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107/1B, Dharapuram Main Road, Poosaripatti, Pollachi, Coimbatore - 642 205.
INSTITUTION'S INNOVATION COUNCIL (Ministry of HRD Initiative)



Impressions

e-NEWS LETTER

Issue – October 26 – Edition 73

From the Editor's Desk

"Impressions" aims to bring out the activities and happenings in our Institution. We are elated to present the Seventy third edition of "PIE Tech-Impressions" for the month of October, 2026.

Events Organized

1. The Department of Civil Engineering conducted a seminar on "Strong, Durable and Sustainable Concrete" on 23rd October 2026. The resource person for the programme was Er. Bhagavath B, Senior Officer – Direct Sales (Cement, GGBS and Microfine GGBS), JSW, Coimbatore.

The seminar focused on the importance of developing concrete with high strength, enhanced durability and sustainable performance. The resource person shared valuable insights into the use of cementitious materials, particularly GGBS and Microfine GGBS, and their role in improving concrete properties while reducing environmental impact.







Faculty Publications, Development programmes and Seminars

1. Mrs. R. Priya, HOD/AI&DS, has published a research paper titled “H-VSAF: A Verifiable and Privacy-Preserving Federated Learning Framework for Secure Remote Healthcare Monitoring” in the *Future Technology – Open Access Journal*, Volume 05, Issue 04, November 2026, pages 335–346.

   DOI: https://doi.org/10.55670/fpll.futech.5.4.27



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Open Access Journal
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Future Publishing LLC

Article

H-VSAF: a verifiable and privacy-preserving federated learning framework for secure remote healthcare monitoring

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ABSTRACT

The sensitive patient data handled by remote healthcare monitoring systems requires reliable, secure learning methods. Federated learning enables collaborative healthcare analytics without storing raw medical data centrally. However, existing techniques still suffer from issues including privacy leakage, untrusted aggregation, and frequent device outages. In this work, we propose H-VSAF, a privacy-preserving, verifiable, and lightweight federated learning system for healthcare environments. H-VSAF uses linear homomorphic hashing, Bloom filter-based online authentication, Shamir secret sharing, Diffie-Hellman key generation, and single-mask Secure Aggregation to ensure secrecy, precision, and resilience. The security analysis provides informal guarantees against gradient inference, aggregation tampering and deletion, and forged dropout claims under the threat model and cryptographic assumptions above. We experimentally evaluate H-VSAF on healthcare datasets and demonstrate that it achieves model accuracy within 0.2-0.8% of standard federated learning while decreasing client compute cost by up to 32% and communication overhead by 28% compared to traditional secure aggregation methods. Moreover, the framework is resilient to 40% client dropouts and introduces verification latency < 35 ms each round. The results clearly show that H-VSAF provides a credible and practical platform for safe joint health care analytics.

1. Introduction

Remote healthcare monitoring systems are now necessary for ongoing clinical observation, chronic disease evaluation, post-treatment follow-up, and senior care management. Wearable sensors, IoT medical devices, and smart health apps continuously collect physiological data, including ECG signals, heart rate variability, blood pressure indices, oxygen saturation levels, and patient activity patterns [1,2]. These data streams are highly private and protected by strong healthcare privacy laws [3,4]. Standard centralized learning methods require transferring medical records to a central server for model training, raising significant privacy, trust, regulatory, and ethical concerns [5]. To address these issues, federated learning (FL) offers an effective approach for collaborative model training without transferring raw data from patient devices [6]. In healthcare settings, adopting FL remains challenging due to privacy concerns, untrusted aggregation behavior, inconsistent device connectivity, and the limited capabilities of medical IoT devices [7]. Given these persistent issues, developers are focusing on lightweight, safe, and verifiable healthcare-focused FL frameworks. To the best of our knowledge, no current approach simultaneously provides privacy protection, verified aggregate integrity, dropout robustness, and lightweight execution for remote healthcare monitoring settings [8,9]. This study aims to fill this essential gap.

1.1 Problem statement

Federated learning prevents the direct sharing of patient data, but it doesn't automatically guarantee privacy, trust, or dependability. First, most existing secure aggregation approaches protect gradient privacy but assume an honest

2. Ms.E.Perarul Sarubala, Assistant Professor, AI&DS has successfully completed the NPTEL course on “Introduction to OS” with a consolidated score of 53%.



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This certificate is awarded to

PERARUL SARUBALA E

for successfully completing the course

INTRODUCTION TO OPERATING SYSTEMS

with a consolidated score of 53%

Online Assignments	22.08/25	Proctored Exam	30/75

Total number of candidates certified in this course: 4513

Prof. Andrew Thangaraj
Chair
Centre for Outreach and Digital Education, IITM

JUL-SEP 2026
(8 week course)

Prof. Vignesh Muthuvijayan
NPTEL Coordinator
IIT Madras

Indian Institute of Technology Madras

swayam

Roll No: NPTEL26CS123S353800887 To verify the certificate No. of credits recommended: 3

3. **Mrs. R. Priya,** HOD/AI&DS, participated in a one-week ICT Academy Faculty Development Programme (FDP) on "Microsoft Azure AI App and Agent Developer" from 5th October, 2026 to 9th October, 2026 at Sree Saraswathi Thiyagaraja College, Pollachi.



