography, Medixo, ME Expo, Monoact. The day ended with Shinkari melam by seniors followed by Theme show where creativity met style.

The second day began with Mudhra, where every movement told a story and every performance, a breathtaking display of skill and artistry. Followed by Voice of Brahma creating an ethereal atmosphere of music that left an invigorating mark on the listeners. ME Expo, Medixo, Samagra - Project Expo, Draftcraft Dash, Generative AI Workshop, Game Of Rooms, VR Gaming, In Ghost House Inn, Foot Volley, Hanging Bar, Paint Ball, Aim Money, FIFA Versus, Data Mining And Web Scraping, Web3-Verse Workshop, Robotronix, Robotics Workshop, Product Pioneers, Infinite Room, One Piece-Treasure Hunt, Glow Ball, Soapy Soccer, Clueminati, SyncWave - Step N Sychro, ASIET Talkies, Byte Quest, were the feature events of the day.

The day ended with Band of Brahma the ultimate battle of bands sparking a musical euphony and Groove N Move performances. Choreo Night with electrifying dance

The Final day included Beatscape-DJ War building every note to beat, ME Expo, Medixo, Navras- Acting Workshop, BIM Workshop, HVAC Workshop, Glow Ball, Metaverse Workshop, Underarm Cricket, Strike 3 - Basket Ball 3s, Knives Out, Tic Tac Toe, RJ Hunt - Prelims, Technophile, Agility Unleashed-An Interactive Workshop On Agile Methodology, Inkblitz-Doodling, StepUp-Spot Dance. The jamboree came to a celebratory ending with Pro Shows lined including top leading band Sithara's Project Malabaricus featuring playback singer Sithara and Sachin Warrior and Six Eight with his thunderous DJ night.

BRAMHA 24 was an amalgamation of technology, art, and fun indeed invoking the creator within one. It's not just a fest, but an emotion and legacy of Adi Shankara.

GALLERY

ആദിശങ്കരയിൽ 'ബ്രഹ്മ 2024' തുടങ്ങി



ആദിശങ്കര ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് എൻജിനീയറിങ് ആൻഡ് ടെക്നോളജിയിൽ ദേശീയ ടെക്നോ കൾച്ചറൽ ഫെസ്റ്റ് 'ബ്രഹ്മ 2024' ആദിശങ്കര ട്രസ്റ്റംഗം കെ.എസ്. നീലകണ്ഠ അയ്യർ ഉദ്ഘാടനം ചെയ്യുന്നു

കാലടി▶ ആദിശങ്കര ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് എൻജിനീയറിങ് ആൻഡ് ടെക്നോളജിയിൽ ദേശീയ ടെക്നോ കൾച്ചറൽ ഫെസ്റ്റ് 'ബ്രഹ്മ 2024' ആരംഭിച്ചു. ആദിശങ്കര ട്രസ്റ്റംഗം കെ.എസ്. നീലകണ്ഠ അയ്യർ ഉദ്ഘാടനം ചെയ്തു. ആദിശങ്കര മാനേജിങ് ട്രസ്റ്റി കെ. ആനന്ദ് അധ്യക്ഷനായി.

പ്രിൻസിപ്പൽ എം.എസ്. മുരളി, ട്രസ്റ്റ് ഓഫീസർ ടി.പി. ശിവരാമകൃഷ്ണൻ, സംഗീതജ്ഞൻ ബി. ഗണേഷ്കുമാർ, സ്റ്റുഡന്റ്സ് യൂണിയൻ ചെയർമാൻ ബി. അഭിജിത് തുടങ്ങിയവർ സംസാരിച്ചു. പ്രശസ്ത വയലിനിസ്റ്റ് ശ്രീറാം കുമാറിന് സംഗീത ശ്രേഷ്ഠ കലാപുരസ്കാരം നൽകി ആദിശങ്കര ട്രസ്റ്റ് മാനേജിങ് ട്രസ്റ്റി കെ. ആനന്ദ് ആദരിച്ചു.

