ZETTA

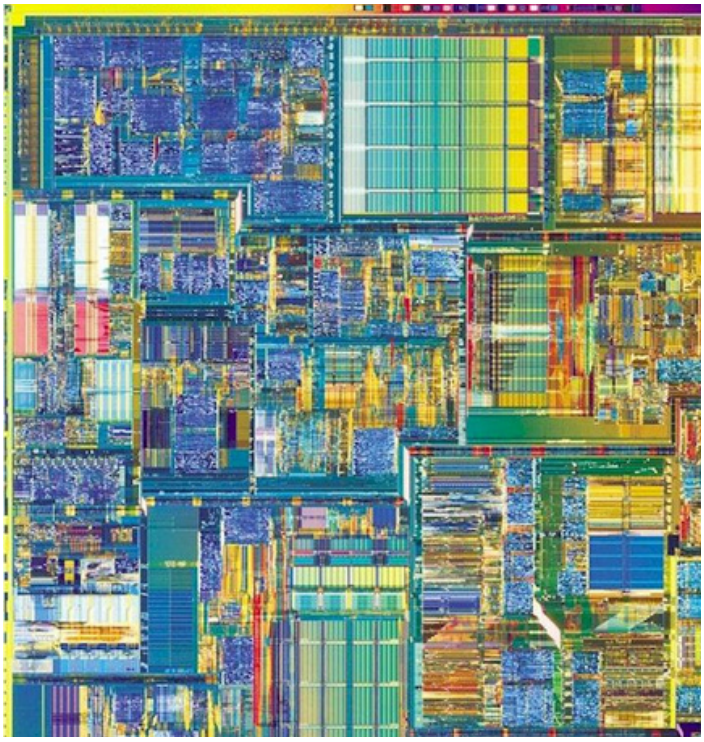
"THE WAY TO THE TECHNICAL WORLD"

AUGUST 2023 / 2ND EDITION

FEATURING LINUS TORVALDS

FASTER THAN A THOUSAND MINDS, IT KNOWS ONLY TRUTH OR FALSE.

A SILICON CHIP CONTAINS MILLIONS OF TINY TRANSISTORS



Department of Computer Science

Pragjyotish College

ZETTA

“ THE WAY TO THE TECHNICAL WORLD ”

EDITORIAL BOARD MEMBERS

Department of Computer Science

Pragjyotish College

PREFACE

In the realm of knowledge, where words are brushstrokes and ideas are the canvas, we proudly present to you the latest edition of Zetta - our department's e-magazine. Within these virtual pages, we unveil a tapestry woven with intellect, creativity, and the collective spirit that defines our campus.

Zetta is not just a collection of articles; it's a symphony of thoughts and expressions that reflect the diverse and vibrant community we are a part of. As we navigate the ever-evolving landscape of education, this e-magazine stands as a testament to our unwavering commitment to learning, growth, and exploration.

We extend our deepest gratitude to our esteemed Head of Department,
Dr. Masih Saikia, whose guidance and dedication have been the driving force behind our academic pursuits. His vision has paved the way for us to push boundaries, challenge conventions, and embrace the thrill of discovering new horizons.

Heartfelt acknowledgments are due to the contributors of Zetta, whose creative energy breathes life into these digital pages. Your words, art, and insights are the building blocks of inspiration that bind us together as a community of curious minds.

As you immerse yourself in the articles and creations within, may you find yourself transported into a world of imagination, contemplation, and engagement. Zetta is more than a magazine; it's a reflection of our shared aspirations, a snapshot of our collective journey.

Come, wander through the corridors of ideas, savor the essence of innovation, and be a part of this ever-evolving narrative. Welcome to Zetta - where knowledge finds its voice.

We sincerely regret any inadvertent errors made during the process of making Zetta.

Warm regards,
The Editorial Board
Zetta

FROM THE PRINCIPAL'S DESK

I am happy to know that the department of Computer Science, Pragjyotish College is bringing out the 2nd edition of it Annual E-Magazine ' **ZETTA** (the way to the technical world) ' . My hearty congratulations to the students and faculties of the department for having taken the intiatives to publish the E-Magazine to covey its mission and vision.

I hope the Annual E-Magazine ' **ZETTA** ' is a tool to express the creative pursuits of the department and takes the activities of the Department of Computer Science far and wide.

My sincere greetings to the department along with its students on the occasion. Hope the magazine is well read and appreciated.

Dr. Manoj Kr. Mahanta
Principal
Pragjyotish College
Guwahati

FROM THE HOD'S DESK

I take immense pleasure in conveying my heartfelt congratulations to all of you and the editorial team of **Zetta**, **Edition-2**, 2023, College magazine always portrays thoughts, ideas, dreams, creative writings and aspirations of young minds and it is a platform that provides exposure and freedom to express your views. I congratulate the efforts of the team in compiling and unleashing the hidden potential of the students and making this magazine very purposeful and meaningful.

Zetta means **Zetta byte** = 10^{24} = 2^{80} is to reflect enormous amount of wisdom, knowledge and intelligence...; through this e-magazine the students have made conscious efforts to express their thoughts, and ideas in a very beautiful manner.

'**Zetta**', the very first edition was packed with multiple achievements from the students and professors, the faculty members. It was great to see how much the department had done in spite of a nationwide lockdown, 2019-2022.

The idea of newly enrolled students as well as the senior semester students of our CSC Department was in fact brilliant and it marveled me to see how this department is willing to nourish their pupil technologically, but also seek out their creative and passionate sides. **Version 2** of '**Zetta**' is highly anticipated and I look forward to reading all the new feathers that the department has added to their cap in these past months.

I appreciate the efforts of Principal, Staff and Students for bringing out this magazine successfully amidst all the changes and challenges of **NEP-FYUGP** (New Education Policy based Four Year Under-Graduate Programme) implemented by the Colleges and Universities in our state as per the initiative taken by Govt. of Assam, this year. We at Pragjyotish College always believe in giving our best to our stakeholders and always instill in them strong values like ownership towards self and environment around us, commitment in all that we do and involve completely in all responsibilities that is entrusted and always follow the ethical path to reach our goals.

I once again wish the team all the very best in all your endeavors and may you explore new dimensions in the process of teaching and learning and in turn these learnings should benefit the stakeholders and society at large. Let's all join hands in grooming the young minds and contribute to the Nation building.

Dr. Masih Saikia
HoD, Computer Science
18th August, 2023.

EDITORIAL

Kindness Through Time: A Tale of Compassion from Ancient Origins to High-Tech Futures

A nearly two-million-year-old jawbone was found in Dmanisi, Republic of Georgia, in the early 2000s. It belonged to a member of the Homo-Erectus family, one of our now-extinct human cousins. He was a male who was about 40 years old at the time of his death. The jaw was missing all its teeth except for one. Anthropologists know he lived a long time like that, which means someone was helping him to eat. Two million years ago, someone was feeding him. Someone cared about him; maybe someone loved him. Back in time, before human history, even before our species began, a person or a group was practicing compassion. Someone was being kind for the sake of being kind.

