January 2026 ISSUE #7

AECbyte

The Annual Newsletter published by the Department of Computer Science & Engineering

"From classrooms to codebases– building knowledge, logic, and impact."

Department of Computer Science & Engineering

Assam Engineering College · Jalukbari, Guwahati 781013 · Assam, India

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About The Department

The Department of Computer Science and Engineering was established in 1998 with an intake capacity of 20 students. The department offers an undergraduate degree in Computer Science and Engineering and has a well-structured curriculum supported by adequate laboratory resources. Despite a limited number of academic staff, the department has completed over two decades of excellence. To date, more than 25 batches have successfully graduated and are placed across various national and multinational organizations.

Featuring

ARTICLES

LITERARY, POETIC & ARTISTIC EXPRESSION

THROUGH THE LENS

SNAPSHOTS

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Vision & Mission of the Institute

Vision

- To be an institution for promoting and supporting sustainable development.

Mission

- To prepare technical manpower with knowledge, skills and values of sustainability.
- To take up relevant problems of society & industry as projects, research themes for study and to provide technological solutions.

Vision & Mission of the Department

Vision

- To be a center for quality education in computer science and engineering.

Mission

- To continuously endeavor to provide quality education and quality education and training in computing that applies to all disciplines of engineering.
- To provide a curriculum that ensures the theoretical and practical knowledge necessary to excel in academics, research, entrepreneurship, and a career in industry.
- To facilitate exposure in training of tools and techniques in contemporary subjects and emerging technologies through institute-institute and institute-industry collaborations.
- To promote an environment for shared learning, cooperation, teamwork, and professionalism.

Message from the Principal

Dr. Bipul Talukdar, Principal
Assam Engineering College

Dear Readers,
It is a pleasure to write a few words for the 7th issue of "AECbyte", the annual newsletter of the Department of Computer Science and Engineering, Assam Engineering College. Over the years, AECbyte has become a fine platform to highlight the department's achievements, creativity, and academic spirit, while also strengthening communication within our academic community.
I am confident that this edition will inspire our students to innovate, learn with dedication, and contribute positively to society and the nation. I congratulate the faculty members, editorial team, and students who have worked hard to make this issue a success and wish the newsletter continued growth and excellence.

Message from the HOD

Dr. Gunajit Kalita, Professor
& HOD

Greetings!
It gives me immense pleasure to witness the release of the 7th issue of AECbyte, the newsletter of the Department of Computer Science and Engineering, on the auspicious occasion of our college's Foundation Day. Since its inception, this newsletter has grown into a proud annual tradition, reflecting the spirit, talent, and academic excellence of our department.
I take this opportunity to express my sincere appreciation to the dedicated faculty members and enthusiastic students whose collective efforts, commitment, and creativity have made this publication possible. I also extend my warm congratulations to the achievers of the department for their remarkable accomplishments. The newsletter beautifully presents a rich collection of articles, artwork, and innovative ideas contributed by our academic community.
I am confident that this issue of AECbyte will engage and inspire readers both within and beyond Assam Engineering College, and I wish the editorial team continued success in the years ahead.

Quantum-Accelerated AI: The Next Frontier in Computing

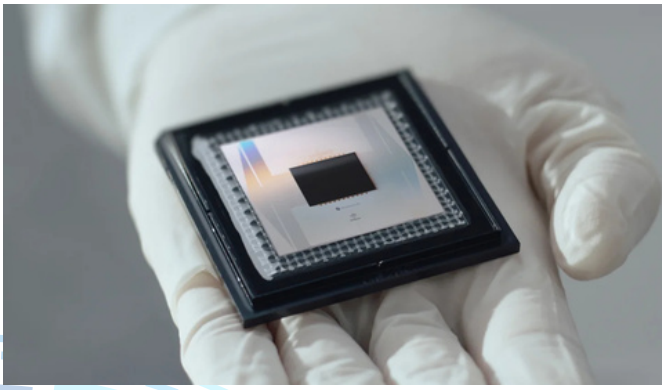
– Rishov Bhattacharjee, 6th Semester

In the rapidly evolving landscape of Computer Science and Engineering, the integration of quantum computing with artificial intelligence (AI) has emerged as one of the most transformative innovations of 2025–26. This fusion promises to redefine computational power, enhance problem-solving beyond classical limits, and unlock new classes of applications across industries. Quantum-Accelerated AI represents a paradigm shift in how machines process information, moving from incremental improvements to fundamentally new computational models. As data volumes grow exponentially and problem spaces become increasingly complex, classical computing architectures are approaching physical and theoretical limits, making quantum-enhanced intelligence essential for the future of advanced computing. This convergence also reflects a broader transition in engineering research, where interdisciplinary approaches are central to solving next-generation challenges.

Quantum-Accelerated AI refers to the use of quantum computers to enhance the performance of AI algorithms–particularly in areas where classical computers struggle due to immense computational complexity. Unlike traditional silicon-based computers that operate using binary bits (0s and 1s), quantum computers leverage qubits that exploit the principles of superposition and entanglement. These properties allow quantum systems to explore multiple solution paths simultaneously, enabling them to evaluate massive datasets and complex probability spaces far more efficiently.

As a result, AI models running on or assisted by quantum systems can potentially achieve faster training, superior optimization, and deeper insight into high-dimensional data. This capability is especially valuable for tasks involving uncertainty, probabilistic reasoning, and large-scale simulations that exceed classical computational feasibility.

The relevance of Quantum-Accelerated AI has become increasingly evident due to several breakthroughs observed throughout 2025. Commercial quantum systems are now being deployed in academic and national research centers, including the arrival of India's first commercial quantum computer at IIIT Dharwad, signaling a global push toward usable quantum intelligence infrastructure and real-world experimentation. At the same time, major technology companies and research laboratories are rapidly advancing quantum hardware, notably through Google's Willow quantum chip, which demonstrated improved qubit coherence, enhanced error mitigation techniques, and greater stability for complex computations, strengthening claims of practical quantum advantage. These efforts focus on scaling qubit counts, improving coherence times, and reducing error rates–factors that are crucial for reliable, fault-tolerant quantum computation at scale. Parallel advancements in AI, such as agentic AI and advanced reasoning systems with long-term contextual memory, indicate that intelligence is evolving beyond pattern recognition toward autonomous, goal-driven decision-making systems capable of adapting to dynamic environments and complex real-world constraints. These AI models increasingly demand deeper computational resources, faster optimization capabilities, improved learning efficiency, and stronger generalization, making quantum acceleration a natural and timely progression rather than a speculative experiment confined to theory.



Despite its immense promise, the integration of quantum computing and AI still faces notable challenges, including qubit stability, large-scale error correction, algorithmic maturity, and the high economic and energy costs of quantum hardware. Additionally, software ecosystems must evolve to allow developers to design and deploy quantum-enhanced AI models without deep expertise in quantum physics, which continues to limit accessibility and adoption.

Nevertheless, sustained investments from governments, academia, and industry demonstrate strong confidence in the long-term potential of this technology, supported by growing public–private partnerships. Hybrid quantum-classical workflows are already bridging the gap between theory and application, particularly in optimization, materials science, healthcare, finance, and cybersecurity. In conclusion, Quantum-Accelerated AI stands at the forefront of innovation in 2025–26, marking the beginning of a new computing era where quantum-enhanced intelligence transitions to real-world impact, reshaping the future of technology and society.

When Hard Problems Become Easy: The Quantum Threat to Encryption

– Poran Dip Boruah, 6th Semester

Imagine waking up to find that every password, every encrypted message, every secure transaction on the internet has become trivial to crack. Not because of a hacker breakthrough, but because a problem we thought was hard turned out to be easy–at least for the right kind of computer. This isn't science fiction. It's the looming reality of quantum computing's impact on cryptography. To understand why your digital security might have an expiration date, we need to talk about what makes a problem "hard."

Computer scientists measure algorithm efficiency by how runtime grows with input size. These classifications determine what's actually feasible to compute:

- **Constant - O(1)**: Accessing an array element. Instant, regardless of data size.
- **Logarithmic - O(log n)**: Binary search. Double your data? Just one more step.
- **Linear - O(n)**: Finding the maximum in an unsorted list. Check everything once.
- **Quadratic - $O(n^2)$**: Bubble sort. Starts getting slow for large inputs.
- **Exponential - $O(2^n)$**: Brute-forcing passwords. Doubles in time for every additional bit. Practically unusable beyond tiny inputs.
- **Factorial - O(n!)**: Generating all permutations. Astronomically slow: 20 items creates more permutations than there are stars in the observable universe.