തുടർന്ന് ശ്രീറാം കുമാറിന്റെ വയലിൻ കച്ചേരി നടന്നു. ത്യാഗരാജ ആരാധനയോടെയാണ് ബ്രഹ്മസ്ത് തുടക്കം. അൻപതോളം സംഗീതജ്ഞർ അണിനിരന്നു. പ്രൊഫ. കുമാര കേരളവർമ്മ, പ്രീതി, ഭൂവനേശ്വരി, മാതംഗി സത്യമൂർത്തി, കൃഷ്ണൻ നമ്പൂതിരി, അരുൺ കുമാർ, രമേശ് തുടങ്ങിയവർ നേതൃത്വം നൽകി. തുടർന്ന് വിവിധ മത്സരങ്ങളും വൈകിട്ട് പഞ്ചാരിമേളവും നടന്നു. വെള്ളിയാഴ്ച ഭരതനാട്യം, കച്ചിപ്പുഡി, മോഹിനിയാട്ടം, ബാൻഡ് ഓഫ് ബ്രഹ്മ, ഓൺ ദി സ്പോട്ട് ഡാൻസ്, വോയ്സ് ഓഫ് ബ്രഹ്മ, കൊറിയോ ഇറവ് എന്നിവ യുണ്ടാകും. അഞ്ചുവേദികളിലാണ് മത്സരങ്ങൾ. ശനിയാഴ്ച സമാപിക്കും.



കാലടി ആദിശങ്കര എൻജിനീയറിങ് കോളജിൽ ടെക്നോ കൾച്ചറൽ ഫെസ്റ്റ് 'ബ്രഹ്മ'യിൽ പ്രാചീന നൃത്ത ആരാധന സംഗീതാധാര, ഡോ.കെ.പ്രീതി, ഡോ.ആനന്ദാചാരി, മാതംഗി സത്യമൂർത്തി, പ്രൊഫ. കുമാര കേരളവർമ്മ, കൃഷ്ണൻ നമ്പൂതിരി, അരുൺകുമാർ എന്നിവർ മുൻനിരയിൽ.



PLACEMENTS

KP RELIABLE TECHNIQUE



Congratulations to **Jaison T Paulose**, **Alvin Antony Lopez**, **Aditya Arun** and **Abhijith A Pillai** of **S8 ECE A** for getting placed at **KP Reliable Technique**. It is a quality assurance company in India that offers services in Technical and engineering services.

MANAPPURAM



MALAVIKA S MENON

Congratulations to **Malavika S Menon** of **S8 ECE B**, for getting placed at **Manappuram Finance**, an Indian non-banking financial company, headquartered in Thrissur, Kerala, that offers a variety of financial services i .

SHARING HAPPINESS OF SUCCESS

STUDENTS SELECTED FOR INTERNSHIP S8 ECE

Sunlux Technovations Pvt Ltd



Abhijith A Pillai



Jaison T Poulouse



Centre for Materials for Electronics Technology



Avin Sony



Akshay Krishna



Udith G Menon



Alvin Antony Lopez



Athul Krishna



Titya Ramchandran



Swetha P Mallaya

ASIET SPORTS DAY



ASIET was abuzz with excitement and pride as Aparna Prasad, a 6th-semester student majoring in Electronics and Communication Engineering, took center stage as the chief guest at the annual Sports Meet. A source of inspiration for her peers, Aparna's journey has transcended the campus boundaries.

Aparna's remarkable achievements include representing Kerala in the Republic Day Parade in New Delhi, a prestigious event that showcased her dedication and competence on a national platform. Beyond her academic pursuits, she is an active National Service Scheme (NSS) volunteer, embodying the spirit of community engagement and social responsibility that ASIET encourages.

The ceremony, presided over by Principal Dr. M. S. Murali, featured speeches from key figures such as Adi Shankara Institutions General Manager N. Srinath, College Union Chairperson M. Abhijit, Vice Chairperson Anju M. Kammath, and Sports Secretary Abhinav Raj. Their words resonated with the importance of unity and holistic education.