We cannot help but think about that two-million-year-old jawbone. Imagine a little group of our evolutionary cousins huddled together around a fire, knowing little, understanding even less, before recourse to reason, law, or history, before currency and standing armies, before the knowledge that one day, two million years in the future, we, their cousins, will build this incredible global project of civilization. If somehow we could have shown our evolutionary cousins and ancestors just how far homo sapiens would one day come, everything would seem alien to them, except perhaps for compassion. Because though they lived in perpetual ignorance and were incorrect about almost everything all the time, from that jawbone in Georgia to other ancient anthropological evidence telling almost exactly the same story, we know that they had kindness. It is the same kindness that today raises our kids and takes care of our elderly. It is the same kindness that provides disaster relief and medical aid. It is the same kindness that sustains friendships and writes love letters. Fast forward to the present, we find ourselves on the cusp of a new era driven by AI, automation, and an interconnected digital landscape. However, as we navigate this technological landscape, we must remember that while algorithms can compute and machines can automate, they lack the essential qualities that define us as humans. Kindness and compassion are not products of algorithms; they stem from the intricate web of human emotions, experiences, and connections. As we design and integrate AI into various aspects of our lives, it's crucial to remember that these systems can only reflect the values we instill in them. They can mimic human behavior to some extent, but they cannot truly feel or understand empathy the way we do.

In this era of high technology, we should view AI and other advancements as tools that can amplify our capacity for kindness rather than replace it. Just as someone cared for the homo-erectus with missing teeth, we have the responsibility to care for those around us, to extend compassion to those in need, and to ensure that progress benefits everyone. As we continue to embrace the future, let us remember the lessons from our ancient past and carry forward the legacy of kindness that has defined us for millions of years.

Jyotiraditya Deka
Editor, Zetta

“The thing with technology is if you do something stupid you can fix it.”

– **Linus Torvalds**

THE MIND BEHIND LINUX

Linus Torvalds, a Finnish-American computer scientist, is renowned for his instrumental role in creating the Linux operating system. Born on December 28, 1969, in Helsinki, Finland, Torvalds' work has had a profound impact on the world of technology.

In **1991**, while he was a student at the University of Helsinki, Torvalds began working on what would eventually become the Linux kernel. He initially intended to create a free and open-source alternative to the Unix operating system, and his project quickly gained traction within the open-source community. Torvalds' decision to release the Linux kernel under the **GNU** General Public License (GPL) allowed developers to modify, distribute, and share the code freely, fostering collaboration and innovation.

Through his leadership and the collaborative efforts of a global community of developers, the Linux operating system rapidly evolved into a versatile, stable, and widely used platform. Its success extended beyond personal computers to servers, supercomputers, embedded systems, and more. Linux has become a cornerstone of modern computing, powering a substantial portion of the internet, smartphones, cloud infrastructure, and various other devices and systems.

Linus Torvalds is not only known for his technical contributions but also for his direct, straightforward communication style. His strong opinions and willingness to engage in open debates within the Linux community have made him a prominent figure in the world of software development. He has played a critical role in shaping the development process and the culture of open-source software.

Throughout his career, Torvalds has received numerous awards and recognitions, including the Millennium Technology Prize in 2012, often referred to as the "Nobel Prize of Technology." Despite his significant achievements, he remains deeply committed to the principles of open-source software and continues to be actively involved in the development of the Linux kernel.

In essence, Linus Torvalds' contributions have not only revolutionized the software industry but also exemplified the power of collaborative, community-driven development. His work has demonstrated the potential for global innovation when talented individuals come together to create something truly remarkable.

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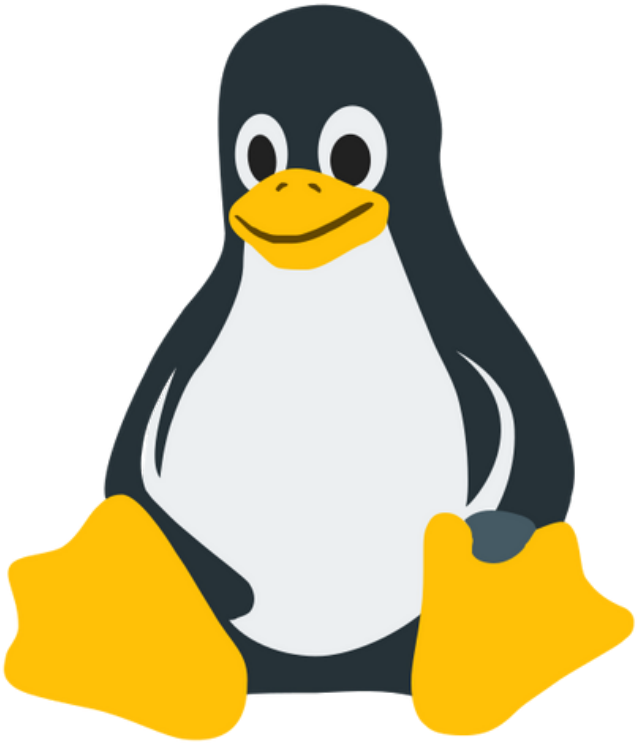

(***Fig:*** ***The Logo of Linux***)

An **AI** Generated image using **Stable Diffusion ver. 1.5**

CONTENTS

E-MAGAZINES, OR E-ZINES

The market in change from Printed Media to Digital counterpart

Digital Magazines has a few Synonyms, such as : e-Magazines, Tablet-Magazines, Online Magazine, Webzine, e-Zines, eZines.
An eMagazine or in short eZines can be sent as an HTML document by e-mail or integrated into a website. In addition, eZines can also be downloaded as an interactive PDF. In this way, many readers subscribe to digital magazines and can read them offline on a PC or with a Tablet or Smartphone (Mobile platform). e-Magazines representing matters of interest to specialists or societies for academic subjects, science, trade, or industry are typically referred to as online journals. It's amazing how inexpensive a publication can be if it doesn't need to pay for writing, editing, design, paper, ink, or postage. —Mega 'Zines, Macworld (1995)

1. The Definition of the Digital Magazine :
S. Silva (2011) presents a useful definition of digital magazines. She argues that a digital magazine does not have to be a replica or a PDF of the printed version. It could also be a magazine that is different and has an own essence, is interactive and created purposely for a digital platform.

2. The Benefits of e-Magazines :
·Lower publishing and distribution costs.
·A potentially wider audience compared to print publications.
·Support for immersive and interactive graphic, audio, and video content.
·Additional options for digital lead generation.

3. The Six Key Features of e-Magazines :
According to S. Silva (2011), a digital magazine should be defined by following features :
(1) It has a beginning and an end,
(2) It is edited,
(3) It has an aesthetic treatment much more appealing than a newspaper,
(4) It is date-stamped and has a series of issues in a publication frequency,
(5) Its contents are permanent (content belongs to a certain issue and are in general not changed after publication),
(6) it is suffering only minimal corrections and it is periodic.

4. Three main Revenue streams or Markets of e-Magazines

Magazines have in general three main revenue streams or markets they operate on; advertisements, subscriptions and single issues. (1) Advertisements are in turn built upon revenues from ads published through the magazines' channels. (2) Subscriptions are in general recurring customers that pay on a yearly basis and get the magazine delivered physically or digitally. (3) Single issues are copies sold in traditional newsstands.

Figure 1 shows Popular Science for iPad's storefront in the application. The issues vary in level of interactivity and creativity and Figure 2 shows various examples of how digital magazines can look like.

