PAN-No. : AAATG6551G
GST-No. : 29AAATG6551G1ZL

GSSS | GEETHA SHISHU SHIKSHANA SANGHA(R)

INSTITUTE OF ENGINEERING AND TECHNOLOGY FOR WOMEN

(Affiliated to Visvesvaraya Technological University, Belagavi. Approved by AICTE New Delhi & Govt. of Karnataka)

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DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

NEWS LETTER 2024-2025(ODD SEMESTER)

INFONITE

ABOUTTHEDEPARTMENT:

The Department of Information Science and Engineering became a part of this esteemed organization in the year 2003 with intake of 60 students. It is recognized by AICTE, New Delhi, India and affiliated to VTU, Belagavi, Karnataka. The course has become popular among students due to the achievements and rigor. The department has smart classrooms with projectors and computer laboratories with high-end systems supporting Wi-Fi facility.

The Department has 08 professionally qualified faculties out of which one faculty with doctorate degree and 3 faculties are pursuing Ph.D. The teaching faculties and technical staff members are committed to continuously improve the quality of education by enhancing the knowledge of students and also involved in R&D activities with successfully bagging funded projects worth Rs 14,60,700/- from various government and funding agencies. Visvesvaraya Technological University, Belagavi, has granted the RESEARCH CENTRE (Ref wide: VTU/Aca-LIC//2019- 20/SO/3181/56 Dated 6th Aug 2019) to promote R &D activities for both staff & students at the Department.

VISION:

To be recognized nationally as an accomplished department producing global leaders and researchers as committed, enthusiastic and excellent ethical women technical graduate for the better tomorrow.

MISSION:

M1: To provide Students with Innovative and research skills, which is need of the hour for technical students.

M2: To impart knowledge to the students of Information Science and Engineering with relevant core and practical knowledge inculcating real time experience in the promising field of computing.

M3: To prepare the graduates to meet information technology challenges with a blend of social, human, ethical and value based education.

PLACEMENT DETAILS 2024-2025

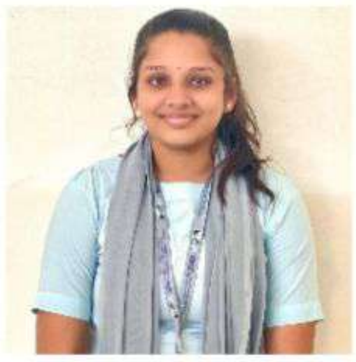
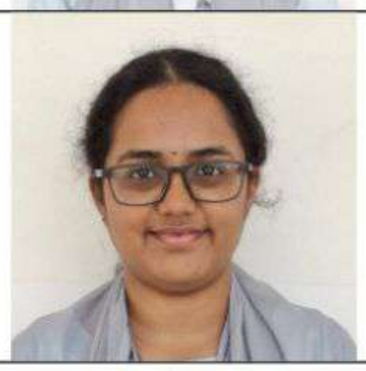
Total Strength: 67
Total Eligible Students: 60
Total Students Placed: 36

Highest Package = 18.7 Lakhs Per Annum
Avg Package = 7.80 Lakhs Per Annum

Sl.No	Student Name	USN	Name of the Company Placed	CTC	Photos
1.	Nagaranjini Singh R J	4GW21IS026	Lowe's India	18.7 LPA	
2.	Bharani B	4GW21IS009	Lululemon	14 Lakhs	
3.	Indushree K N	4GW21IS019	Thoughtworks	11.1 LPA	

4.	Anagha M Purohit	4GW21IS002	Eli Lilly	Intern with a Stipend of Rs. 30k/Month (Based on their performance during internship, If converted to full time the salary package will be 11 LPA)	
5.	Anvitha B H	4GW21IS005	Eli Lilly	Intern with a Stipend of Rs. 30k/Month (Based on their performance during internship, If converted to full time the salary package will be 11 LPA)	
6.	Divya Shree S	4GW21IS017	Eli Lilly	Intern with a Stipend of Rs. 30k/Month (Based on their performance during internship, If converted to full time the salary package will be 11 LPA)	
7.	Monisha S	4GW21IS025	Eli Lilly	Intern with a Stipend of Rs. 30k/Month (Based on their performance during internship, If converted to full time the salary package will be 11 LPA)	