Aparna Prasad was duly recognized by the college, with Dr. M.S. Murali presenting her with a token of appreciation. The event underscored ASIET's commitment to fostering well-rounded individuals capable of making a significant impact in diverse spheres of life.



ആദിശങ്കരയിൽ നടക്കുന്ന സ്പോർട്സ് മീറ്റിൽ മത്സരാർത്ഥി കളുടെ സല്യൂട്ട് സ്വീകരിക്കുന്ന അപർണ പ്രസാദ്

സഹപാഠി ഉദ്ഘാടകയായത് കൗതുകമായി

കാലടി ആദിശങ്കരയ്ക്കുള്ള സ്പോർട്ട്സ് ഫുണ്ടേഷൻ യൂണിറ്റിന്റെ കോളേജിലെ സ്പോർട്ട്സ് മീറ്റിന്റെ ഉദ്ഘാടനമാണ് കൗതുകകരമായത്. കോളേജിലെ വിദ്യാർത്ഥിനി അപർണ പ്രസാദ് ആണ് മുഖ്യാതിഥിയായതെന്ന് മിറ്റിന്റെ ഉദ്ഘാടനം ചെയ്തപ്പോൾ കൂടുതൽ ശ്രദ്ധ നേടിയിരുന്നു. സല്യൂട്ട് സ്വീകരിക്കുകയും ചെയ്തു. ഡൽഹിയിൽ നടന്ന റിപ്പബ്ലിക് ദിനപരേഡിൽ കോളേജിൽ നിന്ന് പങ്കെടുത്തവരിൽ ഒരാളായ അപർണ കോളേജിലെ ഫുണ്ടേഷൻ വോളന്റിയർ കൂടിയാണ്. ഇലക്ട്രോണിക്സ് ആന്റ് കമ്മ്യൂണിക്കേഷൻ വിഭാഗത്തിലെ മൂന്നാം വർഷ വിദ്യാർത്ഥിനിയായ അനിൽ സ്പോർട്ട്സ് മീറ്റിന്റെ ഉദ്ഘാടനം ചെയ്യാനായത് അസാധാരണ വാസമാണെന്നും വിദ്യാർത്ഥിനിയായ അപർണയുടെ പ്രീതിപ്പെടാൻ സഹായം നൽകിയവർക്കും അറിയിക്കപ്പെട്ടിട്ടുണ്ട്. അപർണയുടെ അഭിരുചി കോളേജിന്റെ ഉപഹാരം പാലം സമ്മാനിച്ചു. ഇനിമുതൽ കോളേജിൽ നടക്കുന്ന പാർട്ടി വിദ്യാർത്ഥികളെക്കൊണ്ടുതന്നെ ഉദ്ഘാടനം ചെയ്യുകയും ചെയ്യുന്നതിന്റെ തീരുമാനം.



Photonic Quantum Computer



Sreekanth K S,
Associate Professor,
ECE Dept

Claims Speedup “Advantage” Quantum-powered cloud
7,800,000,000,000,000x as fast, for some problems, as a
supercomputer

A new photonic quantum computer takes just 36 microseconds to perform a task that would take a conventional supercomputer more than 9,000 years to complete. The new device, named Borealis, is the first quantum computer from a startup to display such “quantum advantage” over regular computers. Borealis is also the first machine capable of quantum advantage to be made available to the public over the cloud

Quantum computers can theoretically achieve a quantum advantage that enables them to find the answers to problems no classical computers could ever solve. The more components known as qubits that a quantum computer has, the greater its computational power can grow, in an exponential fashion.