Examples of Digital Magazines.
(The Next Web App, v0.9, 2013) (The New Yorker App, Feb 2013) (T3 App , February 2013)

Examples of Digital Magazines.
(The Next Web App, v0.9, 2013) (The New Yorker App, Feb 2013) (T3 App , February 2013)

5. The Development of the Digital Magazine :

Digital magazines has been a topic long before the release of the tablet. The earlier described decline in print circulation generates worrying numbers for publishers. PDF versions and desktop version existed long before the tablet, but have never made any great impact on the publishers' revenue streams. Many do see the 3rd of April 2010 as both the birth of the tablet and of the digital magazine. Popular Science and Wired were among the first publications to be present on this new device (YouTube, 2010) (Rehnvall, 2012).

Possibly the largest industry research efforts ever made on tablet magazines, was carried out by The Pool (2013) and argues that the adoption rate for tablets is the biggest ever on electronics. Only four years after its launch are over 40 % of the US households owning a tablet. When comparing to the adoption rate of the Internet fewer than 20 % had access in the same timeframe after launch (The Pool, 2013). These numbers are based on the US market, but also in smaller markets are the tablets gaining grounds. ¼ of the Swedish households report to have a tablet in 2013 and it is not until now a possible market for digital magazines to even aim at. When it comes to sales of traditional print content, publishers have not yet seen the expected growth on tablets or the levels of consumption wished for. They do report an increasing growth, but the market is still young and the absolute numbers are low. The nature of digital magazines also requires (1) new business models, (2) advertising models and (3) standards. Because of the still young market, the majority of products out there can still seen to be research and development projects where publishers test the market. Following Apple is other tablet manufactures where Samsung, Amazon and Asus are the most prominent.

6. The Business statistics of e-Magazines :

· Revenue in the e-Magazines market is projected to reach US$4.57bn in 2023.
· Revenue is expected to show an annual growth rate (CAGR 2023-2027) of 3.18%, resulting in a projected market volume of US$5.18bn by 2027.
· In the eMagazines market, the number of readers is expected to amount to 0.6bn users by 2027.
· User penetration will be 6.7% in 2023 and is expected to hit 7.2% by 2027.
· The average revenue per user (ARPU) is expected to amount to US$8.84.
· In global comparison, most revenue will be generated in the United States (US$1,558.00m in 2023).

7. Nine Design Principles for e-Magazines :

By focus groups in different Bonnier-present countries the following ten design principles for digital magazines were concluded:

1. Silent Mode. A magazine is passive media and a way to relax and lean back and should therefore have a silent mode and an active mode to choose from. With that does not mean that it cannot contain rich media but you should have in mind the slow media and the calmness a magazine represent.
2. Easy to overview. Few choices and easy to immediate understand the content.
3. Clearly defined beginning and end. A simple linear flow and storyline.
4. Fluid motion. Navigation through the magazine and through stories should be “fluent”.
5. Immediate access. There should be no hidden content and the whole magazine should be accessible from all parts and make a line from the beginning to the end.
6. Designed for the screen. The content should have a screen-adjusted layout so that no zooming should be needed for the content to be big enough to see.
7. Read-only mode. A mode where the reader could indulge in longer texts.
8. Advertising as content. Advertising should be included in the user experience.
9. Delivered in an issue format. Öhrvall (2013) argues that in the digital space stories can be told completely different. Since the space is endless, stories can get more space and by the touch of the hand stories can revile themselves. Directing the reader’s hand and moves should be seen like the work of a director.

Dr. Masih Saikia
HoD, Computer Science

DEPARTMENT OF COMPUTER SCIENCE

Computer Science Block

Faculty Members

Department of Computer Science

BCA and BSc 5th Semester

BCA 3rd Semester

POEMS

THE LIGHT WE DREAMT !

Life is not easy
yet we are together
Together we get stronger
Stronger we become unstoppable
Together we can be
What we want to be
A decade of darkness
Is now fading down
Now we can see the
Light like of the morning Sun,
The light, that we once dreamt off.

Sahil Raja Choudhury
BCA 1st Sem

CONSTELLATIONS OF LOVE !

Bright as the sun, cold as the night's embrace,
Hello, enchanting soul, your radiance I trace.
You're my north star, guiding with grace,
Igniting dreams within, a steady pace.

Inspiration blooms, like a moonlit tide,
Carrying me through, with you by my side.
Across vast landscapes, in you I confide,
In the tapestry of time, together we ride.

Search the world's expanse, for your essence I'll quest,
No shadows can hide what my heart deems best.
I'll champion your worth, facing any test,
With courage ablaze, I'll stand as your crest.

Love's flame may flicker, in this fleeting night,
Yet its spark endures, blazing pure and bright.
With unwavering candor, I confess my flight,
Embracing vulnerability, for love's true light.

As stars softly fade, yielding to dawn's gentle glide,
Know my constancy remains, steadfast beside.
In whispered promises, my feelings reside,
Forever aligned, hearts unified

Himanshu Bordoloi
BCA 3rd Sem

TOO OLD TO BE FORGIVEN, TOO YOUNG TO BE WISE

In twilight's haze, a weary soul,
Too old to mend, too young to be whole.
Regrets, like shadows, linger and cling.
A life's journey, a symphony's sting

Forgiveness eludes a distant shore,
Too old for solace, wounds begin to hurt more.
Yet wisdom's whispers begin to rise.
A fledgling truth within searching eyes.

Years paint the canvases with lessons learned.
Too young for cynicism, hope's fire burned.
Between the lines of age's disguise,
A path emerges where heartache flies.

Yet in this balance, a tale resides.
Of growth and redemption, where the heart abides.
We were too old to be forgiven, they said.
But weren't we too young to be wise?

Jyotiraditya Deka
BSc CS 5th Sem

তোমাৰ উপস্থিতি

বাট হেৰুৱাৰ পাছতো
বিচাৰি পাওঁ তোমাৰ পদূলি।
শব্দ হেৰুৱাৰ পাছতো
বিচাৰি যাওঁ তোমাক।
এতিয়া তুমি যেন এক অজুহাত
প্ৰতিটো পলত
তোমাৰ উপস্থিতি
বিচাৰি ফুৰাৰ...

Resmina Akhtar
BSc CS 5th Sem

শব্দবোৰ

আঙুলিবোৰ মেলি দিয়া
তোমাৰ আঙুলিবোৰ
মোৰ হাতত পিন্ধিবলৈ।
উশাহবোৰ শিথিল কৰি দিয়া;
নিশাটিক সাবটি শুৱলৈ।
আজি শব্দবোৰক
একাষৰীয়াকৈ থৈ দিয়া
গভীৰতাৰ মাজত হেৰুৱাবলৈ...