ICTACADEMY

CERTIFICATE OF PARTICIPATION

C.No: 026-235027
Date: 09 Oct 2026

R. PRIYA

Pollachi Institute of Engineering & Technology

has participated in one week Faculty Development Program on

Microsoft Azure AI App and Agent Developer

conducted by ICT Academy on 05 Oct 2026 to 09 Oct 2026 at

Sree Saraswathi Thyagaraja College

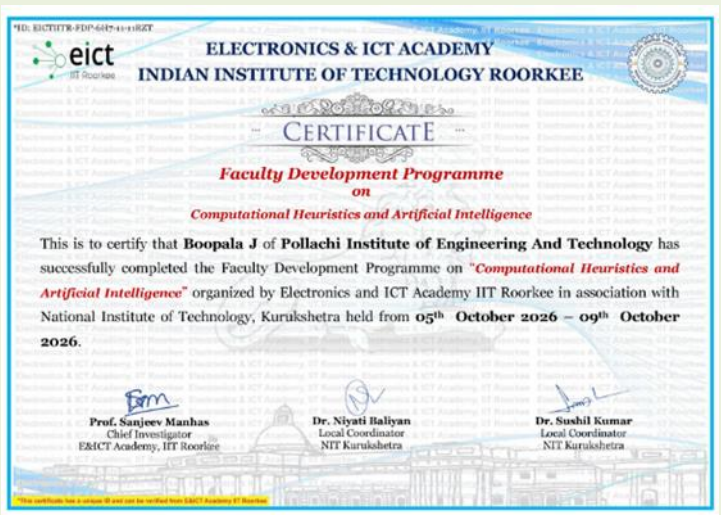
In association with

Microsoft

Srikanth V
Chief Executive Officer
ICT Academy

verify.ictacademy.in

4. **Mrs. J. Boopala**, Assistant Professor/AI&DS, has successfully completed the Faculty Development Programme (FDP) on "Computational Heuristics and Artificial Intelligence", organized by the Electronics & ICT Academy, Indian Institute of Technology (IIT) Roorkee, in association with the National Institute of Technology (NIT) Kurukshetra, from 5th October, 2026 to 9th October,2026.



eict IIT Roorkee

ELECTRONICS & ICT ACADEMY
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

CERTIFICATE

Faculty Development Programme
on
Computational Heuristics and Artificial Intelligence

This is to certify that **Boopala J** of **Pollachi Institute of Engineering And Technology** has successfully completed the Faculty Development Programme on *"Computational Heuristics and Artificial Intelligence"* organized by Electronics and ICT Academy IIT Roorkee in association with National Institute of Technology, Kurukshetra held from **05th October 2026 – 09th October 2026.**

Prof. Sanjeev Manhas
Chief Investigator
E&ICT Academy, IIT Roorkee

Dr. Niyati Baliyan
Local Coordinator
NIT Kurukshetra

Dr. Sushil Kumar
Local Coordinator
NIT Kurukshetra

5. **Mr. T. Sureshkumar,** Assistant Professor, AI&DS, participated in a five-day online Faculty Development Programme (FDP) on "Modern Embedded Systems, IoT & SoC: Design, Development and Applications", organized by the Department of Electronics and Communication Engineering, CMS College of Engineering and Technology, Coimbatore, from 5th October, 2026 to 9th October, 2026.


CMS College of Engineering and Technology
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Appachigoundenpathy, Kunnittipathi (PO), Coimbatore - 641 032
FIVE DAYS ONLINE FACULTY DEVELOPMENT PROGRAM (FDP)
On
MODERN EMBEDDED SYSTEMS, IOT AND SOC: DESIGN, DEVELOPMENT AND APPLICATIONS
CERTIFICATE
Mr.T.SURESHKUMAR
It is certified that .....from
POLLACHI INSTITUTE OF ENGINEERING AND TECHNOLOGY
.....has successfully participated & completed FIVE DAYS ONLINE FACULTY DEVELOPMENT PROGRAM (FDP) On Modern Embedded Systems, IoT and SoC: Design, Development and Applications Organized by Department of Electronics and Communication Engineering, CMS College of Engineering and Technology ,Coimbatore from 05.10.2026 to 09.10.2026.
CO-ORDINATOR Prof.S.RENSWICK AP/ECE
CONVENOR DR.M.JAYAPRAKASH HoD/ECE
PRINCIPAL DR. N. SUDHA PRINCIPAL

6. **Mr. M. Vignesh,** Head of the Department of Electronics and Communication Engineering, presented a paper titled "GAN-Assisted Collaborative Healthcare Intelligence for Disease Prediction" at the IEEE 2nd International Conference on Power Control & Communication Infrastructure ICPCCI 2026, organized by the Institute of Infrastructure, Technology, Research and Management (IITRAM), Ahmedabad, on 8th and 9th October, 2026.