8.	Nishchala P	4GW21IS029	Eli Lilly	Intern with a Stipend of Rs. 30k/Month (Based on their performance during internship, If converted to full time the salary package will be 11 LPA)	
9.	Rachana S	4GW21IS038	Eli Lilly	Intern with a Stipend of Rs. 30k/Month (Based on their performance during internship, If converted to full time the salary package will be 11 LPA)	
10.	Varshini GC	4GW21IS056	Eli Lilly	Intern with a Stipend of Rs. 30k/Month (Based on their performance during internship, If converted to full time the salary package will be 11 LPA)	
11.	Chinmayi S Vaidya	4GW21IS012	Publicis Sapient	8.47LPA	
12.	Anusha H K	4GW21IS004	Rockwell Automation	8 LPA	

13.	Sanjana C R	4GW21IS044	Dover India	7.5 LPA	
14.	Kruthika U Vittal	4GW21IS021	Alstom	6.8 LPA	
15.	SrushtiNagesh	4GW21IS048	Kyndryl	5.9 LPA	
16.	Vachana V S	4GW21IS055	Kyndryl	5.9 LPA	
17.	Shalini N	4GW21IS045	Capgemini	5.75 LPA	
18.	Aruna B N	4GW21IS007	Knowledge Lens	Intern with a Stipend of Rs. 15K/Month (Basis to performance after conversion to FT, the salary package will be 5.5 LPA)	
19.	Umme Hani	4GW21IS053	Knowledge Lens	Intern with a Stipend of Rs. 15K/Month (Basis to performance after conversion to	

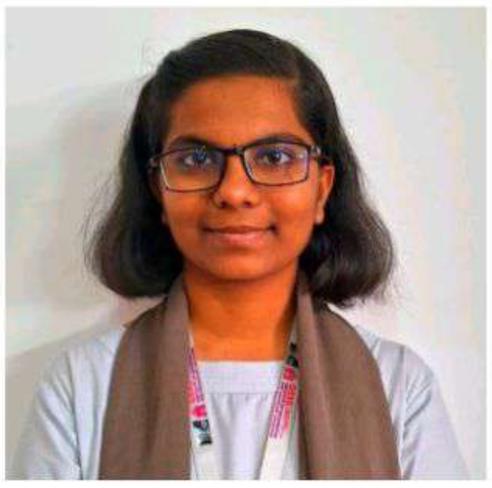
				FT, the salary package will be 5.5 LPA)	
20.	AnuPriya	4GW21IS003	Mindsprint Digital	5.2 LPA	
21.	Lavanya S	4GW21IS022	Mindsprint Digital	5.2 LPA	
22.	Yashaswini R	4GW21IS059	IBM	4.75 LPA	
23.	Sandhya H Salunke	4GW21IS042	IBM	4.75 LPA	
24.	Ruchitha K K	4GW21IS040	Capgemini	4.25 LPA	
25.	Suchitha G	4GW21IS049	Capgemini	4.25 LPA	

26.	Devika L	4GW21IS015	Capgemini	4.25 LPA	
27.	Deekshita	4GW21IS013	Capgemini	4.25 LPA	
28.	Priyanka Y M	4GW21IS036	Capgemini	4.25 LPA	
29.	Anvitha M	4GW21IS006	Cognizant	4 LPA	
30.	Harshitha C S	4GW21IS018	L&T Technology Services	4 LPA	
31.	Chinmayi D	4GW21IS011	L&T Technology Services	4 LPA	
32.	Spoorthi R	4GW21IS046	L&T Technology Services	4 LPA	

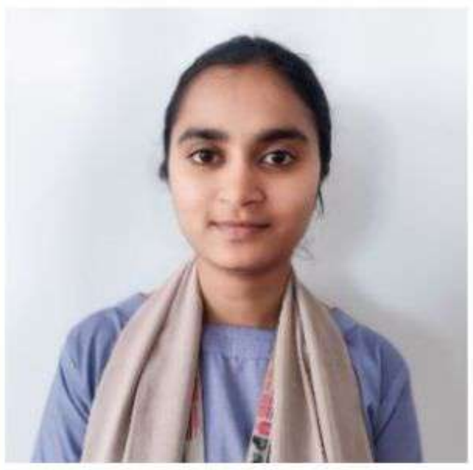
33.	Renuka R	4GW21IS039	CGI	3.92 LPA	
34.	Bhumika H N	4GW21IS010	Infosys	3.6 LPA	
35.	Yashaswini D A	4GW21IS058	Infosys	3.6 LPA	
36.	Srinidhi .K.M.	4GW21IS047	Tech Mahindra	3.25 LPA	