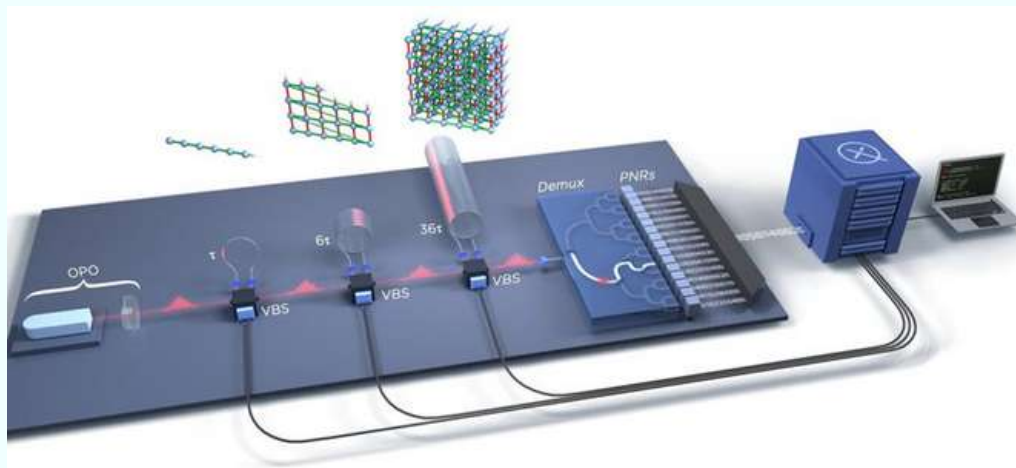
Many companies, including giants such as Google, IBM, and Amazon as well as startups such as IonQ, rely on qubits based on superconducting circuits or trapped ions. One drawback with these approaches is that they both demand temperatures colder than those found in deep space, because heat can disrupt the qubits. The expensive, bulky cryogenic systems required to hold qubits at such frigid temperatures can also make it a major challenge to scale these platforms up to high numbers of qubits—or to smaller and more portable form factors.

In contrast, quantum computers that depend on qubits based on photons can, in principle, operate at room temperature. They can also readily integrate into existing fiber-optic-based telecommunications systems, potentially helping connect quantum computers into powerful networks and even into a quantum Internet.

Scientists have developed quantum computers demonstrating quantum advantage using both cryogenic and photonic approaches. In 2019, Google argued its 53-superconducting-qubit Sycamore processor could carry out a calculation in 200 seconds that the company estimated would take Summit, the world’s most powerful supercomputer at that time, 10,000 years. Then, last year, researchers in China contended that photonic quantum computer Jiuzhang 2.0 could solve a benchmark problem roughly 10^{24} as fast as classical supercomputers.

A key drawback of Jiuzhang 2.0 was that it relied on a network of fixed mirrors and lenses. Therefore, it was not programmable, limiting its overall usefulness.

Now, in a new study, quantum computing startup Xanadu, in Toronto, reveals its device, named Borealis, may be the first fully programmable photonic quantum computer to display quantum advantage. “Borealis is the first machine capable of quantum computational advantage made publicly available to anyone with an Internet connection,” says study senior author Jonathan Lavoie, systems integration team lead at Xanadu.



In the Canadian company Xanadu's photonic quantum computer Borealis, squeezed-state qubits [pink pulses] are generated from a nonlinear crystal and sent through a series of three loop-based interferometers, pictured above. XANADU

In Borealis, qubits consist of so-called "squeezed states" consisting of superpositions of multiple photons in a light pulse. Whereas traditional qubits can, because of the surreal nature of quantum physics, exist in a state known as superposition where they can symbolize both a 0 and 1 of data, squeezed states can exist in states of 0, 1, 2, 3, or more.

Borealis can generate trains of up to 216 pulses of squeezed light. "It's important to recognize that Borealis is not equivalent to a 216-qubit traditional device," Lavoie says. "Since it uses squeezed-state qubits, it addresses a different class of quantum tasks than, say, a device based on superconducting circuit qubits or trapped ions."

In experiments, the researchers tested Borealis on a task known as Gaussian boson sampling, in which a machine analyzes random patches of data. Gaussian boson sampling may have many practical applications, such as identifying which pairs of molecules are the best fits for each other.

In prior work, Jiuzhang 2.0 detected up to 113 photons out of 144 pulses of squeezed light. In the new study, Borealis detected up to 219 photons in its squeezed-light pulse trains, with 125 on average. All in all, the scientists estimated Borealis could perform Gaussian boson sampling more than 7.8 quadrillion times as fast as Fugaku, the fastest conventional supercomputer in the world in 2021.