7. **Ms. K. Devadharshini**, Assistant Professor, Electronics and Communication Engineering, has published a research paper titled "Self-Evolving Adaptive Resource Management Framework for Resilient 6G-IoT Architectures using Federated Edge Intelligence and Semantic Communication" in Taylor & Francis Journal in October 2026.

8. **Mr. S. Agustin Vijay and Ms. K. Devadharshini**, Assistant Professors, Electronics and Communication Engineering, have published a book entitled "Principles of Electrical Circuit Analysis" through AASAN International Publications in October 2026. ISBN: 978-81-69563-26-0.

9. Ms. P. Nagasaratha, Assistant Professor, Electronics and Communication Engineering, has successfully completed the NPTEL course on "Remote Sensing: Principles and Applications" with a consolidated score of 72%, securing the Elite certification.

10. Ms.K.Devadharshini, Assistant Professor, Electronics and Communication Engineering has successfully completed the NPTEL course "Accreditation and Outcome based Learning" with a consolidated score of 56%.

11. **Ms. K. Devadharshini,** Assistant Professor, Electronics and Communication Engineering, has successfully participated and completed Five Days FDP on "Modern Embedded Systems, IoT and SoC: Design, Development and Applications" organized by Department of ECE, CMS College of Engineering and Technology, Coimbatore from 5th to 9th October, 2026.

12. 12. **Dr. E. Kamalavathi,** Dean, Electrical Sciences, has successfully participated in a five-day Faculty Development Programme (FDP) on "Generative AI for VLSI Electronic Design Automation", organized by the Department of Electronics and Communication Engineering (ECE), Christ the King Engineering College, from 3rd October, 2026 to 7th October, 2026.

13. Dr. E. Kamlavathi, Dean, Electrical Sciences, has successfully participated and completed Five Days FDP on "Modern Embedded Systems, IoT and SoC: Design, Development and Applications" organized by Department of ECE, CMS College of Engineering and Technology, Coimbatore from 5th to 9th October, 2026.

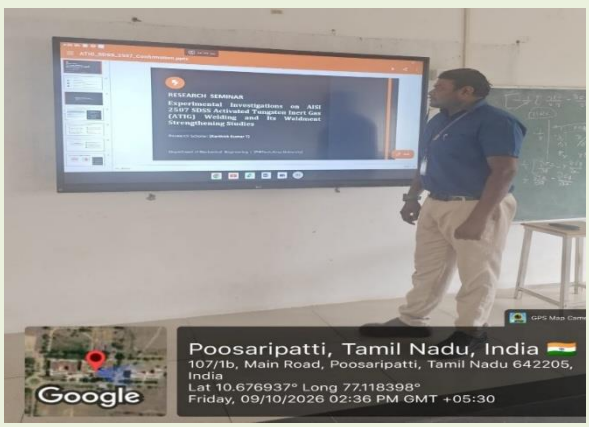
14. **Ms. R. Gowri,** Assistant Professor, Electronics and Communication Engineering has successfully participated and completed Five Days FDP on "Modern Embedded Systems, IoT and SoC: Design, Development and Applications" organized by Department of ECE, CMS College of Engineering and Technology, Coimbatore from 5th to 9th October, 2026.

15. **Mr. V. Sureshkumar,** Assistant Professor, Electrical and Electronics Engineering, has successfully completed three day AICTE VAANI workshop on "Emerging Technologies for Energy Sustainability and Climate Resilience in Viksit Bharat 2047" at Adithya Institute of Technology from 8th to 10th October, 2026.

16. Mr. T. Karthick Kumar, Assistant Professor, Department of Mechanical Engineering, has published a book chapter titled "Computer Vision, Intelligent Inspection and Quality Control in Smart Manufacturing" in the book *Artificial Intelligence in Advanced Manufacturing: Innovations, Applications and Future Trends*.

    E-ISBN: 978-81-6774-445-6

17. **Mr. T. Karthick Kumar**, Assistant Professor, Department of Mechanical Engineering, delivered a lecture on "Experimental Investigations on AISI 2507 SDSS – ATIG Welding and Its Weldment Strengthening Studies" on 9th October, 2026. The discussion highlighted welding metallurgy behaviour and its applications in offshore and oil and pump industries.