ISE TOPPERS LIST ODD 2024

Semester III

FIRST	SECOND	THIRD
		
S PATIL RAJDEEPTI 4GW23IS032 91%	**THEJASHREE B 4GW23IS058 88.75%**	**VARSHINI G BHAT 4GW23IS059 87.88%**

Semester V

FIRST	SECOND	THIRD
		
ANANYA R S 4GW22IS008 88.43%	**DEEPU Y B 4GW22IS020 87.22%**	**HAMSA SURESH 4GW22IS022 86.89%**

Semester VII

FIRST	SECOND	THIRD
ANVITHA B H 4GW21IS005 90.29%	**YASHASWINI R 4GW21IS059 86.43%**	**MADHU S 4GW21IS023 85.71%**

DEPARMENT ACHIEVEMENTS

MEMORANDUM OF UNDERSTANDING (MOU)

Name of the company: Information Sharing and Analysis Center (ISAC), Mysuru.

Signing of MOU between GSSSIETW, Mysuru& Information Sharing and Analysis Center (ISAC), Mysuru on 16th October 2024.

Linux FOSS – Student Club Activities

One day Seminar on "The Power of Linux: Exploring Key Operating System Concepts", on 6th December 2024.

INNOVATE NXT 2024

Department of Information Science & Engineering of GSSSIETW, Mysuru had organized **"INNOVATE NXT-2024"Ideathon**in Association with**DLithe Consultancy Services Private Ltd, Bengaluru**on **5th November 2024**at M.Govinda Rao Memorial Hall, GSSSIETWfrom **9:30 am to 6:00 pm.**

The event was inaugurated by the Chief Guest **Dr. YogishaS,** Founder & CEO, Skanda Life Sciences, Bengaluru and Guest of Honor**Mr. RaghavendraGaniga,** Founder & CEO, Mobiezy, Bengaluru in the presence of **Dr. M Shivakumar,** Principal, GSSSIETW and **Dr. Gururaj K S**, Prof & Head, Dept. of ISE by offering flowers to Visionary and Founder Secretary Late **Prof. B.S. Pandit** and Late **Vanaja B Pandit,** Former Hon. Secretary, GSSS (R).The event was coordinated by**Dr.Anand M,**Assosciate.Professor&**Smt. Chaya P**, Asst. Professor Dept. of ISE.

TECHNICAL EVENTS CONDUCTED UNDER TECHNICAL FORUM- INFONITE

About the forum:

The department has a student forum named INFONITE (Information Infinite) set up in the year 2011. The forum provides platform for students to showcase their technical abilities beyond the ambit of academics. INFONITE conducts various technical events, technical talks, workshops, internship programs and industry visits.

Two days workshop on "Data Structures Applications using Python" from 21st to 22nd October 2024 by IVIS labs Pvt. Ltd. Mysuru.

Three Days workshop on "Open-Source Mobile App Development from Data In-sights with Power BI to UX Excellence" from 24th to 26th October 2024 by Bharath T S, Director, iRobo Automation Pvt. Ltd.

Two Days workshop on "Applications of Cryptography and Network Security" from 29th to 30th November 2024 by Soundarya B C, Total Electro Technologies.

PARENTS - TEACHERS MEETING

The department has organized **Parents-Teachers Meeting** (Odd Semester) for the 3rd, 5th,7th semester students of ISE was scheduled on **November 11, 2024.**

STUDENTS ACHIEVEMENTS

MOOC Course Completed	**193**
Webinar / Seminar Attended / Hackathons/Project Competition Participations	**41**

MOOC Course Completed

Sl.No	Semester	Title of MooC course completed	No.of Students attended	Total No.of Students
1		AWS for Beginners	1	
2		Introduction To Cybersecurity	2	
3		Data structure in c	2	
4		Fundamentals of Information Security	2	
5		Introduction to CSS	6	
6		Java programming	8	
7		Google analytics for beginners	2	
8		Cloud Computing	2	
9		AI And Machine Learning Full Course	3	
10		Artificial intelligence Fundamentals	2	
11		Beginning python	4	
12		Excel for Beginners	2	
13		Stacks and queue	2	
14		AI for Healthcare	2	
15	3rd	Introduction to CSS	6	64
16		Web Development For Beginners	2	
17		Java data structure for beginners	3	
18		Advanced Data Structures & Algorithms in Java: Sorting and Searching Algorithms	1	
19		Oops with java	1	
20		Hands on Object Oriented Programming with Java 11	2	
21		Introduction to HTML	1	
22		Java Concepts	1	
23		Fundamentals of python programming	1	
24		Java learning	1	
25		Artificial Intelligence Python	2	
26		C programming	1	
27		Learning Java 9 -Databases and Multithreading in java	1	
28		Apprenez a programmer en Java	1	
29	5th	Introduction to Artificial intelligence	65	66
30		Python for AI	1	
31	7th	Data and File Structure	63	63