One key advance seen in Borealis was the use of photon-number-resolving detectors. Prior machines used threshold detectors that are designed to distinguish only between "no photons detected" and "at least one photon detected." The size of the computational problems a photonic quantum computer may tackle grows exponentially with the number of photons it can detect, so the photon-number-resolving detectors helped Borealis perform more than 50 million times as fast as previous photonic quantum computers, Lavoie says

In Borealis, qubits consist of so-called "squeezed states" consisting of superpositions of multiple photons in a light pulse. Whereas traditional qubits can, because of the surreal nature of quantum physics, exist in a state known as superposition where they can symbolize both a 0 and 1 of data, squeezed states can exist in states of 0, 1, 2, 3, or more.

TECH TALKS

Borealis can generate trains of up to 216 pulses of squeezed light. “It’s important to recognize that Borealis is not equivalent to a 216-qubit traditional device,” Lavoie says. “Since it uses squeezed-state qubits, it addresses a different class of quantum tasks than, say, a device based on superconducting circuit qubits or trapped ions.”

In experiments, the researchers tested Borealis on a task known as Gaussian boson sampling, in which a machine analyzes random patches of data. Gaussian boson sampling may have many practical applications, such as identifying which pairs of molecules are the best fits for each other.

In prior work, Jiuzhang 2.0 detected up to 113 photons out of 144 pulses of squeezed light. In the new study, Borealis detected up to 219 photons in its squeezed-light pulse trains, with 125 on average. All in all, the scientists estimated Borealis could perform Gaussian boson sampling more than 7.8 quadrillion times as fast as Fugaku, the fastest conventional supercomputer in the world in 2021.

One key advance seen in Borealis was the use of photon-number-resolving detectors. Prior machines used threshold detectors that are designed to distinguish only between “no photons detected” and “at least one photon detected.” The size of the computational problems a photonic quantum computer may tackle grows exponentially with the number of photons it can detect, so the photon-number-resolving detectors helped Borealis perform more than 50 million times as fast as previous photonic quantum computers, Lavoie says

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AI-based learning: A promising landscape with challenges



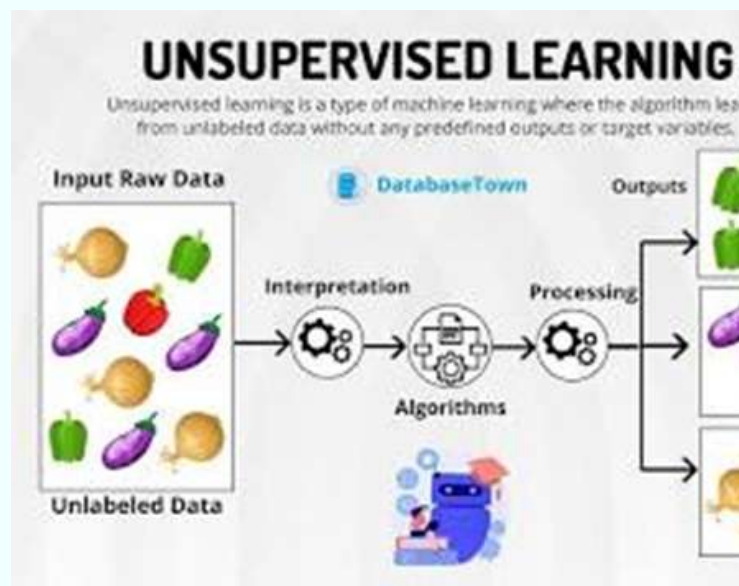
Mr P.Thilakeswaran
S6 ECB

The world is witnessing a significant surge in the adoption of AI-based learning

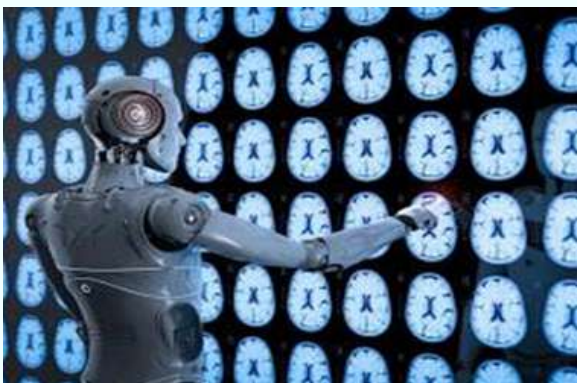
So what is AI?