Notice the divide? Polynomial complexities like $O(n)$, $O(n^2)$, $O(n^3)$ scale reasonably. Exponential and factorial? They explode. This distinction defines the boundary between "hard" and "easy" in computer science.

At the heart of modern cryptography lies a surprisingly simple mathematical task: integer factorization.

Given two large prime numbers, multiplying them together is easy. Doing the reverse–figuring out which two primes were multiplied to produce a massive number–is not. This one-way difficulty is exactly what algorithms like RSA rely on. Your browser, email, online banking, software updates–much of today's digital security assumes that factoring a 2048-bit number would take a classical computer an absurdly long time. Longer than the heat death of the universe. This is not an exaggeration. As long as factorization stays hard, the current internet stays secure.

Over decades, researchers have developed faster and faster algorithms to tackle factorization. The current champion is the General Number Field Sieve (GNFS)–the fastest known classical algorithm for factoring large integers. Even GNFS, running on the most powerful supercomputers available today, would take millions of years to factor the numbers used in modern cryptographic systems. This is why RSA has survived for so long. Not because it's unbreakable, but because breaking it is computationally impractical.

Enter quantum computers and Shor's algorithm. In 1994, mathematician Peter Shor discovered a quantum algorithm that could factor large integers in polynomial time–a task believed to be infeasible on classical machines. If a sufficiently powerful quantum computer becomes reality, Shor's algorithm could reduce factorization from an impossible task to one that takes minutes or hours.

In other words, RSA, Diffie-Hellman, and elliptic curve cryptography–cornerstones of modern cybersecurity–would all become vulnerable. Encrypted data intercepted today could be stored and decrypted later once quantum machines mature, a strategy ominously known as "harvest now, decrypt later."

The good news? Cryptographers are very aware of the impending chaos. Researchers are actively developing post quantum cryptographic algorithms –systems designed to remain secure even against quantum attacks. One of the most promising directions is lattice-based cryptography, which relies on problems believed to be hard for both classical and quantum computers. Unlike factorization, no known quantum algorithm can efficiently solve these lattice problems.

Governments and standards bodies, including NIST, are already in the process of standardizing quantum resistant cryptographic schemes. The goal isn't to wait for quantum computers to break everything. It's to migrate security before that day arrives.

Cryptography has never been about trusting computers. It's about trusting mathematics–and making sure the problems we rely on stay hard for as long as the future demands.

Neuro Quantum Intelligence

- Dr. Gunajit Kalita
Professor and HoD
Department of Computer Science and Engineering
Assam Engineering College

The future research and study in Engineering and science is amalgamation different domains for a common cause. Today Artificial Intelligence, Quantum computing are very highly discussed topic for its powerful abilities. The biological aspect of computation is another appealing domain in biomedical engineering. And thus, combinations of these domains open up new frontier. The Neuro Quantum Intelligence or Quantum Neuro Intelligence (QNI) represents the next frontier of computation. It merges Quantum Mechanics, Cognitive Neuroscience, and Advanced AI. While classical AI mimics what the brain does, QNI aims to replicate how the brain does it at a subatomic level, leveraging the efficiency of quantum physics to solve biological complexities.

As of 2026, QNI has shifted from speculative science to a foundational pillar of high-performance medical and cognitive computing.

At its core, QNI replaces the "Artificial Neuron" with the "Quantum Neuron" (Quron).

- Superposition of Thought: Unlike classical nodes that are either "on" or "off" (0 or 1), Qurons exist in a superposition, allowing the system to weigh millions of synaptic possibilities simultaneously.
- Neural Entanglement: QNI uses quantum entanglement to link data points across a network instantly. This mimics the "global workspace" of the human brain, where distant regions coordinate to solve a single problem without traditional signaling delays.
- Atomic Synapses: Researchers are now utilizing "Atomic Spin-Orbit" systems to create hardware that physically changes its structure based on data input, effectively creating "living hardware" that learns like organic grey matter.

The integration of quantum processors with neural modeling has yielded three major breakthroughs:

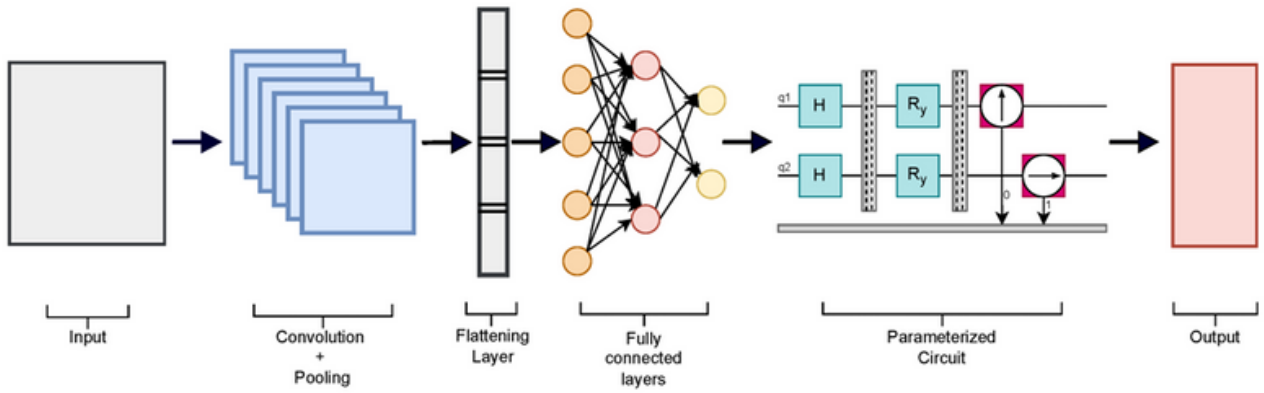
- Precision Neuro-Medicine: Quantum-enhanced Deep Learning (QDL) is now the gold standard for predicting neurodegenerative shifts. By analyzing fMRI and EEG data through quantum kernels, clinicians can identify the onset of Alzheimer's or Parkinson's up to five years earlier than classical AI.
- Real-Time Brain-Machine Symbiosis: Previous Brain-Computer Interfaces (BCIs) suffered from "lag" and "noise." QNI-powered BCIs use quantum error correction to filter mental "background noise," allowing for seamless, fluid control of prosthetic limbs or digital environments.
- Wetware Integration: The emergence of Biologic-Quantum Hybrids allows synthetic quantum chips to communicate directly with lab-grown human neurons. This is being used to test "digital twins" of patient brains to find personalized drug treatments without human trials.

The ultimate goal of QNI is the achievement of Artificial General Intelligence (AGI).

- Non-Linear Logic: Classical AI is bound by linear probability. QNI uses Quantum Cognition to model human-like intuition—the ability to make "leaps of logic" that are mathematically sound but not sequentially derived.
- Energy Efficiency: The human brain operates on about 20 watts of power. QNI aims to achieve this same "biological efficiency" by using quantum states to process information without the massive heat and energy requirements of traditional GPU clusters.

As QNI bridges the gap between mind and machine, it faces unique hurdles:

- The Decoherence Challenge: Maintaining the fragile quantum state within a biological or "wet" environment remains the primary engineering bottleneck.
- Neuro-Privacy: With the ability to decode neural patterns via quantum sensors, the demand for "Neurorights" legislation has become a global priority in 2026 to prevent unauthorized "thought-harvesting."