Webinar / Seminar Attended / Hackathons/Project Competition Participations

Sl.No	DATE	EVENT	NAMES OF STUDENTS
		III SEMESTER	
1	7th& 8th Dec 2024	Fin-A-Thon: A 24 hour Hackathon organized by Puttannaiah foundation at Pandavapura, Mandya.	NAVYA K P
2			PAVANI P Y
3			MAANSI M
4			MINCHU S
5	9th Nov 2024	State Level Hackathon on Sustainable Solutions For Smart Campus at VVCE, Mysuru	NIKHITHA M
6			SANJANA B C
7			MADHUSHREE K S
8			SOUKHYA H M
9			PRAGATHI CS
10			THEJASHREE B
11			DHANYA R BHAT
12	16th& 17th	Argonyx'24, A 24 hour Hackathon at RV University	AISHWARYA S L
13			H N NIHARIKA KOTHVAL
14			SINCHITHA B R
15			HENYA KAVERAPPA
16	4th& 5th Dec 2024	HACKCELERATE-24 hour Hackathon at GSSSIETW, Mysuru.	THEJASHREE B
17	30th Nov 2024	VEDHA (VVCE EDUTECH HACKSTHON) at VVCE	RAKSHITHA P
18	6th – 7th Dec 2024	GAMEATHON 7.0 at Jyothi Institute of Technology, Bangalore	LIKITHA G A
		VSEMESTER	
19	6th Dec 2024	Mini Project Expo:"Micro Vision-Big Ideas in Small Projects" at GSSSIETW,Mysuru.	ANANYA BINDU N
20			PRIYA H S
21			LAALITHYA N
22			DEEPTHI R
23			LAKSHMI H J
24			SINCHANA V
25			SOWJANYA JAGADISH
26			CHATHURYA R
27	20th – 21st Dec 2024	CyberForge, VertechX 12.0 National Level Technical Fest at MVJ College of Engineering, Bangalore	POOJA KG
28			AMRUTHA K V
29	14th Nov 2024	Participated in State Level round of RBI90 Quiz, Bangalore.	ANKITHA Y H
30			MONIKA S M
31	7th& 8th Dec 2024	Fin-A-Thon:A 24-hour Hackathon organized by Puttannaiah Foundation at Pandavapura,Mandya	AISHWARYA K M
32			AMRUTHA S
33			HAMSA SURESH

34			NITHYASHREE K H
35	20th Dec 2024	Project expo-2024 conducted by the department of ECE, GSSSIETW	CHANDANA T J
36			HAMSA SURESH
37			AMITHA K N
38	8th& 9th Nov 2024	Participated and secured second place in a Bar Camp "SAPTASAGARA" conducted by Department of Mechanical Engineering at VVCE, Mysuru	NITHYASHREE K H
39	4th& 5th Dec 2024	Participated and secured 2nd prize in Hackcelerate 24 hours hackathon conducted by Dept of AI&ML, GSSSIETW	LAHARI C N
40			POORNIMA M
41			SHREYA N

FUNDED PROJECTS DETAILS

KSCST - 48th Series Student Project Presentation - Student Project Proposals approved for sponsorship

Sl. No.	Sponsoring Agent	Title	Grant	Proposed by	Guide
1.	KSCST	TRAFFIC PREDICTION AND CONTROLLING SYSTEM USING MACHINE LEARNING	Rs. 4,000/-	SANDHYA H SALUNKE ANUSHA HK DEVIKA L PRIYADARSHINI B	Dr. GURURAJ KS
2.	KSCST	REVOLUTIONIZING MEDICAL REPOSITORY SECURITY THROUGH CUSTOM BLOCKCHAIN SOLUTION	Rs. 3,500/-	ANVITHA M ANAGHA M PUROHIT SRINIDHI K M BANUSHREE H S	Dr. ANAND M