Artificial intelligence (AI) refers to the ability of machines or computer systems to mimic intelligent human behaviour. It encompasses a broad range of capabilities they are:

Learning and problem-solving-Algorithms that analyse data to identify patterns and make predictions. This allows AI systems to personalize learning paths, recommend relevant content, and adapt to individual needs.

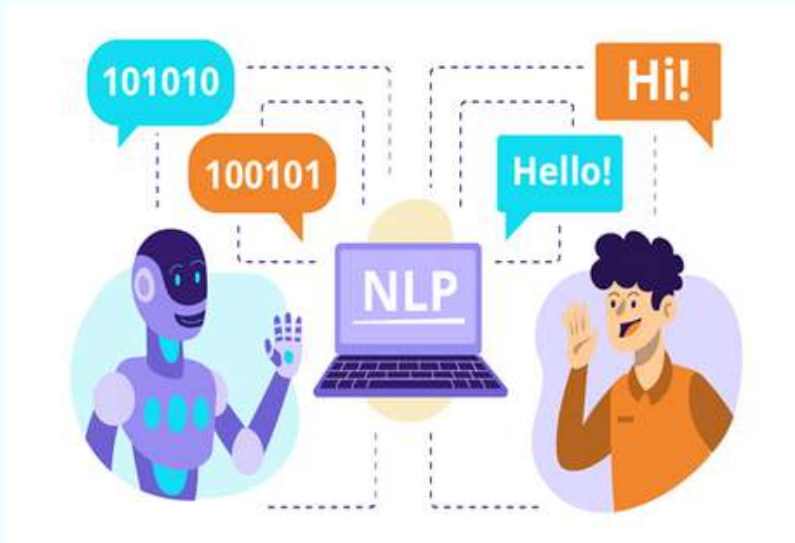


Reasoning and decision-making- Similar to human logical reasoning, AI can employ symbolic logic rules to draw conclusions from a set of premises. This is often used in expert systems or knowledge graphs. AI excels at handling uncertainty through statistical methods. It assigns probabilities to different outcomes based on available data, allowing for informed decision-making even in situations with incomplete information. This is commonly used in areas like medical diagnosis or self-driving cars, medical diagnosis, gaming etc.



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Natural language processing- Enables AI systems to understand and respond to human language, facilitating interactions between learners and AI-powered tutors or assistants.



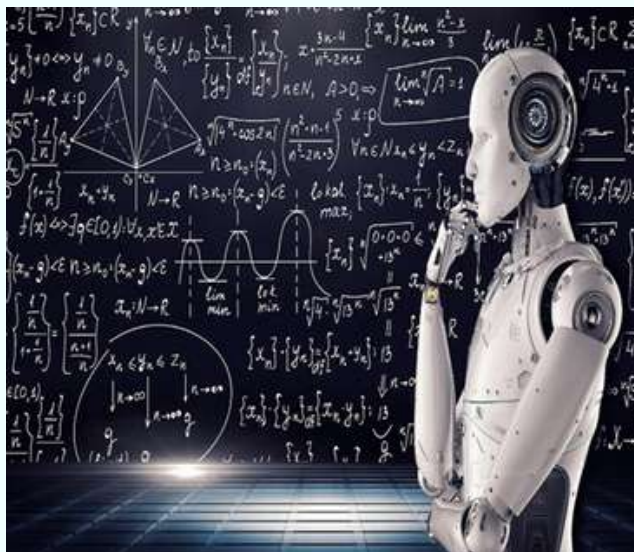
Computer vision-

Computer vision (CV) is a prominent subfield of AI that equips computers with the ability to "see" and understand the visual world. It empowers machines to process and analyze visual data from images and videos, allowing them to extract valuable information and make intelligent decisions. Their functionalities include:

Image and video processing: Techniques like filtering, segmentation, and feature extraction prepare the visual data for analysis.