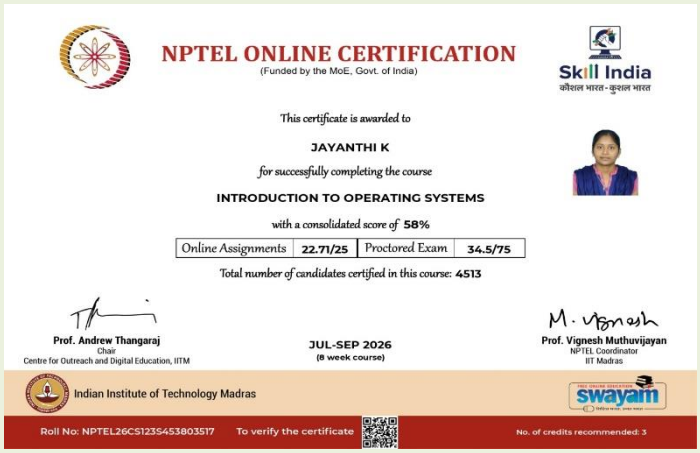


18. **Mrs. T. Shanthi**, Department of CSE actively participated in a one-week Faculty Development Programme (FDP) on **"Microsoft Azure AI App and Agent Developer"** and received a certificate of participation. The programme was held from 5th October, 2026 to 9th October, 2026 at Sree Saraswathi Thiyagaraja College, Pollachi.

19. 19. **Mrs. Anitha S**, Assistant Professor, Department of Computer Science and Engineering, has completed the 12-week NPTEL online course on "Computer Networks", certified by IIT Indore, between July to October, 2026.

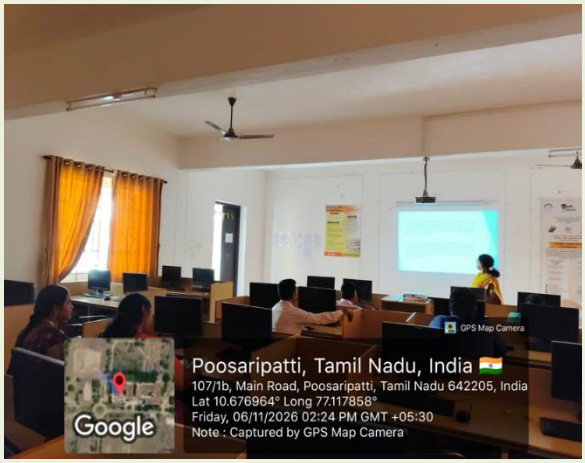

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This certificate is awarded to
ANITHA S
for successfully completing the course
COMPUTER NETWORKS
with a consolidated score of 55%
Online Assignments 24.22/25 | Proctored Exam 30/75
Total number of candidates registered in this course: 12557
Dr. Devendra Deshmukh
Dean of Academic Affairs (DOAA),
Indian Institute of Technology Indore
JUL-OCT 2026
(12 week course)
Prof. Andrew Thangaraj
NPTEL Coordinator
IIT MADRAS
Indian Institute of Technology Indore
swayam
Roll No: NPTEL26CS99S1185702021
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No. of credits recommended: 4

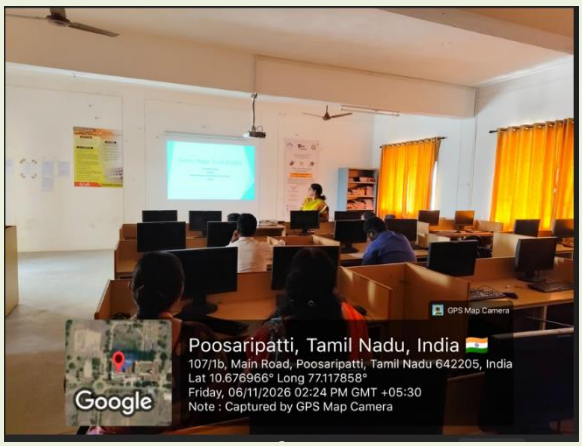
20. **Jayanthi K,** HoD-Information Technology has successfully completed the 12 weeks NPTEL online course in "Introduction to Operating System", certified by IIT Indore between July to September, 2026.


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This certificate is awarded to
JAYANTHI K
for successfully completing the course
INTRODUCTION TO OPERATING SYSTEMS
with a consolidated score of 58%
Online Assignments 22.71/25 | Proctored Exam 34.5/75
Total number of candidates certified in this course: 4513
Prof. Andrew Thangaraj
Chair
Centre for Outreach and Digital Education, IITM
JUL-SEP 2026
(8 week course)
Prof. Vignesh Muthuvijayan
NPTEL Coordinator
IIT Madras
Indian Institute of Technology Madras
swayam
Roll No: NPTEL26CS123S453803517
To verify the certificate
No. of credits recommended: 3

21. Dr. Senthil Amutha, Professor of Mathematics, Department of Science and Humanities, delivered a research seminar on the topic "Vertex Magic Total Graphs" on 6th October, 2026. The seminar focused on the mathematical concepts and research aspects related to the topic.