FACULTY ACHIEVEMENTS

Sl. No.	Particulars	Count
1	**Publications -SCOPUS/UGC**	**04**
2	**Conference**	**02**
3	**Workshops/FDPs**	**08**
4	**Patents**	**02**

Faculty Publication in Scopus/WOS, UGC/others

Sl. NO	Name of the Staff	Paper Title	Journals/Books /Conference Name	DOI&Link	Date/Status	Scopus/UGC Approved Journal	Impact Factor/ Cite score
1	Dr. Gururaj K S	Performance Analysis of Deep Learning Models for Identifying White Spot Syndrome Virus in Shrimp Aquaculture	African Journal of Biomedical Research	https://doi.org/10.53555/AJBR.v27i4S.4330	Published Dec 2024	Scopus	0.23
2	Chaya P	A Comprehensive Review Of Security Challenges And Attack Vectors In Wireless Sensor Networks	Nanotechnology Perceptions	https://doi.org/10.62441/nano-ntp.v20iS10.2294	Published 18th Aug 2024	Scopus	0.12
3	Anand M	Channel And Spatial Attention Unet For Segmentation Of Lesions And Cnn Architecture For Fundus Image Denoising And Classification Of Features By Using An Ensemble Classifier In Diabetic Retinopathy	Journal Of Theoretical And Applied Information Technology	https://jatit.org/index.php	Accepted Nov 2024	Scopus	0.76
4	Padmaja K	Enhancing Diabetes Prediction Accuracy with AdvanSVM: A Machine Learning Approach Using the PIMA Dataset	Seybold Report	DOI: 10.5110/77.1412	Published 19th May 2024	-	-
		Enhanced Lumpy Cattle Skin Disease Prognosis via Deep Learning Methods	IEEE Conference:2024 Second International Conference on Networks, Multimedia and Information Technology	DOI: 10.1109/NMITCON62075.2024.10699233.	9th and 10th Aug 2024	-	-

			(NMITCON)				
		Enhancing early Detection of Alzheimer's Disease through Integrated Deep learning Models: A multimodal diagnostic approach	Conference : 5th Congress on Intelligent Systems	-	4th and 5th Sep 2024.	-	-
5	Girish S C	Insight of recent artificial intelligence-based strategy to effectively screen COVID-19.	IAES International Journal of Artificial Intelligence (IJ-AI)	http://doi.org/10.11591/ijai.v13.i3.pp2482-2489	Published Sep 2024	Q3/Scopus	2.51

List of Faculty Interaction with Outside World – ODD-2024

Sl. No	Faculty	Event	Event Details	Date
1	Dr. Gururaj K S	Workshop	Regional Consultative Workshop-South Region on " NAAC Reforms: Binary Accreditation" at J N Tata Auditorium, IISC, Bengaluru	16th July 2024
		Reviewer	External Auditing and Verification of NBA-SAR documents at UBDT College of Engineering, Davangere.	4th Sep 2024.
2	Chaya P	FDP	5 Day Faculty Development Program on " Gen-AI & Prompt Engineering using Microsoft Co-Pilot" organized by BNMIT, Bengaluru in association with ExcelREdtechPvt Ltd.	16th to 20th Sep 2024
		FDP	Six Days Faculty Development Program on "DevOps" organized by Dept. of Computer Science & Engineering, VVCE, Mysuru	4th to 9th Nov 2024.
3	Anand M	FDP	5 Day Faculty Development Program on " Gen-AI & Prompt Engineering using Microsoft Co-Pilot" organized by BNMIT, Bengaluru in association with ExcelREdtechPvt Ltd.	16th to 20th Sep 2024
		FDP	Six Days Faculty Development Program on "DevOps" organized by Dept. of Computer Science & Engineering, VVCE, Mysuru	4th to 9th Nov 2024.
4	Padmaja K	FDP	Six Days Faculty Development Program on "DevOps" organized by Dept. of Computer Science & Engineering, VVCE, Mysuru	4th to 9th Nov 2024.