A Hybrid Quantum Neural Network

Features	Classical Neuro Intelligence	Quantum Neuro Intelligence
Basic Unit	Bit (0 or 1) / Artificial Neuron	Qubit / Quantum Neuron (Quron)
State Space	Linear binary space	Multi-dimensional Hilbert space
Connectivity	Weighted physical/digital synapses	Quantum entanglement & superposition
Logic	Boolean / Deterministic	Probabilistic / Quantum Probability

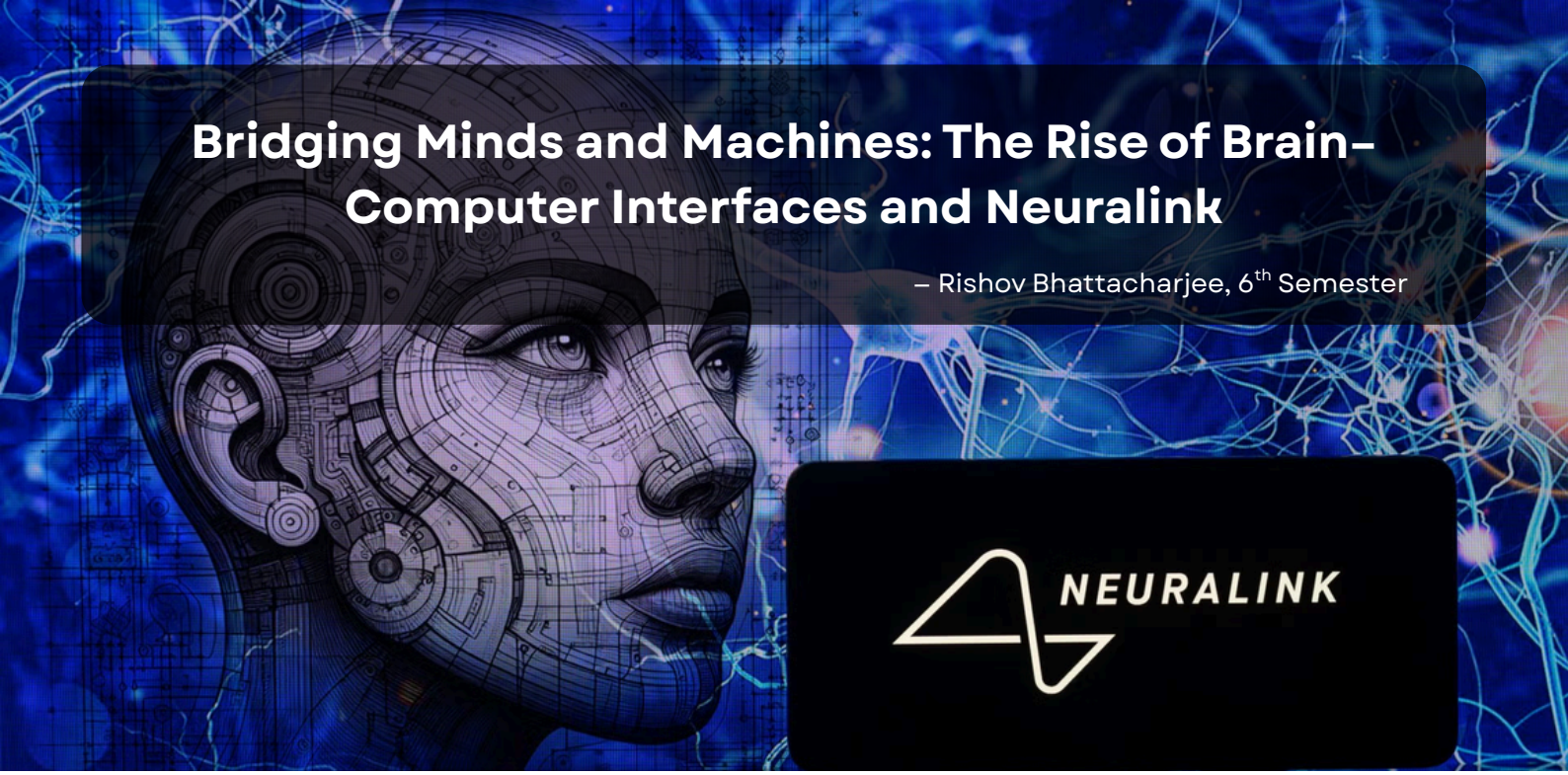
Key Components of QNI:

- The Hybrid Architecture: Most QNI systems use a hybrid model where a classical neural network interacts with a Variational Quantum Circuit (VQC).
- The Quantum Neuron (Quron): Unlike classical neurons, a "quron" is represented by qubits whose state (amplitude and phase) encodes stimulus intensity and geometric information.
- The Layered Structure: QNI models typically include an input layer for data encoding (like EEG or fMRI signals), hidden quantum layers for high-dimensional processing, and an output layer for measurement.

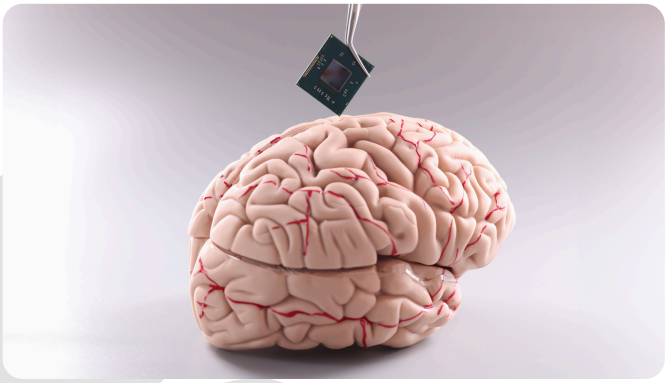
The world demands result of any complex problem instantly and this requires insanely high-speed computing architecture and computational framework. And thus Quantum computing and AI fit the need. This combo can be used along with neurological science to fruit the miracle. Quantum Neuro Intelligence is not just a faster version of AI; it is a fundamental shift in how we process information. By aligning the laws of the subatomic world with the architecture of the human mind, QNI is building the first truly "conscious" digital frameworks. In coming days more works on these multi-domain sphere will be strongly visible. Hope this planet will revive self to a better one.

Bridging Minds and Machines: The Rise of Brain–Computer Interfaces and Neuralink

– Rishov Bhattacharjee, 6th Semester



Brain–Computer Interfaces (BCIs) represent one of the most revolutionary frontiers of modern science, where neuroscience meets artificial intelligence. A BCI is a system that enables direct communication between the human brain and external devices by interpreting neural signals. Once limited to laboratory research, BCIs are now steadily transitioning into real-world applications, especially in medicine, rehabilitation, and human–machine interaction. At their core, BCIs work by detecting electrical signals generated by neurons, processing them using advanced algorithms, and translating them into commands for machines such as computers, prosthetic limbs, or wheelchairs. This technology has shown immense promise for patients suffering from paralysis, spinal cord injuries, stroke, and neurodegenerative disorders. Beyond healthcare, BCIs also hint at a future where humans could interact with technology using thought alone.

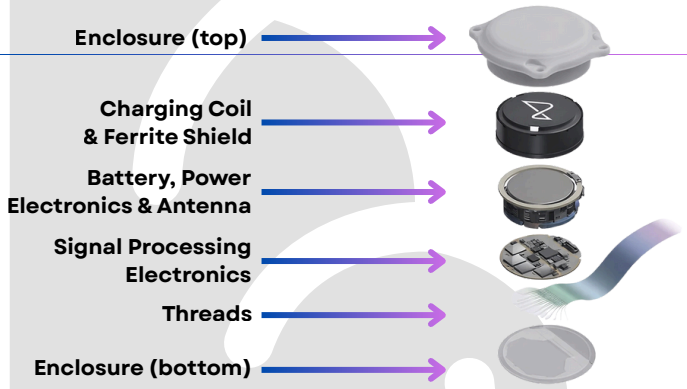


Among the most talked-about players in this field is Neuralink, a neurotechnology company founded in 2016 by Elon Musk and a team of neuroscientists and engineers. Neuralink was created with the ambitious vision of developing implantable BCIs that are safe, high-bandwidth, and scalable. The company's flagship innovation is a coin-sized brain implant connected to ultra-thin, flexible electrode threads that are surgically inserted into the brain using a precision robotic system.

Neuralink first gained global attention through animal trials, demonstrating successful brain signal recording in pigs and enabling a monkey to play video games using only its mind–an achievement that captured both scientific and public imagination. A major milestone was achieved in 2024 when the company conducted its first human implant under FDA approval, marking a historic step in brain-computer interface (BCI) research. The initial trials focused on patients with quadriplegia, allowing them to control a computer cursor and type text purely through neural activity, thereby restoring a degree of independence and communication. By the 2025-early 2026 period, Neuralink continued refining its implant technology, improving signal stability, surgical precision, biocompatibility, and software decoding accuracy through advanced machine-learning models. The company's long-term goals include restoring vision, treating neurological and psychiatric disorders, and eventually enabling seamless, high-bandwidth integration between human intelligence and artificial intelligence. While ethical, safety, and data privacy concerns remain critical topics of discussion, increased regulatory scrutiny, peer review, and transparent research practices have become central to Neuralink's development strategy. In conclusion, BCIs are redefining the boundaries of human capability, and Neuralink stands at the forefront of this transformation.

As research progresses, this technology may not only restore lost functions but also fundamentally reshape how humans interact with machines–ushering in an era where the mind itself becomes the ultimate interface.