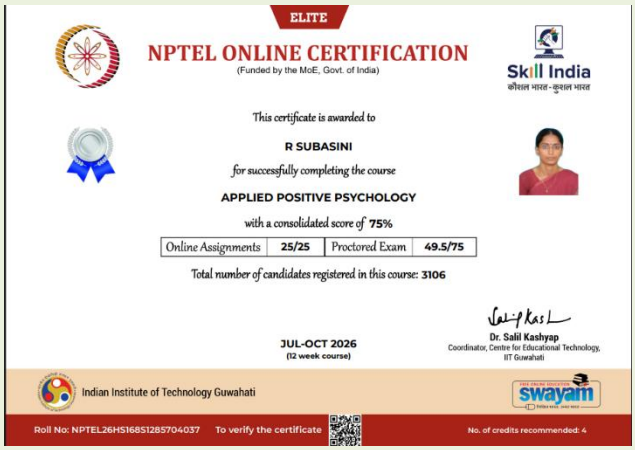




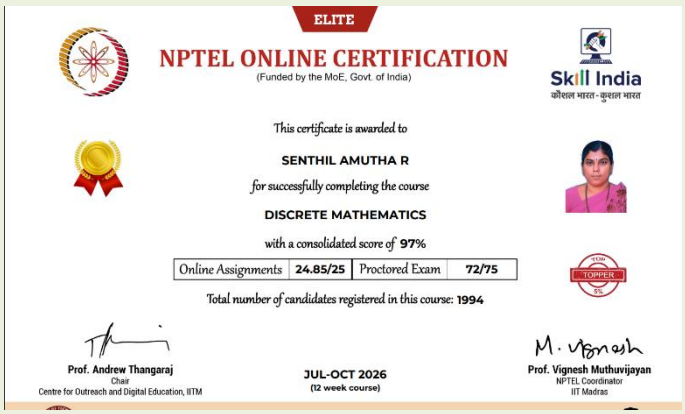
22.Mr. M. Narendheraganth, Assistant Professor, Department of Science and Humanities, has successfully completed the NPTEL course on “Physics of Renewable Energy Systems” with a consolidated score of 50%.



23. Ms. R. Subasini, Assistant Professor, Department of Science and Humanities, has successfully completed the NPTEL course on "Applied Positive Psychology" with a consolidated score of 75%, earning the Elite certification.



24.**Dr. Senthil Amutha. R.,** Professor, Department of Science and Humanities, has successfully completed the NPTEL course on "Discrete Mathematics" with an outstanding consolidated score of 97%, earning the prestigious Elite Certification from IIT Madras.



25.Ms. Vijayalakshmi A. P., Assistant Professor, Department of Science and Humanities, has completed the NPTEL course on **"Environmental Science"** with a consolidated score of **71%**, earning the **Elite** certification.



Students' Participation

1. Janagiraman S, IV year, Department of Computer Science and Engineering, has completed the 12 weeks NPTEL online course on "Computer Networks", certified by IIT Indore between July to October, 2026.



Faculty Corner

Retrieval-Augmented Generation (RAG): Enhancing the Accuracy and Reliability of Generative AI

Retrieval-Augmented Generation (RAG) is an emerging Artificial Intelligence approach that combines Large Language Models (LLMs) with external knowledge retrieval mechanisms to generate accurate, context-aware, and relevant responses. Unlike conventional generative AI systems that rely primarily on information learned during training, RAG retrieves relevant information from external sources such as research papers, institutional databases, technical documents, and knowledge repositories before generating a response. The architecture typically consists of document ingestion, text chunking, embedding generation, vector database storage, semantic retrieval, and context-based response generation. By integrating retrieved knowledge into the prompt, RAG helps reduce hallucinations, improves factual consistency, and enables access to domain-specific and up-to-date information. It has significant applications in intelligent chatbots, healthcare information systems, academic research assistance, enterprise knowledge management, and educational support systems. RAG represents an important advancement towards developing reliable, knowledge-grounded, and domain-specific Generative AI applications.



Prepared By,
K.A.Nithin,
Assistant Professor,
AI&DS

Artificial Intelligence in Electronics: Shaping the Future of Intelligent Technologies

Electronics and Communication Engineering (ECE) is one of the most dynamic and rapidly developing branches of engineering. It plays a vital role in shaping the modern world through innovation in electronics, communication, and intelligent technologies.

Transforming the Future of Electronic Engineering

Artificial Intelligence (AI) is one of the most significant technological advancements in the modern world. It refers to the ability of machines and computer systems to perform tasks that normally require human intelligence, such as learning, reasoning, decision-making, problem-solving, and recognizing patterns. AI is transforming various engineering fields, particularly Electronics and Communication Engineering (ECE).