Resmina Akhtar
BSc CS 5th Sem

দূৰ-দিগন্ত

জীৱনৰ শূন্যতাৰ মাজত
জ্যোতি বিচাৰি আগুৱাই আছিলো
প্ৰাগজ্যোতিষলৈ বুলি
জীৱনৰ আধা তামৰঙী সপোনৰ
মাজতে বৈ গ'ল এখন উকা কাগজ
মেলিব বিচাৰিছো য'ত থাকিব
উন্নতিৰ জখলাখনি
য'ত নাথাকে অতীতৰ ভুলখিনি
ক্ষয় যাব মৰা শিলবোৰ
মই আগুৱাই যাম
দূৰ দিগন্তলৈ...
জিলিকিম মই এদিন বিশ্বৰ বুকুত
জীৱনৰ দলিচাত সোৱণশিৰি
পাৰত ৰুই যাম মই গছপুলি
অসমৰ পৰা আমেৰিকালৈ
মনৰ দুৱাৰ খুলি যাম মই
সপোন পুৰিলৈ
শান্তি কপৌজনী উৰাই দিম
দূৰ দিগন্তলৈ।

Priyanki Kalita
BSc CS 1st Sem

তমসা

এটা লেতেৰা কোঠা,
মলিন বিছনা চাদৰত ঘাম, অশ্রু মিহলি অপৰিষ্কাৰতা,
কিছু জহি-খহি যোৱা সপোনৰ তথাকথিত দিনলিপিত,
কিছু পইতাচোৰাৰ নিৰ্বোধ পৰিভ্রমণ।
এটা বিৰাট অপ্রীতিকৰ শব্দ,
বিছনাত কুচি-মুচি মৰিতুচ্ছ এটা ছাঁৰ পৰিভ্রমণ,
কাহি কাহি ম্লান পৰিব দিয়া নাই শান্তিপূর্ণ পৰিৱেশটি,
পানী এটুপি আগবঢ়াম ভাবিলো
পিছে নিদিলোঁ।
তাৰ জীৱনৰ স্পেকটেটৰহে,
তাৰ দুখবোৰ মূৰ পাতি লোৱাৰ কোনো ধাৰণা আমাৰ নাই।
এটা পংগু ভেকুলীৰ নিচিনাকৈ সি কাহিছে,
উৱলি যোৱা পলিথিনটো লিৰিকি-বিদাৰি এন্দুৰৰ মলৰ মাজত থকা
ভগা টেবলেট কেইটা খুচৰিছে,
পৰিমাণতকৈ বেছিকৈ গিলিছে
প্লাষ্টিকৰ বটলটোত পানী নাই,
সেপ ঢুকি থু দি গিলাৰ আপ্রাণ চেষ্টা।
কাহ বাঢ়ি আহিছে,
পিছলৈ ঘূৰিছে সি
এৰি থৈ অহা মানুহ
এৰি থৈ অহা সময়
সমাজে তাক প্রত্যাখান কৰিলে,
প্রেম প্রাপ্তি তাৰ বাবে অসাৰ
যাক যিমান পাৰে সি সকলো দিলে,
পিছে কাষত থিয় দি তাক সহায় কৰাৰ কাৰো সময় নাই,
চিঞৰিব কাৰ ওপৰত,
ধিক্কাৰ নিজকে দিছে,
তাৰ মূৰটো ঘূৰাইছে,
কাহ বাঢ়ি আহিছে,
এটা জোৰত কাহ মাৰিলে সি,
শেষ বাৰৰ কাৰণে,
খেকাৰ তেজৰ লগতে এটা ধিপ্ ধিপ কৰি থকা হৃৎপিণ্ড
তাৰ মলিন পকাখনত সৰি পৰিল

Sabin Kumar Kalita
BSc CS 5th Sem

ARTICLES

CHANDRAYAN - 3

Indians around the world united with pride and excitement as the **Chandrayaan-3** lander module gently descended on the lunar surface on Wednesday evening, ending the disappointment over the crash-landing of the Chandrayaan-2 lander four years ago.

The mission Chandrayaan-3 (CH-3) is a technological challenge undertaken by India, led by **Indian Space Research Organisation** (**ISRO**), with the objective of achieving a soft landing, exploring the lunar surface, and collecting invaluable scientific data. With the mission's success, India has become the first country to land a spacecraft on the lunar's uncharted territory of South Pole and fourth overall to reach on the moon. If **Chandrayaan-3** continues to function well, it will collect data on the chemistry and mineralogy of the surface.

The successful landing of Chandrayaan-3 marks India's emergence as a space power as the government looks to spur investment in private space launches and related satellite-based businesses. India's Prime Minister Narendra Modi, who joined millions of people in watching the final descent, rightly said: "This success belongs to all of humanity." It is also undoubtedly a stellar achievement for India's scientists and engineers across many generations.

Chandrayaan-3 's Message After Successfully Landing On The Moon : " **I Reached My Destination And You Too** "

Chandrayan's success proves that

" *Lost causes are the ones worth fighting for* "

Himashri Bharadwaj
BCA 1st Sem

QUANTUM COMPUTING

Quantum Computing : The Future of Computing?

Quantum Computing is a new field of computing that uses the principles of Quantum mechanics to solve problems that are intractable for classical computers. This Computing works on Qubits, which essentially means the bits of information can be in a Superposition of states, which means they can be 0 and 1 simultaneously.

The potential applications for Quantum Computing :

o **Cryptography** : They could be used to break current encryption Standards.
o **Material Science** : They can be used to design new materials with improved properties.
o **Logistics** : Quantum Computers could be used to optimize supply chains and reduce costs.

The Biggest challenge of Quantum Computing is the development of stable and scalable Quantum Computers. Solving these issues can make Quantum Computers much more reliable.

This is a rapidly developing field with a lot of potential, with lots to evolve in the years to come.

Suman Sarmah
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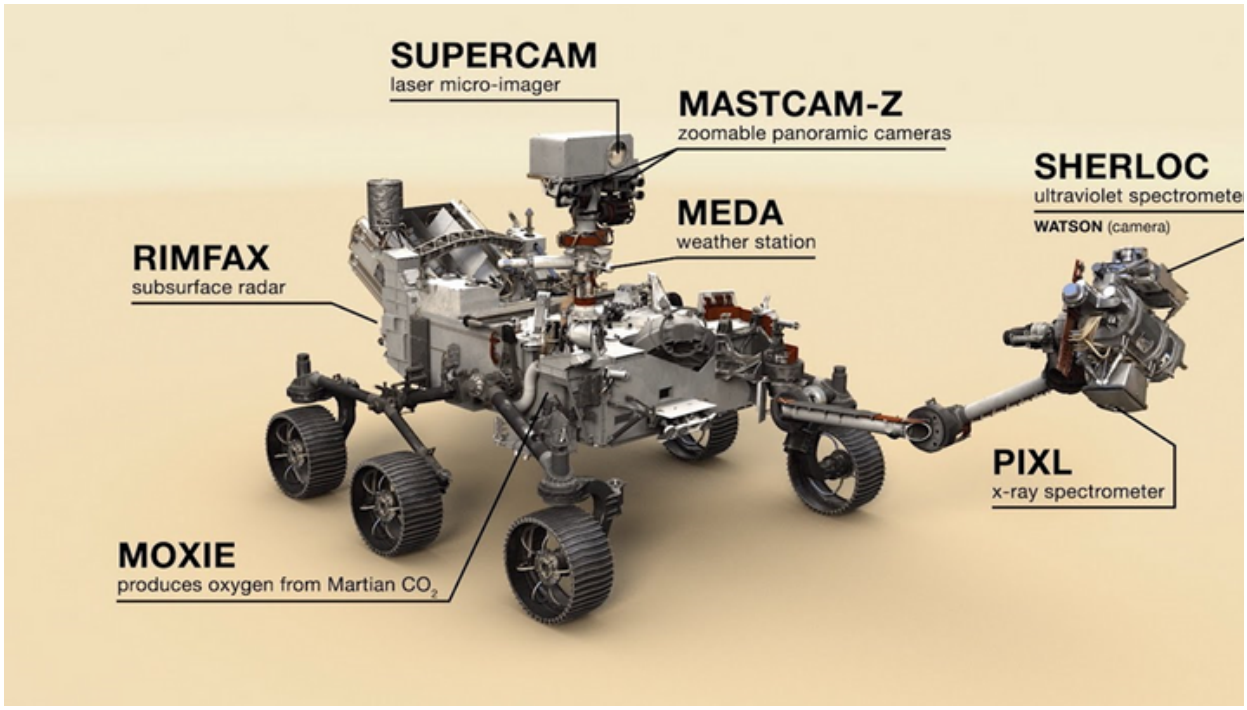
EXPLORING NEW HORIZONS



The Human Spirit of Perseverance Rover

In the vast expanse of the Martian landscape, a lone mechanical traveler embarked on a mission that would not only redefine our understanding of the cosmos but also embody the indomitable spirit of human perseverance. The Perseverance Rover, a marvel of engineering and determination, represents humanity's relentless pursuit of knowledge and exploration.