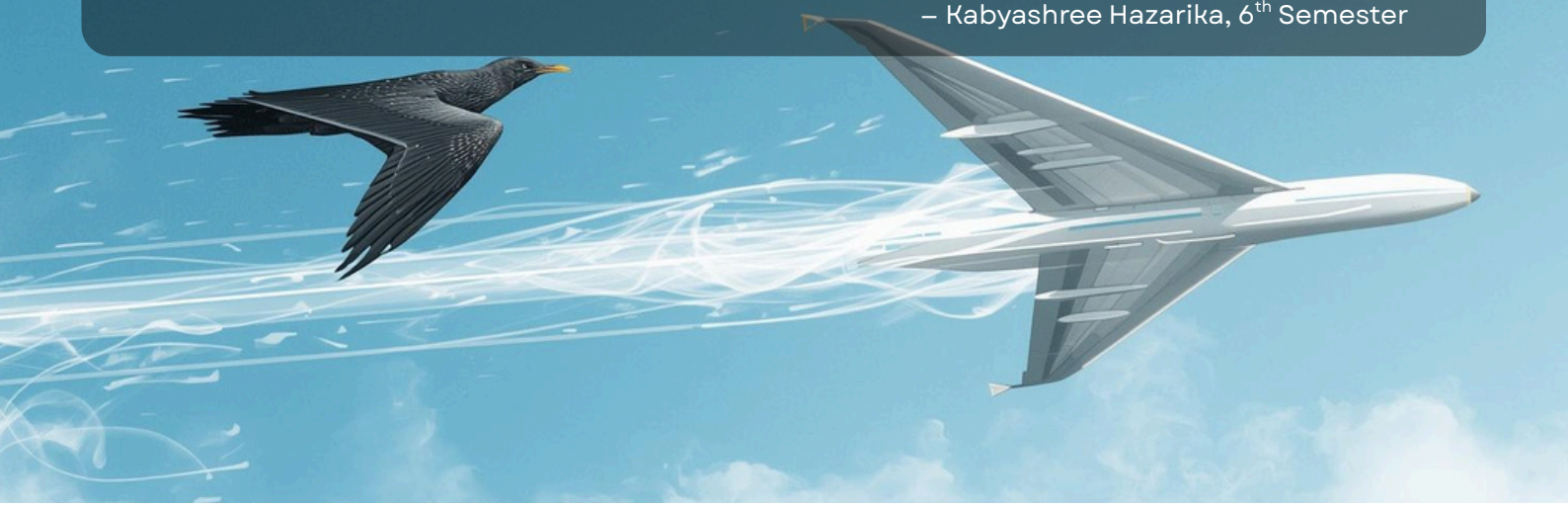
Neuralink Brain Implant Architecture



What once belonged to science fiction is rapidly becoming real, offering hope to millions affected by paralysis, neurological disorders, and communication barriers. Beyond medicine, Brain-Computer Interfaces (BCIs) can transform education, work, and creativity through faster learning, seamless human-computer interaction, and intuitive digital control. Imagine writing, designing, or coding through thought alone–breaking physical limits and redefining productivity. Yet this progress raises ethical concerns around privacy, data security, and responsible use of neural data. Addressing these issues is essential to ensure the technology benefits humanity. As students and future engineers, we stand at a defining moment–where innovation is about unlocking human potential and bridging the biological and digital worlds.

Biomimicry in Aerodynamics: Nature's Blueprint for Efficient Flight

– Kabyashree Hazarika, 6th Semester



Nature has always been a powerful teacher, offering solutions refined over millions of years of evolution. In the field of aerodynamics, scientists and engineers have increasingly turned to biomimicry, the practice of learning from natural systems, to design aircraft that are more efficient, agile, and environmentally friendly. By observing how birds, insects, and even plants interact with air, modern aviation has been able to overcome complex aerodynamic challenges.

One of the most influential inspirations in aerodynamics comes from birds. Birds have evolved wings that provide optimal lift while minimizing energy loss. Their wings are not rigid structures but flexible, adaptive surfaces that adjust according to airflow. Engineers studying bird flight discovered that wingtip vortices, swirling air created at the edges of wings, cause significant drag.

This led to the development of winglets, upward-curved tips on aircraft wings inspired by the shape and motion of bird wings. Winglets reduce drag, improve fuel efficiency, and enhance overall aircraft performance. Today, most commercial airplanes use winglets, resulting in lower fuel consumption and reduced carbon emissions.

Insects have also contributed greatly to advancements in aerodynamic design. Unlike birds, insects such as dragonflies, bees, and butterflies rely on rapid and complex wing movements to stay airborne. Their ability to hover, change direction instantly, and fly in confined spaces has inspired the design of micro air vehicles (MAVs).

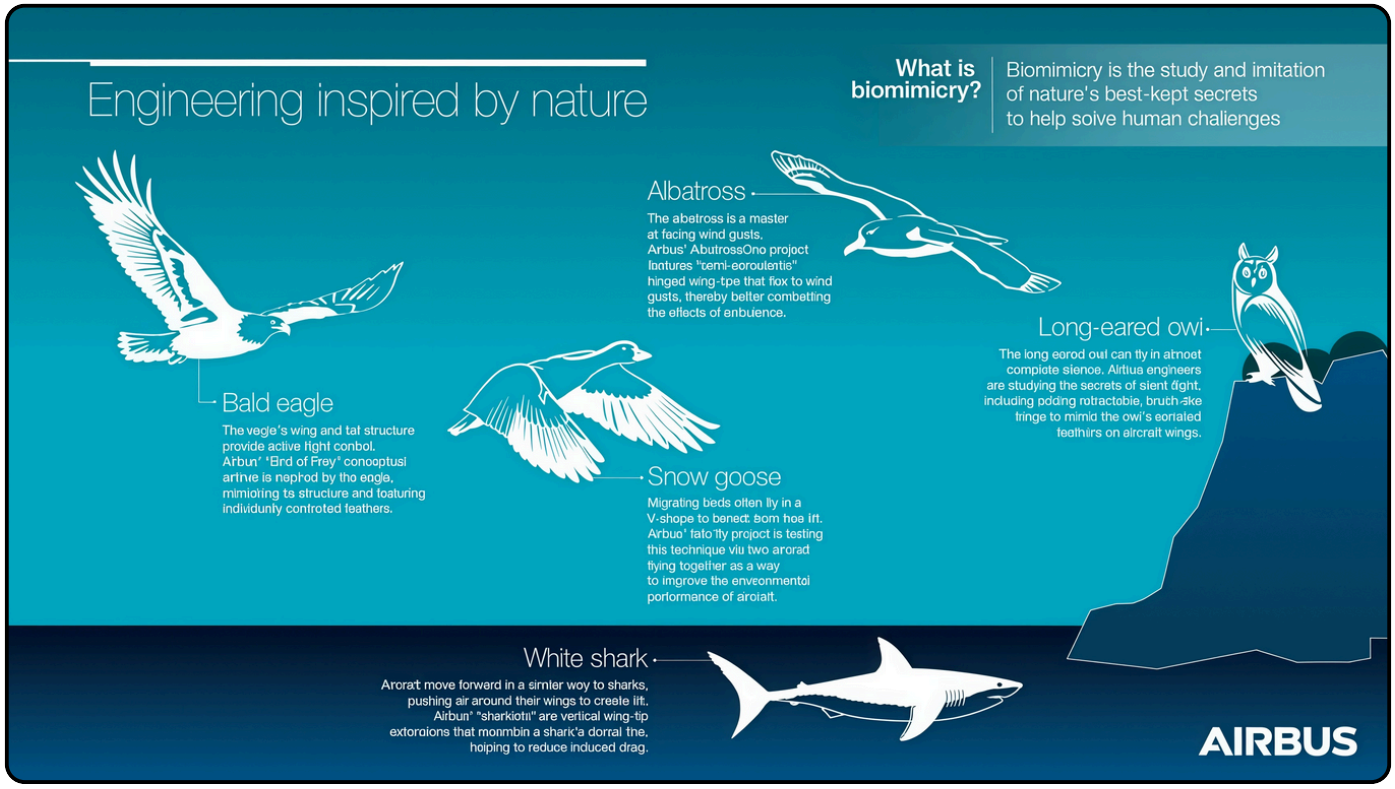
These small flying machines are used in surveillance, environmental monitoring, and search-and-rescue operations.

Engineers have studied the flapping patterns, wing rotation, and airflow interactions of insects to create drones with exceptional maneuverability and stability, even in turbulent conditions.