Electronics plays an important role in developing intelligent systems, while Artificial Intelligence provides the ability to analyze information and make decisions. The integration of AI with electronic devices enables the development of smart, automated, and efficient systems. From smartphones and smart home appliances to autonomous vehicles and advanced medical equipment, AI has become an essential part of modern electronic technology.

Role of AI in Electronics Engineering

Artificial Intelligence has introduced new possibilities in the design, development, testing, and operation of electronic systems. Traditional electronic systems generally perform predefined operations, whereas AI-based systems can analyze data, identify patterns, and improve their performance through learning.

AI is widely used in electronic circuit design, semiconductor manufacturing, signal processing, communication systems, robotics, and embedded systems. It helps engineers improve accuracy, reduce design complexity, minimize power consumption, and increase system reliability.

In Electronics and Communication Engineering, AI is particularly useful in processing large amounts of data generated by sensors, communication networks, and electronic devices. It enables intelligent decision-making and real-time monitoring in various applications.

AI is transforming medical electronics through intelligent diagnostic equipment, patient monitoring systems, and medical imaging technologies. AI-based systems can analyze ECG signals, medical images, and other patient data to assist healthcare professionals in identifying abnormalities and monitoring health conditions.

Embedded systems are electronic systems designed to perform specific functions within larger devices. When AI algorithms are integrated into embedded platforms, they create intelligent systems capable of processing information locally and responding quickly. This concept is known as Edge AI. It is widely used in smart cameras, industrial monitoring, wearable devices, and intelligent sensors.

Challenges in Implementing AI

Although AI offers many advantages, its implementation in electronics also involves certain challenges. Developing AI-based electronic systems requires large amounts of quality data, powerful computing resources, and specialized technical knowledge.

Some AI applications require high processing power and memory, which may increase hardware costs and energy consumption. Data privacy, cybersecurity, algorithm reliability, and ethical concerns are also important considerations.

In addition, integrating AI into low-power embedded devices requires efficient algorithms and optimized hardware architectures. Researchers and engineers are continuously working to overcome these challenges through advanced semiconductor technologies and energy-efficient AI models.

Future Scope of AI in Electronics

The future of Artificial Intelligence in Electronics and Communication Engineering is highly promising. Emerging technologies such as Edge AI, AI-powered semiconductor chips, intelligent robotics, smart sensors, and 6G communications are expected to create new opportunities for innovation.

AI-based electronic systems will play a major role in developing smart cities, autonomous transportation, remote healthcare, intelligent industries, and advanced communication networks.

The combination of AI, VLSI, IoT, and embedded systems will enable the development of smaller, faster, smarter, and more energy-efficient electronic devices. AI-assisted chip design and hardware acceleration will also contribute to the next generation of semiconductor technologies.

Artificial Intelligence is not just changing the way electronic devices work; it is shaping the future of engineering and connecting the world through intelligent technology.

"The future of electronics lies in intelligent systems that can learn, adapt, communicate, and innovate."

Prepared By,
Lakshmidevi
Assistant Professor,
Deaprtment of EEE



AI in Cyber Security

Cyber threats are growing day by day and outpace traditional security defenses. Behind this evolution, Hackers are constantly shifting their focus, making AI in cybersecurity more important than it's ever been. With the help of AI, we can prioritize critical incidents, detect threats in real-time, and respond to attacks automatically—all while managing vulnerabilities and optimizing network security. With AI-driven security automation, organizations can detect anomalies, predict cyberattacks, and respond to threats faster than human analysts. AI threat detection tools scan massive datasets, identify zero-day vulnerabilities, and neutralize AI-generated malware and phishing scams before they cause damage.

AI in cybersecurity is like having a smart guard dog that can learn and adapt to new tricks to protect your house from intruders. Let's break it down into simpler bits:

1. Detection: Imagine you have a pet dog that knows the smell of your family members. Similarly, AI in cybersecurity learns to recognize patterns in data to identify potential threats. For example, it can spot unusual activities like multiple failed login attempts or suspicious file downloads.
2. Prediction: Just like how experienced security guards can anticipate where burglars might strike next, AI algorithms can analyze data to predict potential cyber threats before they happen. They do this by looking at historical data and identifying trends that could indicate a future attack.
3. Adaptation: Your smart guard dog learns from experience. If it notices a new way burglars try to break in, it adapts its behavior to better protect your home. Likewise, AI systems in cybersecurity can evolve over time, learning from past incidents to improve their ability to detect and prevent future attacks.
4. Automation: Think of having a robotic security system that can respond to threats automatically. AI in cybersecurity can automate certain tasks like blocking suspicious IP addresses or quarantining malware-infected devices, freeing up human security experts to focus on more complex issues.
5. Response: When your guard dog detects a threat, it barks to alert you. Similarly, AI in cybersecurity can trigger alerts or take action to mitigate threats in real-time, helping to minimize the impact of cyber attacks

Prepared by
R.Puviyarasu,
Assistant Professor,
Department of Computer Science and Engineering



Paraborgs: Cyborg Cockroach Technology For Disaster Search and Rescue

Recent research from the University of Queensland (UQ) and the University of New South Wales (UNSW) describes "Paraborgs" — giant burrowing cockroaches fitted with lightweight electronics, cameras and miniature medical-injection systems. The concept is intended to help rescuers reach people in places such as collapsed buildings and caves where direct access may be difficult.