Much like an intrepid explorer from Earth's history, the Perseverance Rover's journey began with a single step – a fiery descent through the thin Martian atmosphere. As it hurtled towards the unknown terrain, the hearts of the scientists and engineers at NASA were gripped with a mix of excitement and trepidation. The unforgiving distance between Earth and Mars, millions of miles apart, seemed to shrink in the face of the determination and ambition behind this daring endeavor.

The rover's landing was a moment of both triumph and relief, akin to a triumphant summit of an uncharted mountain. The intricate sky crane maneuver that delivered Perseverance to the Martian surface showcased the years of meticulous planning and innovation that went into its design.

But it was not just a technological achievement; it was a testament to the power of human imagination and collaboration.

As Perseverance began to explore its new home, the rover was not just gathering data; it was extending the reach of humanity's curiosity. Every snapshot it sent back, every sample it collected, resonated with the dream of standing on another world. But this mission was more than just science; it was a celebration of the human spirit's unquenchable thirst for exploration.

In a world often divided by differences, Perseverance became a symbol of unity. People from all corners of the globe, regardless of nationality or background, held their breath as the rover embarked on its groundbreaking mission. It was a reminder that no matter our earthly distinctions, our collective yearning to explore the cosmos binds us together.

However, the journey was not without its challenges. The harsh Martian environment tested the rover's resilience, just as life often tests human resolve. Dust storms threatened its solar panels, and the unforgiving cold gnawed at its systems. Yet, like a metaphor for human tenacity, Perseverance weathered these trials, adapting and enduring.

Perhaps the most important aspect of Perseverance's mission was the reflection of human emotions onto its metallic shoulders. When the rover captured the first-ever audio recording of the Martian wind, it was as if the wind whispered the voices of the countless individuals who had poured their hearts into this project. It was a connection between two worlds, bridging the gap between the scientists and engineers on Earth and their creation on the distant red planet.

As the years go by and Perseverance continues its exploration, its legacy will endure not only in the data it collects but in the inspiration it provides. It reminds us that the human spirit knows no bounds, that obstacles are merely stepping stones on the path to discovery, and that our desire to reach beyond what we know is a defining characteristic of our species.

Maruf Ahmed
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HOW COMPUTERS ARE AFFECTING POLITICS

In a variety of ways, computers are having a significant impact on politics, they are -

Altering how people obtain Information : In the past, people relied on conventional media like newspapers, television and radio for the news and political information. People today are getting more and more of their news from online sources including blogs, social media and new websites. However, it has also made it more challenging to confirm the authenticity of information, giving consumers less control over the information they consume.

Facilitating citizen's participation in Politics : In many ways, computers have made it possible for people to get involved in politics. People can now, for instance, sign petitions, give to political campaigns online and email or message their elected representatives. This has made it simpler for individuals to participate even if they don't reside in a big city or have a lot of free time to volunteer in the political process.

Creating new awareness for political activism: Computers have also sparked the development of fresh types of political activism. Some media have, for instance, been used to plan protests, raise many political campaigns and spread awareness of political concerns. Even those without a lot of money or resources may now mobilize and push for change.

Facilitating public opinion manipulation by politicians : Public opinions can be manipulated by computers as well. Politicians, for instance, can utilize social media to reach voters with specific messages or data analytics to find swing voters and advertise to them Specifically. Politicians now have an easier time controlling the narrative swearing public opinion in their favor as a result.

Arjun Pratap Das
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UNLEASHING A REVOLUTION

How Humans Can Propel Change with AI Technology

Introduction :
The digital age has witnessed an unprecedented surge in technological advancements, with artificial intelligence (AI) standing out as one of the most transformative innovations. AI has already begun reshaping various aspects of our lives, from business and healthcare to transportation and entertainment. However, its potential for triggering a revolution goes beyond mere convenience. It holds the power to empower humans in ways previously unimagined.

The Dawn of Collaboration :
The true potential of AI lies not in replacing human capabilities, but in augmenting and enhancing them. One of the most promising avenues is the collaboration between humans and AI systems. Through the development of intelligent tools, humans can leverage AI to analyse vast amounts of data, identify patterns, and generate insights that were once unattainable due to limitations in time and cognitive capacity.

In fields like scientific research, AI can accelerate discovery by analysing complex data sets, simulating experiments, and predicting outcomes. In healthcare, AIpowered diagnostics can aid doctors in making accurate decisions, leading to quicker and more precise treatments. This partnership allows humans to focus on higher-order tasks, such as critical thinking, creativity, and empathy, while AI handles the data-driven heavy lifting.

Transforming Industries :
AI has already started revolutionizing industries across the spectrum. In manufacturing, the integration of AI-driven automation leads to increased efficiency, reduced errors, and faster production cycles. Agriculture benefits from AI-powered predictive analytics, optimizing crop yields and resource utilization. In education, personalized learning platforms powered by AI adapt to individual student needs, enhancing the overall learning experience.
Moreover, the entertainment sector is witnessing a paradigm shift. AI algorithms can generate music, art, and literature, sparking new levels of creativity. Additionally, AI-driven recommendation systems provide tailored content suggestions, enriching user experiences in gaming, streaming, and online media consumption.

Empowering Decision-Making :
AI's ability to process vast amounts of data rapidly equips humans with the tools to make well-informed decisions across various domains. In business, AI-driven analytics can provide insights into consumer behaviour, market trends, and competitive landscapes. This data-driven approach enhances strategic planning, leading to more successful product launches, marketing campaigns, and business expansions.

In public administration, AI aids policymakers in predicting societal trends and making informed decisions about resource allocation and urban planning. Climate scientists use AI models to analyse environmental data, enabling proactive measures to mitigate the impacts of climate change.
Societal Impact and Ethical Considerations :
As AI technology advances, it brings along a set of ethical considerations. Issues like bias in AI algorithms, privacy concerns, and the potential for job displacement need careful consideration. To ensure the positive impact of AI-driven revolution, humans must take an active role in shaping regulations and standards that guide AI development and deployment.

Education and Training for the AI Era :
To truly harness AI's potential, individuals must be equipped with the necessary skills. This requires an emphasis on education and training that not only imparts technical knowledge but also fosters critical thinking, adaptability, and creativity. Reskilling and upskilling programs can empower people to collaborate effectively with AI systems and fill the roles that arise in this new technological landscape.