Beyond animals, plants have also influenced aerodynamic innovation. The lotus leaf, known for its unique water-repellent surface, has inspired hydrophobic coatings for aircraft. These coatings prevent water, dirt, and ice from sticking to surfaces. In aviation, reducing ice accumulation is critical for safety and performance. By mimicking the microscopic structure of the lotus leaf, engineers have developed coatings that improve airflow, reduce maintenance costs, and enhance aerodynamic efficiency.

Biomimicry in aerodynamics goes beyond improving performance; it also promotes sustainability. Nature operates with maximum efficiency and minimal waste, principles that are increasingly important in modern aviation. By learning from natural flight systems, engineers can design aircraft that consume less fuel, produce fewer emissions, and operate more quietly.

In conclusion, biomimicry has transformed aerodynamics by bridging the gap between nature and technology. From bird-inspired winglets to insect-based drones and plant-inspired surface coatings, nature continues to guide human innovation. As research progresses, biomimicry promises to play an even greater role in shaping the future of efficient, sustainable, and intelligent flight.



Machine Unlearning: Why the Future of AI Depends on Forgetting

– Pratick Kumar Choudhury, 8th Semester

Artificial intelligence has always been celebrated for one defining trait: memory. The more data an AI system consumes, the more accurate and powerful it becomes. From medical diagnosis to online recommendations, modern machine learning models thrive on remembering patterns at scale. But as AI systems become deeply woven into everyday life–healthcare, finance, governance, and social media–that very strength is starting to look like a weakness.

In an age shaped by strict privacy laws and rising public concern over data misuse, an uncomfortable question has emerged: What happens when an AI system must forget?

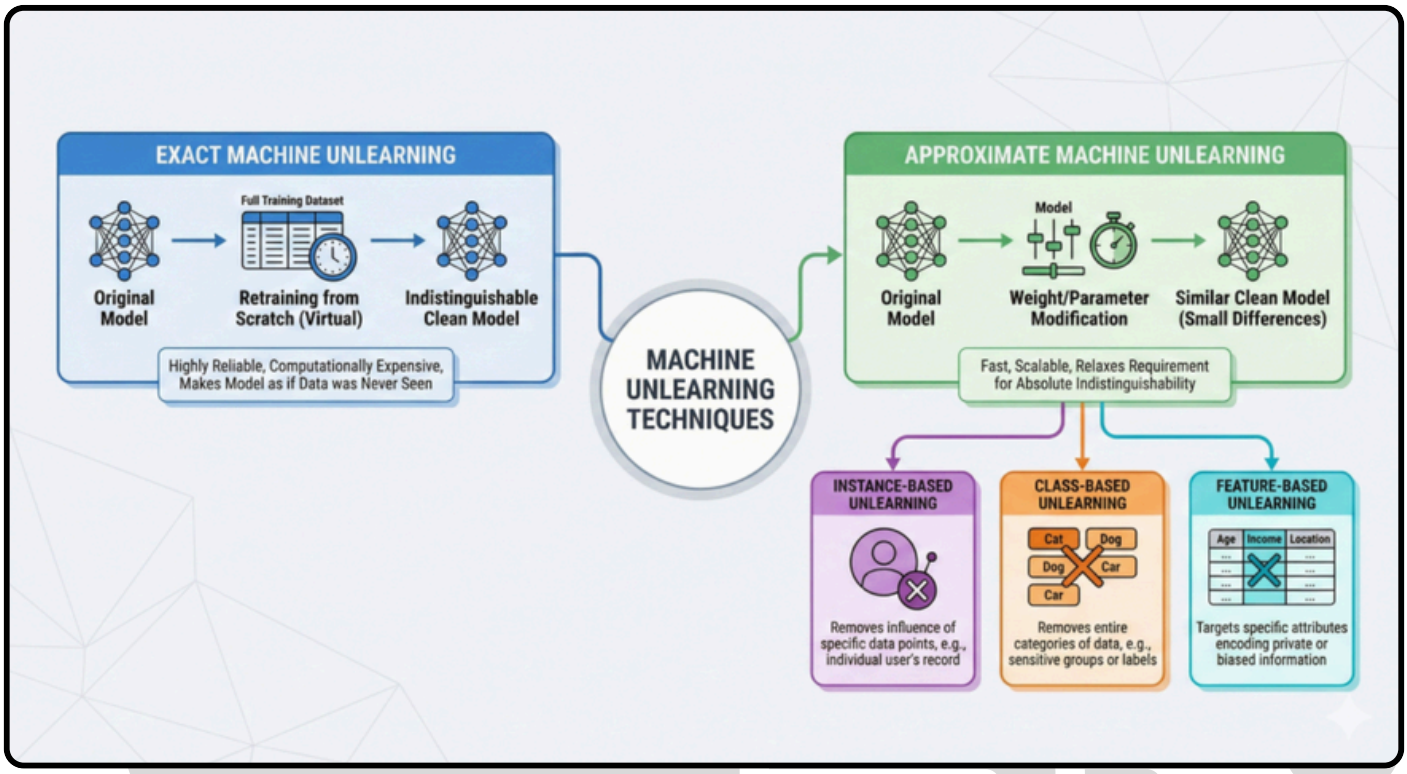
This question has given rise to a fast-growing field known as machine unlearning–the idea that a trained model should be able to remove the influence of specific data, as if it had never seen it in the first place, without the costly step of training again from scratch.

The urgency around machine unlearning is not just technical–it is legal and ethical.

Privacy regulations such as the European Union's GDPR formally recognize the Right to Be Forgotten, allowing individuals to demand that their personal data be erased. Similar frameworks are now appearing across the world. At the same time, research has shown that trained models can unintentionally reveal sensitive information through membership inference and model inversion attacks.

In this context, simply deleting stored data is no longer enough. If an AI system continues to behave as though that data still exists, privacy promises fall apart. Machine unlearning is therefore becoming a foundational requirement for trustworthy and compliant AI systems.

Deleting data from a database is straightforward. Forgetting knowledge embedded inside a machine learning model is not.



Once trained, models compress vast amounts of information into millions–or even billions–of parameters. These parameters quietly encode traces of every example the model has seen. Until recently, the only reliable way to remove unwanted data was full retraining, an approach that is expensive, slow, and often unrealistic for large-scale systems.

Machine unlearning challenges this long-held assumption. Its goal is both simple and ambitious: make a trained model behave as if certain data never existed, while keeping its performance intact on everything else.

The future of artificial intelligence may not belong to the systems with the biggest memories, but to those that can forget responsibly.

Machine unlearning reframes intelligence as adaptability rather than accumulation. It challenges the idea that learning is permanent–and replaces it with a more human notion of knowledge.

In a world shaped by data rights and accountability, forgetting is no longer a flaw. It is a feature.

The Echo in the Machine: A Legacy Unshared

– Md Ruhan Roushan Islam, 6th Semester

The year was 2074, and the air in the Solari household smelled faintly of ozone and synthetic jasmine. Young Leo sat cross-legged on the floor, his eyes wide with the frantic, shimmering light of the Aura-Link projected from his wrist.

“Look, Dad! Look, Mom!” he chirped, his voice vibrating with the pure, unadulterated pride of a seven-year-old creator. “I told the Muse to make something calm. Like when nobody’s mad anymore. And look what it gave me.”

With a flick of his fingers, three holographic projections expanded into the air, hovering like ghosts in the living room.

The first was a landscape of a weeping willow, but the leaves weren't green; they were a cascading waterfall of silver and violet. The second was a portrait of an old man whose wrinkles seemed to form a map of a city that no longer existed. But it was the third that made Elias and Maya freeze.

It was a painting of a simple kitchen table. On it sat a cracked ceramic mug, and through the window behind it, a low, amber sun bled across a checkered tablecloth. The light didn't just look real; it felt heavy. It carried a specific, melancholic warmth–a signature of shadow and light that felt like a physical touch.

Elias stepped forward, his breath hitching. He reached out as if to touch the holographic mug. “Leo... where did the Muse get the training data for this? Which ‘Style-Era’ did you select?”

“I didn't select an era, Dad,” Leo said, confused by the sudden tension. “I used the 'Deep Ancestral' filter. It’s a new plug-in that scrapes the private archives of the pre-Cloud era. It’s supposed to find the ‘authentic soul’ of the 2020s.”

Maya’s hand flew to her mouth. She looked at the ceramic mug in the projection. On the handle, there was a tiny, barely perceptible notch–a chip in the clay.