		FDP	5 Day Faculty Development Program on "Advancing Frontiers in Supercomputing, AI, and Quantum Computing: Innovations, Applications, and Integration" organized by AICTE Training And Learning (ATAL) Academy at GM Institute Of Technology, Davangere.	9th to 14th Dec 2024.
5	Anitha Rao	Workshop	Three day workshop on "Course Design in OBE and NBA Framework" organized by IQAC, GSSSIETW, Mysuru	10th to 12th June 2024

PATENTS

Sl. No.	Name of the Faculty	Patent Title	Date	Design Number	Status
1	Padmaja K	Autism Detecting Device	04/08/2024	425781-001	Published
2	Girish S C	AI Based Device for covid Detection	27/11/2024	430408-001	Published

RESEARCH CENTRE ACHIEVEMENTS

No. of Research Guides - 02
No. of Research Scholars awarded Ph.D. - 02
No. of Research Scholars Pursuing Ph.D. – 02 (External Scholars)
Funds Allocated: 5 Lakhs

Research Scholars Pursuing Ph.D under ISE Research centre

Sl. No.	Name of the Research Guide	Name of the Research Student	Status	Year of Registration
1	Dr. Gururaj K S Professor and Head, Dept. of ISE	Ms. Rakshitha B H	Provisionally Registered	2024
2		Mrs. Swetha B S	Provisionally Registered	2024
3	Dr. Manjuprasad B Professor and Head, Dept. of CSE (AI&ML)	Candidates yet to be registered		

The following Research Scholars are pursuing Research under VTU/Other Research centre:

Sl. No.	Name of the Research Scholar/ USN	Year of Registration	Status	Name of the Research Guide	Research Centre	University
1	**Chaya P** (1DT17PIS02)	2017	Open seminar 2 Completed	Dr. Nandini Prasad K S	DSATM Bengaluru	VTU University
2	**Anand M** (R21PCS01)	2021	Submission for pre thesis colloquium	Dr. MeenakshiSundaram A	School of Computer Science & Engineering.	REVA University, Bengaluru.
3	**Padmaja K** (2170221)	2021	Colloquium completed	DebarkaMukhopadhyay	Kengeri Campus	CHRIST University
4	**Girish S C** (4NI20PCS01)	2020	Completed Comprehensive Viva Voce	Dr. Jayasri B S	NIE, Mysuru	VTU University

TECHNICAL ARTICLES BY STUDENTS

DeepSeek: Pushing AI to New Frontiers Human – Like Thinking

The artificial intelligence landscape is evolving at breakneck speed, with models like OpenAI'sChatGPT and Google's Gemini leading the charge. Now, a new contender—**DeepSeek**—has emerged from China, offering a fresh approach to AI efficiency and reasoning. Founded in 2023 by **Liang Wenfeng**, DeepSeek distinguishes itself with a research-driven philosophy, prioritizing innovation over commercialization. Unlike many AI giants, its team consists largely of young researchers, including PhD holders, focused on pushing AI's theoretical boundaries.

A Smarter, More Efficient AI

Traditional AI models, such as ChatGPT, rely on **dense transformer architectures**, engaging nearly all their parameters for every query—a computationally expensive approach. DeepSeek, however, adopts a **Sparse Mixture-of-Experts (MoE)** design, functioning like a team of specialists where only the most relevant "expert" is activated per question.

For instance, when answering a medical query, DeepSeek doesn't waste resources processing unrelated data. Instead, it selectively engages **just 37 billion of its 671 billion parameters**, drastically cutting energy use while maintaining accuracy. This efficiency translates to **faster responses** and **lower operational costs**, making AI more scalable and sustainable.

Mimicking Human-Like Reasoning

Beyond efficiency, DeepSeek stands out for its **Chain-of-Thought (CoT) reasoning**. Unlike conventional AI that often delivers quick but superficial answers, DeepSeek breaks down complex questions into logical steps—sometimes even asking follow-up questions to refine its understanding. This mirrors human problem-solving, where we analyze, reconsider, and synthesize information before responding.

Additionally, DeepSeek employs **reinforcement learning (RL)**, allowing it to learn from interactions like a student refining their knowledge through feedback. Over time, this self-improvement mechanism helps the model generate **more precise and context-aware responses**.

Breaking Free from Hardware Dependencies

While most AI leaders depend on **NVIDIA's A100 and H100 GPUs**, DeepSeek has taken a bold step by using **Huawei's Ascend AI chips**. This strategic shift not only sidesteps U.S. export restrictions but also signals a move toward **technological self-reliance**. By reducing dependence on Western hardware, DeepSeek could influence the future of AI infrastructure, particularly in regions facing geopolitical trade barriers.