Conclusion :
The revolution sparked by AI technology is not about machines replacing humans; it's about enabling humans to reach new heights of innovation, efficiency, and collaboration. By forging strong partnerships between humans and AI, we can leverage the strengths of both to tackle complex challenges, accelerate progress, and drive positive change across industries and society. As we navigate this transformative era, it's crucial to keep our ethical compass steady and invest in education to ensure that AI becomes a force for good, enhancing our collective human potential.

Koushik Choudhury
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CLOUD COMPUTING

Revolutionizing the Way Businesses Manage Data and Resources

Introduction:

In the dynamic landscape of today's business world, where agility, scalability, and efficiency are paramount, cloud computing has emerged as a transformative technology
that is reshaping the way companies manage their data and resources. This revolutionary approach to computing has redefined traditional IT paradigms, enabling organizations to streamline operations, enhance collaboration, and drive innovation.

Understanding Cloud Computing:

At its core, cloud computing involves the delivery of computing services—such as storage, processing power, and applications—over the internet. Instead of relying on local infrastructure and on-premises servers, businesses can leverage remote data centers operated by cloud service providers. These providers offer a range of services, categorized into three main models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).
IaaS provides virtualized computing resources, allowing businesses to scale their IT infrastructure without the burden of managing physical hardware. PaaS offers a platform for developers to build, deploy, and manage applications without worrying about the underlying infrastructure. SaaS delivers software applications on a subscription basis, reducing the need for installation and maintenance on individual devices.

Advantages for Businesses:

The adoption of cloud computing has yielded numerous benefits for businesses of all sizes and industries. One of the most significant advantages is cost savings. By eliminating the need for substantial upfront investments in hardware and infrastructure, companies can pay for only the resources they consume, leading to reduced capital expenses and predictable operational costs.
Scalability is another critical aspect of cloud computing. Businesses can quickly scale up or down based on demand, ensuring optimal resource utilization. This flexibility is particularly valuable in industries with fluctuating workloads, such as retail during peak shopping seasons or online streaming platforms during major events.
Enhanced collaboration and accessibility are also driving forces behind cloud adoption. With data stored in the cloud, employees can access and collaborate on projects from anywhere with an internet connection. This has become especially relevant in recent times, as remote and hybrid work arrangements have become the norm.

Security and Concerns:
While cloud computing offers compelling benefits, concerns about data security and privacy have been raised. Entrusting sensitive information to third-party providers requires a robust security framework. Cloud service providers invest heavily in security measures, including encryption, authentication, and compliance certifications, to safeguard customer data. However, businesses must also play an active role in ensuring the security of their data by implementing access controls and adhering to best practices.

The Future of Cloud Computing:
As technology continues to evolve, so does cloud computing. The future promises advancements such as edge computing, which brings processing power closer to the data source, reducing latency and improving real-time analytics. Additionally, the integration of artificial intelligence and machine learning into cloud services will empower businesses to extract valuable insights from vast amounts of data.

Conclusion:
Cloud computing has indeed revolutionized the way businesses manage data and resources. Its ability to provide cost-effective scalability, promote collaboration, and enhance accessibility has made it an essential tool in the modern business arsenal. While challenges persist, the benefits of cloud computing are undeniable, positioning it as a cornerstone of innovation in the digital age.

Rakesh Sinha
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TECH AND FASHION

Wearable Tech and Smart Textiles

Tech fashion's journey began with early experiments in the 1970s, leading to the modern-day integration of technology into everyday wear. From fitness trackers to the iconic smartwatch, the convergence of style and functionality has redefined personal accessories. In the realm where technology seamlessly intertwines with fashion, the emergence of tech fashion and smart textiles has given rise to a dynamic and innovative landscape. Smart textiles combine traditional fabrics with cuttingedge technology, creating adaptable and responsive garments. Beyond aesthetics, these textiles find applications in healthcare, automotive design, and more, showcasing their versatility and potential.

Artificial intelligence plays a pivotal role in driving tech fashion forward by enabling personalised recommendations and responsive clothing. Sustainability and ethical considerations are also shaping the industry, pushing for eco-friendly practises. The future of tech fashion holds exciting prospects, including integration with augmented reality and virtual reality. Moreover, technology democratises design, empowering individuals to create personalised garments through 3D printing and accessible programming tools. Tech fashion stands as a testament to the harmonious convergence of style and technology. As the boundaries of creativity are redefined, we find ourselves on the brink of a future where clothing is a canvas for innovation, transforming how we interact with the world around us.

Saran Mandal
BSc CS 5th Sem

DIGITAL EDUCATION REVOLUTION

Transforming Learning through Technology

The Digital Education Revolution refers to the widespread adoption of technology in learning and teaching. It encompasses the use of computers, mobile devices, software, and the internet to enhance educational experiences, making the learning process more engaging, efficient, and effective. Through technology, educators can provide personalised learning experiences, offer real-time feedback, and facilitate collaboration among themselves.

The Digital Education Revolution has brought about significant changes in the education system, empowering learners to take charge of their learning journey and preparing them for the demands of the digital world. As technology continues to evolve, the Digital Education Revolution presents opportunities for educators to abandon traditional teaching methods and embrace new approaches to enriching the learning experience.

The rapid development of digital technologies has led to the creation of new media, new modes of social interaction, and new economic models. Education is one area that has been deeply affected by the digital revolution. With the advent of digital education, learners can gain access to a wealth of information and resources from anywhere in the world. Technologies have transformed the way we learn, making education more accessible, personalised, and interactive. With digital education, learners can access a wide variety of content, collaborate with peers, and engage in online discussions, all with the goal of maximising their learning potential.

Saran Mandal
BSc CS 5th Sem

REVOLUTIONIZING HEALTHCARE

The Role of AI in Medicine

Introduction

The healthcare industry is undergoing a profound transformation, driven by the integration of artificial intelligence (AI) technologies. From diagnosing diseases to personalizing treatment plans, AI is reshaping the landscape of medicine in ways that were once thought impossible. This article explores the remarkable advancements and potential of AI in medicine.

Diagnostics and Early Detection

AI algorithms are proving to be invaluable tools for diagnosing medical conditions accurately and at an early stage. Machine learning models trained on vast amounts medical data can identify patterns and anomalies in medical images such as X Rays, MRIs, and CT scans. This not only leads to quicker and more accurate diagnoses but also improves patient outcomes by enabling early intervention.

Personalized Treatment Plans

Each patient's genetic makeup and medical history are unique, and AI is helping to harness this information for personalized treatment plans. AI algorithms analyze patient data to predict how an individual will respond to specific treatments, medications, and therapies. This personalized approach leads to more effective treatments and reduces the risk of adverse reactions.

Drug Discovery and Development

The process of discovering and developing new drugs is time-consuming and expensive. AI accelerates this process by analyzing vast datasets to identify potential drug candidates, predict their effectiveness, and optimize their molecular structures. This not only reduces costs but also holds the promise of finding new treatments for diseases that were previously considered challenging to target.

Virtual Health Assistants

AI-powered virtual health assistants and chatbots are revolutionizing patient engagement and care. These virtual assistants can provide patients with medical information, answer queries, schedule appointments, and even offer medication reminders. This not only enhances patient experiences but also eases the burden on healthcare providers.