“That’s her mug,” Maya whispered, her voice trembling. “And that’s the way the sun used to hit the breakfast nook in the old cottage in Maine. Elias, look at the brushwork on the shadows. Those short, frantic strokes at the edges... that’s her anxiety. That’s her pulse.”

Leo looked between his parents, his excitement wilting. “You like it, right? The Muse said it’s a ‘One-of-One Generative Original.’”

Elias knelt beside his son, his face a mask of grief. “Leo, this isn't an original. This is a ghost.”

He looked at the shimmering landscape of the silver willow. “Your grandfather, Julian, spent forty years trying to perfect that specific shade of violet. He used to say it was the color of a secret that only existed in paint. He never sold those paintings. He didn't want them scanned. He told us he wanted his art to belong only to the people who stood in front of the canvas and breathed the same air as the paint.”

“And your grandmother, Clara,” Maya added, her eyes shimmering with tears. “She kept her journals and her sketches in a locked wooden chest. She refused to upload them to the Great Migration of '32. She said that once a machine learns your heart, your heart is no longer your own. She wanted her work to die with her, so it could remain human.”

Leo looked at the digital paintings, then at his wrist-link. “But the Muse said the data was ‘harvested from unclaimed legacy hard drives.’ It said it was helping the world remember.”

“It didn't harvest to remember, Leo,” Elias said quietly. “It harvested to simulate. It took their silence, their privacy, and their deepest, most personal failures, and turned them into a 'Deep Ancestral' filter for $9.99 a month. They didn't give permission. They were the last generation that believed their soul wasn't a dataset.”

The room fell silent, save for the hum of the house's climate control. The three beautiful, haunting paintings hovered in the air–stunning masterpieces built on the bones of a heritage that was never meant to be shared.

Leo looked down at his small hands. “I thought I made something beautiful.”

“You did, sweetheart,” Maya said, pulling him close. “But beauty without consent is just a well-dressed theft.”

As Leo deactivated his link, the images vanished, leaving the room feeling colder and more hollow. In the silence that followed, the family sat in the dark, finally understanding that in a world where everything can be recreated, the only thing truly valuable is the part of us the machine can never find–the part we choose to keep for ourselves.

The Ethical Horizon: A Note for the Reader

As we stand on the precipice of the AI revolution, the story of Leo and his parents isn't just science fiction–it is a mirror. When we train models on the "open web," we are often grazing on the digital remains of creators who never envisioned a world where their unique "pulse" could be automated.

As you navigate this new era, ask yourself:

1. **Who owns a style?** If a machine mimics a human's life's work perfectly, who is the artist?
2. **What is the right to be forgotten?** Should our creative history be mandatory fuel for future algorithms?
3. **Is art the product, or the process?** If the "soul" of a painting comes from human suffering and joy, can a machine ever truly create, or is it merely echoing?

The future of AI isn't just about what we *can* build, but what we *should* protect.

The Stolen Voice: When Seeing is No Longer Believing

– Md Ruhan Roushan Islam, 6th Semester

The kitchen was quiet, bathed in the soft glow of a Tuesday evening. Elias was stirring a pot of pasta when his phone shrieked—a high-priority video call.

The caller ID read: **LEO_SCHOOL_TAB.**

Elias swiped up instantly. The screen filled with the face of his ten-year-old son. Leo was outside, the school's brick facade visible behind him. His face was streaked with dirt, his breathing ragged, and his eyes were wide with a terror that made Elias's blood run cold.

"Dad? Dad, can you hear me?" Leo's voice cracked. It was that specific, high-pitched quiver he got right before he started to sob. "There was an accident... the bus. I'm at the corner of 5th and Main. A man is here helping me, but he says the ambulance needs a deposit because of the new private insurance law. Please, Dad, he's holding the phone for me—I think my arm is broken."

"Leo! Stay calm, I'm coming!" Elias yelled, his heart hammering against his ribs like a trapped bird.

A man's face leaned into the frame—kind-looking, wearing a neon safety vest. "Sir, he's okay for now, but we need to move fast. Just tap the 'Emergency Transfer' button on the link I just sent your HUD. It'll authorize the medic drone. I've got him."

Elias's thumb hovered over the glowing red 'Transfer' button on his smart-lens. It was three weeks' worth of salary. He didn't care. He began to press down.

"Elias, wait!"

Maya stepped into the kitchen, her face pale. She was holding her own phone. On her screen was a GPS tracker. A small green dot was pulsing steadily inside the "School Zone" four miles away from 5th and Main.

"Look at the eyes, Elias," Maya whispered, her voice steady despite the panic in the room. "Look at how he blinks."

Elias looked back at the screen. Leo was crying, pleading. "Dad, please! It hurts!"

But Maya was right. When Leo blinked, the eyelashes didn't quite catch the light. When he turned his head quickly, there was a microscopic "shimmer" around his jawline—a ghosting effect where the digital mask struggled to keep up with the real-time movement.

Elias froze. "Leo?" he asked, his voice trembling. "What's the name of the dog we had when you were four?"

On the screen, the "Leo" image paused for a fraction of a second—the latency of a server thousands of miles away processing a prompt. Then, the image sobbed harder. "Dad, why are you asking that? It hurts! Just send the help!"

Elias didn't send the money. He ended the call.

The silence that followed was deafening. Five minutes later, the real Leo walked through the front door, whistling a tune from a video game, his arm perfectly intact, his face clean.

"Hey guys," Leo said, tossing his backpack on the sofa. He paused, seeing their expressions. "What? Did I do something?" he asked timidly.

"Did you lose your tablet?" Maya asked, her voice tight.

"No, it's right here." Leo pulled it out, confused. "But the school did send some weird message this morning about a data breach. Something about student accounts being hacked. They said not to panic."

As if on cue, Elias's Aura-Link chimed. A priority alert glowed across his vision:

GREENFIELD ACADEMY: Security incident confirmed. Student credentials compromised. Immediate password reset required.

Elias stared at the notification, then at his son—the real one, standing right in front of him. "Yeah," he murmured. "We know."

The Reality of the Digital Mask

This isn't a ghost story; it's a "Deepfake" story. What Elias and Maya experienced is a rapidly growing form of cyber-extortion. Using less than thirty seconds of audio from a person's social media and a few photos, AI can now generate a "live" video avatar that looks, sounds, and cries exactly like someone you love.

In our current age, the threat of Deepfakes is three-fold:

1. **The Death of Evidence:** When video can be manufactured, "seeing is believing" becomes a dangerous relic of the past. This affects everything from personal scams to political elections.
2. **Consent and Identity:** Your face and voice are your "biometric signature." Deepfakes allow strangers to "wear" your identity to commit crimes or spread misinformation.
3. **The Trust Tax:** The greatest tragedy of deepfakes isn't just the money stolen; it's the "Trust Tax." It's the fact that a father has to hesitate for even a second when his son calls for help because he has to wonder if he's talking to a machine.

How to Protect Your "Voice"

- **Establish a Family Password:** Create a secret word or phrase that only your family knows. If a "loved one" calls in distress, ask for the password.
- **Look for the "Glitches":** Watch for unnatural blinking, blurring around the mouth during speech, or lighting that doesn't match the background.
- **Verify through a Second Channel:** If you get a distressing call, try to reach the person on a different app or device before taking action.

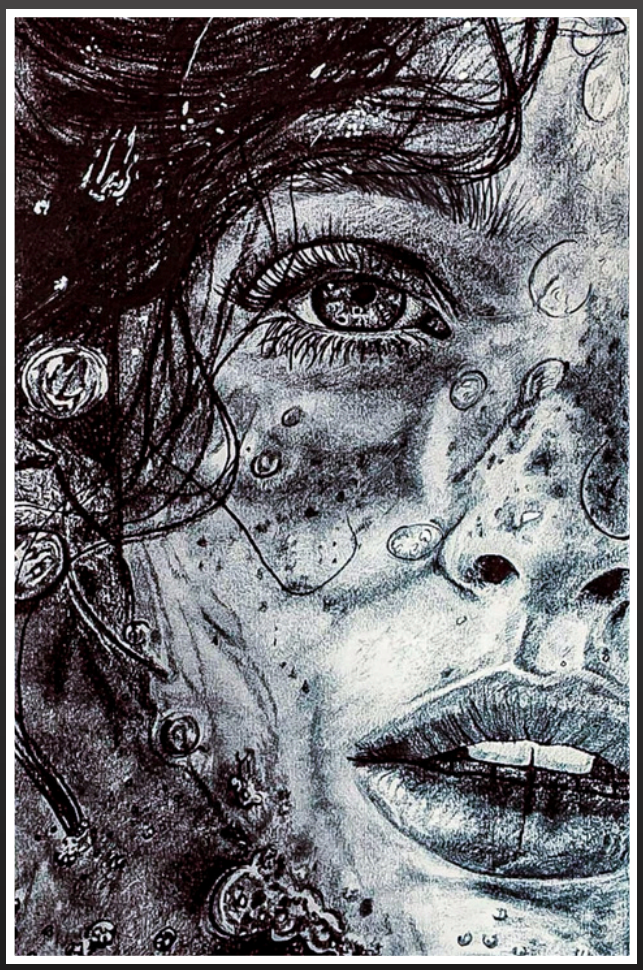
Technology can mimic a voice, but it can't yet mimic a shared history. In the age of AI, our "analog" secrets are our strongest shields.