Object detection and recognition: Identifying and classifying objects within an image or video, such as people, cars, or specific items.

Image understanding: Extracting higher-level information from visuals, like scene analysis, activity recognition, or object attributes.



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Here's a breakdown of different approaches to AI:

- **Machine learning:** This involves training algorithms on large amounts of data to identify patterns and make predictions.
- **Deep learning:** A subfield of machine learning inspired by the structure and function of the human brain, using artificial neural networks to learn from data. As well as computer vision and natural language processing and so on.¹

The key applications of AI are:

Healthcare: AI is used for medical diagnosis, drug discovery

Finance: AI is used for fraud detection, risk assessment, and algorithmic trading.

Manufacturing: AI is used for robotic automation, predictive maintenance, and quality control.

Transportation: AI is used for self-driving cars, traffic management, and logistics optimization.

Customer service: AI powers chat bots and virtual assistants, providing automated support and personalized recommendations.

Personalized learning: AI tailors the learning experience to individual strengths, weaknesses, and learning styles by recommending suitable content, adjusting difficulty levels, and providing targeted feedback.

Adaptive learning: AI systems continuously assess a learner's progress and adjust the learning path accordingly. This ensures learners are challenged appropriately and don't spend time on concepts they've already mastered.

Intelligent tutoring: AI-powered tutors provide personalized guidance and support, answer questions, and offer feedback in real-time.

24/7 accessibility: AI learning platforms are available anytime, anywhere, providing learners with the flexibility to learn at their own pace and convenience.

While AI has achieved significant advancements, it's important to remember that it's not yet capable of replicating the full spectrum of human intelligence.

AI systems excel at specific tasks and often lack the general intelligence, creativity, and common sense that humans possess.

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Well, these applications also leads to the arise in challenges to the mankind such as,

Job displacement: Automation through AI could lead to job losses in certain sectors.

Bias and discrimination: AI algorithms can inherit biases from the data they are trained on, potentially leading to unfair outcomes.

Privacy and security: The use of AI raises concerns about data collection, storage, and usage, and the potential for misuse.

AI based learning in India:

India has also witnessed a significant surge in AI field .A survey says that 57% percent of people in India prefer AI over human interaction which is higher by miles against the global total of 39%

The key factors are:

Large and diverse student population: AI can personalize learning experiences for individual needs.

Government initiatives: The Indian government supports AI research and development with initiatives like INDIAai.



Growing Ed-Tech sector: Ed-Tech start-ups in India are actively developing and implementing AI-based learning solutions.



Here's how AI is transforming education in India through:

Personalized Learning: AI personalizes learning experiences for India's diverse student population. This caters to various learning styles, strengths, and weaknesses, ensuring a more effective grasp of concepts [2].

Language Learning: AI tutors like Tara by Learning Matters assist with language acquisition by offering interactive practice and feedback, improving spoken and written communication skills.

Accessibility and Inclusivity: AI tools like text-to-speech and speech-to-text break down barriers for students with disabilities, making education more inclusive.

Administrative Efficiency: AI streamlines administrative tasks like attendance management, freeing up valuable time for educators to focus on teaching.

The challenges in AI are:

Data Privacy: As AI learning platforms rely on student data, ensuring its privacy and security is paramount.

Teacher Training: Integrating AI effectively requires equipping educators with the necessary skills and knowledge to leverage this technology.

Digital Divide: Unequal access to technology and internet connectivity in some regions can hinder the widespread adoption of AI-based learning.

Overall, AI-based learning in India presents a promising future for education. By addressing the challenges, this technology has the potential to personalize learning journeys, improve educational outcomes, and empower students across the country.

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