Predictive Analytics

AI's ability to analyze large datasets and identify patterns makes it a powerful tool for predicting disease outbreaks, patient readmissions, and even identifying potential health risks in individuals. This enables healthcare providers to take proactive measures and allocate resources more efficiently.

Surgical Assistance

Robotic surgical systems powered by AI offer greater precision and control during surgeries. Surgeons can use AI-assisted tools to enhance their skills, improve surgical outcomes, and reduce the risk of complications. These systems can also be used for remote surgeries, allowing experts to perform procedures on patients located far away.

Medical Research

AI is significantly accelerating medical research by analyzing vast datasets to uncover new insights and correlations. Researchers can use AI to identify genetic markers, understand disease mechanisms, and develop novel therapies based on a deeper understanding of biology.

Challenges and Considerations

While the potential of AI in medicine is immense, there are challenges to address. Data privacy, ethical considerations, regulatory frameworks, and potential biases in AI algorithms are all important factors that need careful attention.

Conclusion

The integration of AI in medicine represents a paradigm shift in healthcare. As AI technologies continue to advance, they will enhance medical diagnosis, treatment, and research in ways that have far-reaching implications for patient care and medical outcomes. The collaboration between human expertise and AI capabilities holds the promise of revolutionizing healthcare as we know it, ushering in an era of more accurate, personalized, and efficient medical practices.

Khalid Ahmed
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NANOTECHNOLOGY

The Future of Nanotechnology in Healthcare

The concept of nanotechnology may seem straight out of a science-fiction movie, but technology that deals with designing devices less than 100 nanometers (100 millionth of a millimeter) is taking steps towards its omnipresence. In recent times, extensive research has also accelerated the process in healthcare sectors. With the ability to engineer and control materials at the molecular level, nanotechnology is poised to revolutionize the way we diagnose, treat, and prevent diseases.
Nanotechnology refers to the branch of science that deals with the engineering of systems at the atomic, molecular, and even subatomic level. The use of nanotechnology in healthcare has opened the door to better treatment options with the ability to manipulate matters at atomic levels. It has huge potential to revolutionize myriad aspects of medical care, including diagnostics, disease monitoring, and drug delivery to name a few.

Here are some of the ways in which nanotechnology is changing the future of healthcare:

Smart Pills

Smart pills refers to nano-level electronic devices that enable people to monitor a staggering number of diseases. They are designed like pharmaceutical pills but perform more advanced functions such as sensing, imaging, and drug delivery. Furthermore, smart pills use nanoscale sensors that are able detect the presence of underlying disease.

In 2001, PillCam, the first smart pill was approved by the U.S. Food and Drug Administration. PillCam was designed to monitor the colons to detect Crohn's, internal bleeding or polyps with the help of a miniature camera. The collected data is then transmitted wirelessly to another device.

Precision Imaging

Nanoparticles can enhance medical imaging techniques such as MRI and CT scans. With higher resolution and precise visualisation nanotechnology could improve diagnostic accuracy. This would enable early detection of many diseases.

Nanobots

Nanobots are futuristic nanosized robots, designed to target specific regions of the body. Nanorobots also serve as nano-surgeons and are especially suitable for drug delivery. They can either be injected or ingested and deliver themselves to the disease site. To repair and replace intracellular structures, nanobots can be inserted into the body.

Researchers at Arizona State University, for example, are developing an “origami nanorobot” that consists of a flat sheet of synthetic DNA. These origami nanorobots can be folded into various shapes. Scientists at Michigan State University and Stanford University have partnered to develop nanobots to clear artery blockages by drilling through them. Thus, reducing the risk of heart attacks.

Wearables

Cloth-based nanotechnology is an emerging approach to remote patient monitoring in healthcare. Wearables embedded with nanosensors can monitor a wide range of parameters, and also carry and deliver drugs.

Nanofibres

Nanofibers have emerged as a revolutionary technology in the field of healthcare, revolutionizing treatments, diagnostics, and drug delivery.

Nanofibres are greatly effective in wound healing. The development of "smart bandages" is underway, designed to integrate into human tissue as the wounds heal. These smart bandages are capable of containing antibiotics, and the sensors for infection detection.

The future of nanotechnology in healthcare is incredibly bright considering the future prospects. From early disease detection to targeted treatments and continuous health monitoring, nanomedicine is reshaping the landscape of medicine. While challenges and ethical concerns must be addressed, the potential benefits for patients and society as a whole are undeniable. As research and innovation continue, we can expect to witness remarkable advancements that will improve the quality of healthcare and ultimately save lives. Nanotechnology is not just a scientific marvel; it is a revolution in healthcare that will shape the future of medicine. Nanotechnology can be leveraged for ultra-precise disease treatment.

Aditi Borah
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EXPLORING GENERATION Z

Unveiling the Powerhouse Generation: Exploring Generation Z

Generation Z, born between the mid-1990s and early 2010s, is a force to be reckoned with in today's society. This tech-savvy and socially conscious generation is shaping the world in unique ways. Let's delve into the characteristics and impact of Generation Z.

One defining trait of Gen-Z is their digital fluency. Having grown up with technology at their fingertips, they effortlessly navigate the digital landscape. Social media, smartphones, and instant communication are second nature to them. This proficiency has fueled their ability access information, connect globally, and express themselves creatively.

Moreover, Generation Z is recognised for its strong sense of social justice and activism. They are passionate about causes such as climate change, racial equality and LGBTQ+ rights. With their ability to mobilize online, they have become powerful advocates for change, using social media platforms to raise awareness and challenge the status quo.

Education is another area where Generation Z is making waves. They seek practical learning experiences and value entrepreneurship and innovation. This generation is known for its resourcefulness, adaptability and desire to make an impact. They are more likely to pursue non-traditional career paths and embrace the gig economy.

In the workplace, Generation Z brings fresh perspectives and a desire for work life balance. They prioritize flexibility, remote work options and opportunities for growth. Their ability to multitask and embrace technology makes them valuable assets in an increasingly digital world.
In conclusion, Generation Z is a dynamic and influential cohort that is reshaping society. Their digital fluency, social activism and drive for innovation set them apart. As they continue to come of age, their impact on culture, technology and social change will undoubtedly be significant.

Himashri Bharadwaj
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LARGE LANGUAGE MODELS

A **large language model**, often abbreviated as **LLM**, refers to a sophisticated type of artificial intelligence technology designed to process and generate human-like text based on the input it receives. These models are trained on vast amounts of text data to learn the patterns, structures, and nuances of language, enabling them to understand context, generate coherent responses, and even perform tasks like language translation, text summarization, and more.

One prominent example of a large language model is **OpenAI's GPT** (Generative Pre-trained Transformer) series, which includes models like GPT-3. These models are built upon a transformer architecture, a type of neural network architecture that has proven highly effective for tasks involving sequential data, such as language.

GPT-3, for instance, is trained on a diverse range of internet text, allowing it to generate human-like text in response to prompts. It can answer questions, write essays, compose poetry, provide coding snippets, and much more. The "pre-trained" aspect of the model refers to the initial phase of training on a massive dataset, and the "generative" aspect means that it can autonomously generate text based on the patterns it has learned.

LLMs like **GPT-3** have showcased remarkable language capabilities, demonstrating fluency, coherence, and even a rudimentary understanding of context. However, it's important to note that while these models can produce impressive text, they lack true comprehension and consciousness. They generate responses based on patterns in data, rather than truly understanding the way humans do.