Ethical Considerations and Transparency

DeepSeek's rise hasn't been without scrutiny. Like many AI models trained on vast datasets, questions linger about its **data sources**, though no formal accusations have been made public. Additionally, as a China-based company, DeepSeek likely adheres to **local regulations on content moderation**, which may involve stricter filtering than Western counterparts. These factors highlight the ongoing global debate over **AI ethics, data governance, and censorship**.

A Research-First Vision for AI's Future

Founder Liang Wenfeng envisions DeepSeek as a **scientific trailblazer** rather than a purely profit-driven enterprise. This ethos is reflected in its **open-weight model releases**, fostering transparency and collaboration. Already, major platforms like **Perplexity AI** and Microsoft's **Azure** have integrated DeepSeek's technology, validating its potential.

As AI advances, DeepSeek represents a shift toward **smarter, leaner, and more adaptive systems**. By combining **MoE architecture, human-like reasoning, and hardware independence**, it challenges the assumption that bigger models are inherently better. Instead,

DeepSeek proves that the next leap in AI may come from **how machines think**—not just how much they compute.

In a world racing toward artificial general intelligence (AGI), DeepSeek's approach could redefine what's possible—ushering in an era where AI doesn't just answer questions but **truly understands them**.

As a tech student witnessing this AI revolution, what excites me most about DeepSeek is its dedication to thinking differently—both literally and figuratively. Its focus on reasoning, specialized expertise, and efficient learning feels like a major leap toward AI that thinks *with* us rather than *for* us.

DeepSeek is not just another chatbot. It's a system designed to reason, learn, and evolve—challenging the norms and proving that the future of AI isn't just about raw power, but intelligent, human-like thinking.

-Dhanya R Bhat
-USN:4GW23IS009

Neuromorphic Computing: The Future of Human-Like AI

Imagine a world where machines don't just process data—they think, learn, and adapt like humans. This is no longer just science fiction. Thanks to neuromorphic computing, we are on the cusp of a technological revolution that could redefine what it means for artificial intelligence to be "intelligent."

Traditional AI systems rely on massive power-hungry processors and static programming to complete tasks. While powerful, they struggle with real-time decision-making, learning on the fly, or understanding human emotions. Neuromorphic computing changes that paradigm entirely by mimicking the human brain's structure and function.

Why Neuromorphic Computing?

Today's world demands smarter, faster, and more efficient machines. Think of autonomous vehicles that need to make split-second decisions to avoid accidents, or robotic assistants that must respond to human emotions in real time. These scenarios require more than just computation—they require cognition.

Neuromorphic systems use artificial neurons and synapses to process information similarly to the brain. This allows machines to not only respond quickly but to learn and evolve without constant reprogramming.

How It Works

Neuromorphic computing is powered by a combination of innovative technologies:]

• **Spiking Neural Networks (SNNs):** These networks mimic biological neurons by firing signals only when necessary, vastly improving energy efficiency.
• **Neuromorphic Chips:** Processors like Intel's Loihi and IBM's TrueNorth can process sensory information in real time, enabling more adaptive AI.
• **Memristors:** These components function like brain synapses, retaining memory without needing power and allowing machines to function more independently.

Real-World Applications

Neuromorphic computing is already being tested in cutting-edge fields:
• **Robotics:** Intel's Loihi chip allows robots to learn from observation—just like children.
• **Space Exploration:** NASA is experimenting with neuromorphic chips in probes that must operate autonomously in deep space.

• **Healthcare:** Medical researchers are developing brain-computer interfaces that let paralyzed individuals control devices with their thoughts.

A Glimpse into the Future

The possibilities of neuromorphic AI are endless:

• Smartphones that recognize and respond to your emotional state.
• Wearables that detect health issues before symptoms appear.
• Autonomous drones that perform high-speed disaster rescue missions.
• Smart cities with adaptive traffic lights and energy systems.

In this future, AI won't just compute—it will understand. It will be intuitive, empathetic, and far more energy-efficient.

Challenges Ahead

Despite its promise, neuromorphic computing is still in its infancy. The hardware is complex and costly to manufacture. There's also no universal software platform, making integration difficult. As research continues, widespread adoption may still be years away.

The Next AI Revolution

As technology advances, the boundary between human and machine intelligence is becoming less distinct. Neuromorphic computing could be the bridge that brings us machines capable of thinking—not just calculating.

"The future of AI isn't just about speed and power; it's about intelligence. And with neuromorphic computing, that future has already begun." So, the question remains—**would you trust a machine that thinks like a human?**

~ By Aishwarya S L
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