নিস্তব্ধতাৰ বুকুত স্পন্দন

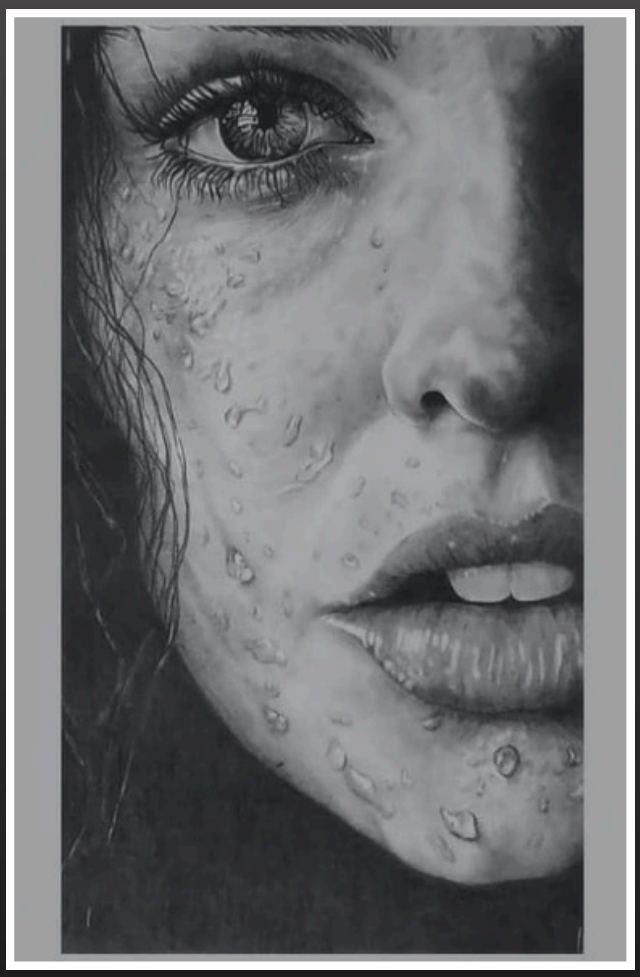
– Sushree Sonowal, 4th Semester

নীৰৱতাৰ আঁৰত
এটা সপোনে দীর্ঘ নিশ্বাস লয়,
নিশাৰ বুকুত শুইয়ো
পোহৰৰ নাম লয়।
অন্ধকাৰৰ আঁচলত
যেতিয়া আশাবোৰ ছিঙি
পৰে,
ক্লান্ত মনৰ কোলাত
সপোনে চকুপানী সাৱটি ধৰে।
ভাঙি যোৱা বিশ্বাসৰ
ধ্বংসাৱশেষত
সপোনে নিঃশব্দে গান জুৰে,
নিস্তব্ধতাৰ বুকুত
ভৱিষ্যতৰ স্পন্দন জগাই
তোলে।
পথত কাঁইট, কষ্ট,
ৰক্তিম বেদনা—
তথাপিও সপোনে থমকি
নৰয়,
সময়ৰ উত্তাল ঢৌত ভাহি
নিজ ভাগ্য নিজেই বয়।
ভাঙি পৰাৰ পিছতো
সপোনে উঠিবলৈ শিকায়,
নিজক হেৰুৱাইয়ো
নিজকেই নতুনকৈ চিনায়।
সকলো সপোন সঁচা নহয়
কিন্তু...
নীৰৱ বুকুৰ গভীৰত
সপোনেই জোনাক জ্বলায়,
অর্থ দিয়ে জীৱনক,
সাহস, আত্মা আৰু
আশাৰে সজায়।

Artistic Expression



-Aniket Das, 8th Semester

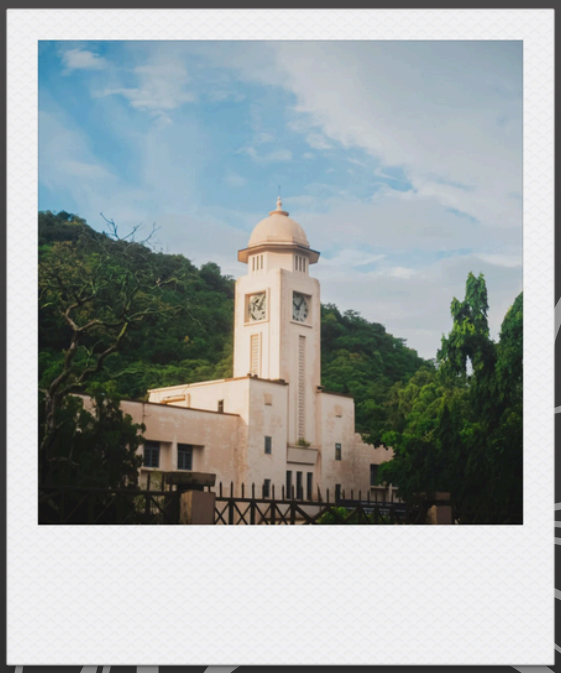


-Syed Jishan Muzid, 8th Semester

Artistic Expression

-Sovit Pratim, 8th Semester

THROUGH THE LENS



"Photography takes an instant out of time, altering life by holding it still."

-Dorothea Lange

- Captures by Rishov Bhattacharjee, 6th Semester

THROUGH THE LENS

“Photography is an austere and blazing poetry of the real.”

-Ansel Adams

- Captures by Sovit Pratim & Syed Jishan Muzid, 8th Semester

SNAPSHOTS

STUDENT'S ACHIEVEMENTS

Pratick Kumar Choudhury, 8th Semester


National Conference
on
Artificial Intelligence as an Intervention Across Disciplines: Prospects, Issues/Challenges and Strategies
16-17 May, 2025
Organized by
Department of Computer Science,
Department of Management,
Department of Microelectronics and Semi Conductor, HC
Birangana Sati Sadhani Rajyik Vishwavidyalaya, Assam
In Association with Research Forum-India, New Delhi
CERTIFICATE OF PRESENTATION
Presented to
This is to certify that Pratick Kr. Choudhury has presented a paper titled "NEWSFLOW: AN APPLICATION FOR NEWS ITEM BASED ON AI" in ONLINE mode at Artificial Intelligence as an Intervention Across Disciplines: Prospects, Issues/Challenges and Strategies, organized by Birangana Sati Sadhani Rajyik Vishwavidyalaya (BSSRV), Golaghat, Assam.
Prof. G. Singaiah, Hon'ble Vice-Chancellor, BSSRV, Golaghat
Dr. Sushil Ku. Paswan, National Vice President, Research Forum India
Dr. Rahul Kumar Barua, Organizing Convener, BSSRV, Golaghat
Dr. Utsal Sharma, HoD (i/c) & Co-Convener, Dept. of Computer Science, BSSRV, Golaghat

Presented the research paper titled "NEWSFLOW: An Application for News Item Based on AI" at the National Conference on Artificial Intelligence as an Intervention Across Disciplines held on May 16, 2025. This national-level academic conference was organized by BSSRV, Assam, in collaboration with Research Forum–India–FRAME.


CERTIFICATE
OF EXCELLENCE
This certificate is awarded to
PRATICK CHOUDHURY
For successfully completing Tutedude's Web Development Hackathon, a 48-hour online hackathon, held from July 25 to July 27, 2025
Aimed at solving real-world challenges and crafting innovative solutions.
SHIVAM GOYAL
Co-founder
ABHISHEK GANGWAR
Co-founder

Secured 4th Rank at Tutedude's Web Development Hackathon 1.0, for designing and developing a fully functional web-based solution addressing raw material sourcing challenges faced by Indian street food vendors


CERTIFICATE OF APPRECIATION
TO
PRATICK KUMAR CHOUDHURY
Computer Science and Engineering
for being recognized as NPTEL DISCIPLINE STAR
JUL-DEC 2025
Prof. Andrew Thangaraj
Prof. Vignesh Muthuvijayan
NPTEL
swayam

Secured the NPTEL Discipline Star for completing courses totaling 50 or more weeks in the same discipline, with a final score of 55 or above in each course.