A Paraborg is a bio-hybrid system: a living insect is combined with electronic technology. The insect supplies natural mobility, while the electronic system provides sensing, communication and remote guidance.
Living insect: A large burrowing cockroach is used as the biological platform because it can move through uneven and confined environments.

Remote guidance: Researchers can influence movement using electrical stimulation through implanted electrodes, allowing an operator to guide the insect.

Potential emergency assistance: The new Paraborg concept adds a miniature, remotely activated injection system. Medical decisions remain under human supervision.

After an earthquake, parts of a building may collapse and leave narrow gaps between pieces of rubble. A small bio-robot could potentially enter such spaces, transmit information about its surroundings and help rescuers identify where assistance may be needed.. Main components

Paraborg technology combines biology and robotics: researchers use the insect's natural movement and add electronic capabilities. Its most interesting potential application is disaster response, where a small platform may reach places that are difficult for conventional rescue robots or people. It remains an emerging research technology rather than a fully deployed rescue system.

Suvetha.V
Assistant Professor,
Department of Information Technology



English Language Acquisition: The Process of Learning to Communicate Naturally

Introduction

Language acquisition is a natural and gradual process through which human beings develop the ability to understand and use a language for communication. English language acquisition refers to the development of the ability to listen, speak, read, and write in English. It involves more than memorising grammatical rules, learning vocabulary, or translating sentences from one's mother tongue. It is about developing the ability to understand the language, think in it, and use it effectively in real-life situations.

In today's world, English plays an important role in education, employment, technology, international communication, and academic development. Therefore, acquiring English language skills has become increasingly significant.

Understanding Language Acquisition

Language acquisition and language learning are closely related, but they are not exactly the same. Language acquisition generally refers to developing language ability through meaningful exposure, interaction, and communication. Language learning, on the other hand, often involves conscious efforts to understand grammar, vocabulary, pronunciation, and sentence structures.

For example, a person who regularly listens to English conversations, participates in discussions, reads English books, and communicates with others gradually develops a better understanding of the language. This process helps learners recognise language patterns and use expressions more naturally.

1. The Role of Exposure in English Acquisition

Exposure is one of the most important factors in acquiring English. Learners need regular opportunities to listen to and read English in meaningful contexts. Listening to conversations, watching educational programmes, reading newspapers, and engaging with English speakers help learners become familiar with vocabulary, expressions, sentence structures, and pronunciation.

According to Stephen Krashen's Input Hypothesis, learners acquire a language when they are exposed to comprehensible input. In simple terms, learners should receive language input that they can understand, even if it contains some unfamiliar words or structures. This exposure gradually expands their linguistic knowledge.

2. The Importance of Interaction

Language is primarily a tool for communication. Therefore, interaction plays a significant role in English language acquisition. Learners should have opportunities to communicate with teachers, classmates, and other English speakers.

Participating in conversations, asking questions, expressing opinions, sharing experiences, and discussing everyday topics help learners develop communicative competence.

Interaction also allows learners to recognise their mistakes, receive feedback, and improve their language use. Research on second language acquisition highlights the importance of interaction, feedback, and meaningful communication in developing language proficiency.

3. Thinking in English Rather Than Translating

One of the major challenges faced by many English learners is their dependence on their mother tongue. They often construct sentences in their native language and then translate them into English. This habit can interrupt the natural flow of communication.

Instead, learners should gradually develop the ability to associate English words and expressions directly with their meanings. For instance, when they see a familiar object, they can practise identifying it in English rather than mentally translating its name from their mother tongue.

Thinking in English can improve the speed and naturalness of communication. This ability develops gradually through regular exposure, practice, and meaningful interaction.

4. The Importance of Listening and Speaking

Listening and speaking are essential components of oral language development. Listening helps learners understand pronunciation, intonation, vocabulary, sentence patterns, and natural expressions. Regular listening practice also improves their ability to understand different speakers and accents.

Speaking provides learners with opportunities to use the language in practical situations. Activities such as self-introductions, role plays, group discussions, storytelling, and presentations help learners develop fluency and confidence.

Listening and speaking are closely connected. The more learners listen to English, the more familiar they become with its sounds and structures. Similarly, regular speaking practice helps them express their thoughts more clearly and confidently.

5. The Role of Reading and Writing

Reading and writing also contribute significantly to English language acquisition. Reading books, newspapers, articles, and other materials introduces learners to new vocabulary, sentence structures, and different styles of expression. It also improves comprehension and develops an understanding of how the language is used in different contexts.

Writing allows learners to organise their thoughts and express ideas in a structured manner. Activities such as writing short paragraphs, maintaining journals, composing emails, and summarising passages help improve grammar, vocabulary, and sentence construction.

Regular practice in reading and writing strengthens overall language proficiency and supports the development of all four language skills.

Conclusion

English language acquisition is a continuous process that requires regular exposure, meaningful interaction, consistent practice, and a willingness to communicate. It cannot be achieved through memorising grammar rules or vocabulary alone. Learners need to use English in their everyday activities and develop confidence through practical communication.

The most effective approach is to create opportunities to listen, speak, read, and write in English regularly. Making mistakes should be considered a natural part of the learning process rather than a barrier to communication. With patience, practice, and the right learning environment, learners can gradually develop fluency and confidence.

Ultimately, acquiring English is not simply about knowing a language; it is about using it effectively to express ideas, exchange information, build relationships, and access opportunities in an increasingly interconnected world.

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Student Corner

TinyML: Bringing Artificial Intelligence to Resource-Constrained Devices

Tiny Machine Learning (TinyML) is an emerging technology that enables machine learning models to run directly on resource-constrained devices such as microcontrollers, sensors, and Internet of Things (IoT) devices. Unlike traditional AI systems that depend on cloud servers for processing, TinyML performs data processing and inference locally on embedded hardware with limited memory, computing power, and energy consumption. It combines machine learning algorithms with model optimization techniques such as quantization, pruning, and compression to enable efficient execution on low-power devices. TinyML supports real-time intelligent applications, including predictive maintenance, voice recognition, human activity detection, environmental monitoring, smart agriculture, and wearable healthcare systems. Platforms such as Arduino, ESP32, and TensorFlow Lite for Microcontrollers provide development environments for implementing TinyML applications. By reducing cloud dependency, communication latency, and bandwidth requirements, TinyML offers improved responsiveness, energy efficiency, and enhanced data privacy. It plays a significant role in advancing intelligent edge computing and developing sustainable, low-cost AI solutions for next-generation IoT applications.

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ECE – Connecting Ideas, Creating the Future

Electronics and Communication Engineering (ECE) is one of the most dynamic and rapidly developing branches of engineering. It plays a vital role in shaping the modern world through innovation in electronics, communication, and intelligent technologies. From smartphones and satellites to medical equipment and smart devices, ECE is present in almost every aspect of our daily lives.

The ECE department provides students with a strong foundation in electronic circuits, digital systems, communication networks, signal processing, microprocessors, and embedded systems. It combines theoretical knowledge with practical learning, encouraging students to explore new ideas and develop innovative solutions.

Today, emerging technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), Robotics, VLSI Design, 5G and 6G communication, and Embedded Systems are creating exciting opportunities for ECE engineers. These advancements are transforming industries such as healthcare, transportation, agriculture, education, and automation.

Beyond academics, the department encourages students to participate in technical workshops, seminars, paper presentations, project exhibitions, hackathons, and industrial visits. These activities help students improve their technical knowledge, creativity, teamwork, communication, and problem-solving skills.

The ECE department is not just a place to learn about electronic devices and communication systems; it is a platform where ideas become innovations and students become future engineers. With continuous learning, dedication, and creativity, ECE students are prepared to face technological challenges and contribute to society.

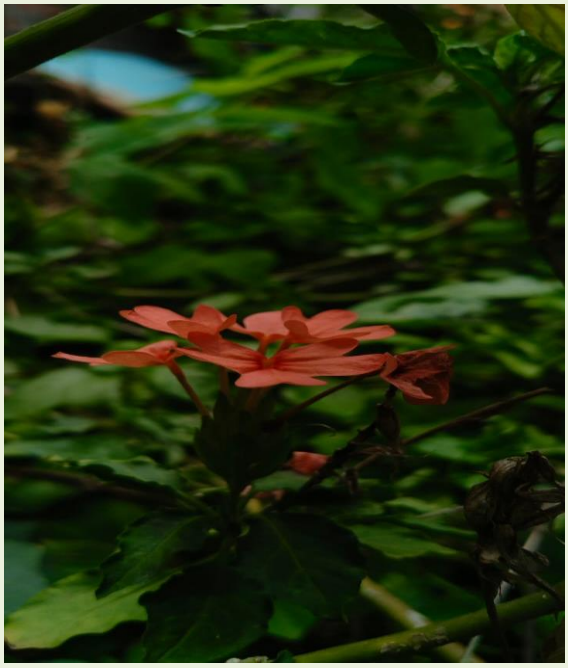
ECE – Where Innovation Begins and the Future Connects!

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THROUGH THE LENS







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