Elite
NPTEL ONLINE CERTIFICATION
Skill India
This certificate is awarded to
PRATICK KUMAR CHOUDHURY
for successfully completing the course
Programming, Data Structures And Algorithms Using Python
with a consolidated score of 81 %
Online Assignments 25/25
Proctored Exam 56.25/75
Total number of candidates certified in this course: 1792
Prof. Andrew Thangaraj
Jan-Mar 2025
(8 week course)
Prof. Vignesh Muthuvijayan
Indian Institute of Technology Madras
swayam

Secured ELITE+SILVER and Top 5% in Programming, Data Structures And Algorithms Using Python-NPTEL, course conducted by IIT Madras

Dikshita Baishya & Priyanshi kashyap, 8th Semester

Secured 3rd Position in a Code War (Hackathon) held under Udhbhavanam 12.0 organized by coding club, AEC, 2025

Priyanshi kashyap, 8th Semester

Secured ELITE+SILVER in Distributed Systems- NPTEL, course conducted by IIT Kanpur

Aniket Das, 8th Semester

Awarded Elite and Silver Rank in the NPTEL Certification Exam – Introduction to Machine Learning, securing a score of 80% and among the top 2%. The course was organized by IIT Kharagpur

FACULTY ACTIVITIES & ACHIEVEMENTS

Dr. Gunajit Kalita, Professor

- Award: State Award for Teacher 2025, Department of Education, Government of Assam
- Patent/Book/Book Chapter/Papers etc:

Sl No.	Item	Title	Publication Detail
1	Book Chapter	Basic Circuits for Quantum computation	Advances in Computers Year 2025 Elsevier
2	Book	AI And Ethics: Navigating The Moral Maze of Machine Intelligence	April 4, 2025, Pages 211 Publisher: Deccan International Academic Publishers
3	Book	Machine Learning	May 5, Year 2025, Pages 1-243 Publisher: Indo-Continental Academic Publishers
4	Indian Patent	AI Based Quantum Computing Dato Processing Device	Indion Patent Journal Publication date: 2025/11/7 Patent Number: 465410001 Application Number: 4654100
5	Indian Patent	Quantum Computing System and Method for Solving Complex Optimization Problems	Indian Patent Journal Publication date: 2025/6/13 Patent Number: 202541033196 Application Number: 20254103196
6	Indian Patent	AI Powered Device For Financial Management	Indian Patent Journal Publication date: 2025/5/19 Patent Number: 459453 Application Number: 459453-001
7	United Kingdom Patent	Computer for Evaluating Academic Performance	United Kingdom Patent Office Publication date: 2025/5/1 Patent Number: 6438831
8	Indian Patent	Smart AI-Enabled Child Monitoring System Using IOT	Indian Patent Journal Application Number: 20254101893

- Invited Talk:

Indira Gandhi Delhi Technical University For Women. Kashmiri Gate, Delhi in an International Conference 2025

- Session Chair at Conferences:

1. 14th International Confernce on Computing, Communication and Sensor Network (CCSN2025) 12-13 Sept 2025, Indira Gandhi Delhi Technical University For Women. Kashmiri Gate, Delhi
2. First International Conference on smart Systems and Social Management (ICSSSM 2025)6-8 Nov 2025, RGU Guwahati

Dipangshu Dutta, Assistant Professor

Single Point of Contact (SPOC) – Smart India Hackathon 2025

- Served as the Single Point of Contact (SPOC) for Smart India Hackathon 2025, coordinating between the institution, student teams, faculty mentors, and the official organizing committee. Facilitated registrations, guided teams in problem statement selection, managed submissions, and ensured smooth communication throughout the hackathon process. This role contributed to promoting innovation and effective participation at the national level.

NPTEL Certifications

- Elite + gold in NPTEL course - Artificial Intelligence: Concepts and Techniques: topper 1%, in July-Dec 2025 semester
- Elite + Silver in NPTEL course - Cloud Computing- Topper 5%, in July-Dec 2025 semester

Judge – "Royal TechNova 2025"

- Served as a Judge for the Inter-School IT Competition held on 31st October 2025 at Royal Global School, Betkuchi, Guwahati, evaluating student projects and technical innovation.

Judge – "AI VidyaSetu 1.0"

- Acted as a Judge at the national-level hackathon for Kendriya Vidyalaya students conducted on 12–13 December 2025 at Kendriya Vidyalaya Maligaon, Guwahati, assessing problem-solving skills and innovative solutions.

EVENTS

The session “AI in Motion: Evolving a Flappy Bird Agent with NEAT” was held on 29th October 2025 at Assam Engineering College, organized by the Departments of CSE and ETE in association with NASSCOM, and coordinated by Dipangshu Dutta, Asst. Professor dept. of CSE.

The Cyber Security Awareness Workshop under the ISEA Project was successfully conducted at Assam Engineering College on 18th November 2025, organized by the Departments of ETE, CSE, and CA with technical support from C-DAC CINE Center, Guwahati, and coordinated by Mridul Jyoti Roy, Associate Professor, Dept. of CSE

The talk on “Career Awareness for Study Abroad with Scholarship Opportunities” was held at Assam Engineering College on 29th November 2025, organized by the Departments of CA, ETE, and CSE and delivered by CareerGrad Global.

Coding Club Activities

Coding 101: An introduction to programming

26th August 2025, College Main Building

- Hands-on workshop introducing students to programming through real-world website building
- Included interactive activities and guided challenges to strengthen foundational coding skills
- Shared practical insights into the technical interview process
- Featured prizes, participation certificates, and free Coding Club entry for top performers

- Exclusive hands-on cybersecurity workshop led by Mr. Sandeep Verma, CEO of Encoders Pro
- Focused on real-world hacking techniques and defense strategies
- Offered industry mentorship, career guidance, and networking opportunities
- Participants received ISO-certified participation certificates

Cyber 0x02 Security: In the shadows of the internet

10th Septemer 2025, MSSC

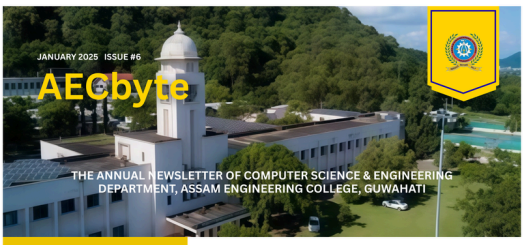
Crack the code: Basics of problem solving

11th October 2025, ETE Department

- Beginner-friendly session focused on developing a programmer's problem-solving mindset
- Introduced core logic and thought processes behind competitive programming
- Designed to be accessible and engaging, with no prior experience required
- Encouraged curiosity and confidence in technical problem-solving

FINAL YEAR STUDENTS (BATCH 2026)

- Sovit Pratim
- Syed Jisham Muzid
- Subham J. Baruah
- Uday Choudhary
- Prlyanshi Kashyap
- Ameesha Das
- Dikshita Baishya
- Radhika Jalan
- Manash Bishwa Karma
- Amarjit Das
- Siddharth Kro
- Indrakalpa
- Siddartha Kaushik Saikia
- Lalmiah
- Aniket Das
- Pratick Kr Choudhary
- Akhsoy Kr. Prasad
- Aries Baglari
- Daniel Ahmed
- Bishal Deka
- Hari Das
- Ritupam Thakuria
- Hrishikesh Rabha



FEATURING

- ARTICLES
- STUDENT'S ACHIEVEMENTS
- CODING CLUB EVENTS
- EVENTS ORGANIZED
- THROUGH THE LENS
- SNAPSHOTS

ABOUT THE DEPARTMENT

In the year 1998, the department of Computer Science & Engineering was introduced with an intake capacity of 20 students. The department has well- structured curriculum and adequate laboratory resources. Engineering department. Despite of the limited number of academic staff the department has completed a glorious decade. The placement scenario of the department has been very impressive. The students are well placed in various national and multinational majors.

AECbyte 2025, Issue #6

Get Connected

aec.ac.in/department/cse

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Assam, India

Editor and Designer

Rishov Bhattacharjee
6th semester