The development of large language models has sparked discussions about their potential applications, benefits, and ethical concerns. These models have been used for a wide range of tasks, from content creation to customer service automation, but they also raise questions about misinformation, bias in training data, and the potential for misuse.

In essence, a large language model is a testament to the rapid advancement of AI and its potential to transform the way we interact with technology. It stands at the intersection of language, data, and neural networks, offering a glimpse into how AI can replicate and simulate human-like language skills.

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EVER-EVOLVING SCIENCE OF COMPUTERS

Exploring the Ever-Evolving Landscape of Computer Science

Introduction: Computer Science, a dynamic and rapidly evolving field, lies at the heart of the digital age, driving innovation and reshaping the way we live, work, and communicate. This article delves into the fundamental concepts, breakthroughs, and real-world applications that have propelled computer science to its current state.
The Foundations of Computer Science: Computer science emerged from the need to solve complex mathematical and engineering problems. Alan Turing's concept of the Turing machine and his pioneering work in the 1930s laid the groundwork for the theoretical underpinnings of computation. The invention of the first electronic general-purpose computer, ENIAC, in the 1940s marked the beginning of the practical application of these theories.

Key Concepts and Pillars:

1. Algorithms and Data Structures: Algorithms, step-by-step instructions for solving problems, and data structures, ways of organizing and storing data, are fundamental. They are the building blocks of all software.
2. Programming Languages: Programming languages facilitate communication between humans and computers. High-level languages like Python, Java, and C++ make coding more accessible.
3. Artificial Intelligence (AI) and Machine Learning (ML): These branches focus on creating machines that can mimic human intelligence and learn from data, respectively. They power everything from recommendation systems to self-driving cars.
4. Computer Networks: The foundation of the internet and modern communication, computer networks enable global connectivity and data exchange.
5. Operating Systems: These software layers manage hardware and software resources, providing a platform for other applications to run smoothly.

Transformative Breakthroughs:

- Personal Computing: The introduction of personal computers in the 1970s revolutionized how individuals interacted with technology.
- World Wide Web: Tim Berners-Lee's creation in 1989 connected the globe and changed how information is accessed and shared.
- Open Source Movement: The collaborative development of free and open-source software has democratized technology.
- Mobile Computing: The proliferation of smartphones brought computing into the palms of billions, changing how we communicate and access information.
- Cloud Computing: Remote servers delivering computing services over the internet transformed storage, processing, and software delivery.

Real-world Applications:

1. Healthcare: Computer science plays a role in medical imaging, patient record management, and drug discovery.
2. Finance: Algorithms drive high-frequency trading, risk assessment, and fraud detection.
3. Entertainment: Video games, streaming services, and digital animation rely on advanced graphics and simulations.
4. Transportation: Computer science powers navigation systems, traffic optimization, and the development of self-driving vehicles.
5. Environmental Science: Computational models aid climate prediction, resource management, and environmental monitoring.

Challenges and Future Directions: Computer science faces challenges like cybersecurity threats, privacy concerns, and ethical dilemmas surrounding AI. Future innovations could include quantum computing, biocomputing, and the continued integration of technology into daily life.

Conclusion: Computer science's journey from abstract theories to practical applications has transformed the world in ways previously unimaginable. As it continues to evolve, its impact on society, industry, and research remains profound, ensuring a future where technology is limited only by our imagination.

Sourav Kumar Singh
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UBER: FROM CONTROVERSIES TO CHALLENGES

Uber is a ride-hailing company that was founded in 2009 by Travis Kalanick and Garrett Camp. The company quickly became one of the most valuable startups in the world, with a valuation of over $100 billion. However, Uber has also been dogged by controversy, including allegations of sexual harassment and discrimination.

Kalanick was forced to resign as CEO in 2017 amid a wave of scandals. He was replaced by Dara Khosrowshahi, who has been trying to clean up Uber's image. However, the company continues to face challenges, including regulatory scrutiny and competition from rivals like Lyft.

Despite the challenges, Uber remains a major player in the ride-hailing market. The company operates in over 70 countries and has over 50 million active users. Uber is also expanding into new businesses, such as food delivery and freight transportation.

The future of Uber is uncertain. The company faces many challenges, but it also has the potential to be a major player in the transportation industry for years to come.

Here are some of the key events in the history of Uber :-

1) 2009: Uber is founded by Travis Kalanick and Garrett Camp.
2) 2010: Uber launches in San Francisco.
3) 2011: Uber expands to New York City.
4) 2012: Uber raises $100 million in funding.
5) 2013: Uber expands to 50 cities.
6) 2014: Uber raises $250 million in funding.
7) 2015: Uber goes international, launching in London, Paris, and Berlin.
8) 2016: Uber raises $1 billion in funding.
9) 2017: Travis Kalanick resigns as CEO. Dara Khosrowshahi is appointed CEO.
10) 2018: Uber goes public, raising $8.1 billion in an IPO.
11) 2019: Uber faces a number of lawsuits and investigations, including allegations of sexual harassment and discrimination.
12) 2020: Uber's ridership declines due to the COVID-19 pandemic.
13) 2021: Uber's ridership recovers as the pandemic subsides

Uber is a controversial company, but it is also a major player in the transportation industry. The company has the potential to be a major force in the years to come, but it will need to overcome its challenges in order to succeed.

Kashyap Jyoti Das
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DECIPHERING THE SOLARWINDS HACK

Navigating the biggest Digtal Catastrophe of 2020

In the intricate realm of cybersecurity, where battles are waged in the shadows and data is the ultimate prize, the SolarWinds hack emerged as a seismic event that sent shockwaves through governments, corporations, and cybersecurity experts worldwide. This riveting saga, reminiscent of a cyber thriller, rewrote the rules of digital warfare and exposed vulnerabilities that had remained hidden beneath the surface.

A Stealthy Invasion

Picture this: a seemingly innocuous software update rolling out to clients of SolarWinds, a trusted name in network management. Behind the scenes, however, a silent infiltration was underway. Malicious code, covertly injected by hackers, transformed a routine update into a Trojan horse. With this, a virtual doorway was flung wide open, granting unauthorized access to the virtual homes of countless organizations.

The Scope of Chaos

The scope of the breach was nothing short of staggering. It stretched across the U.S. federal government, infiltrating the Departments of Defense, State, Treasury, and beyond. Like tendrils of digital smoke, the hack extended its reach to major corporations, cloud service providers, and critical infrastructure entities, both within and beyond U.S. borders. The extent of the digital compromise was enough to leave even seasoned cybersecurity professionals awestruck.

The Russian Connection

As the dust began to settle, fingers pointed toward a familiar adversary: Russian hackers with links to nation-state espionage. The aptly named APT29, or Cozy Bear, resurfaced as the prime suspect behind the attack. Intelligence agencies and cybersecurity experts scrambled to piece together the puzzle, tracing digital footprints through virtual landscapes while deciphering the geopolitical implications of this audacious breach.

Supply Chain Dominoes

The SolarWinds hack showcased the perils of supply chain vulnerabilities. It's akin to safeguarding a mansion's front door while leaving the back entrance wide open. By targeting a trusted software provider, hackers leveraged a single entry point to infiltrate an extensive network of unsuspecting victims. This revelation prompted a collective realization: cybersecurity is only as strong as its weakest link.

Lessons in Resilience

Yet, in the face of this digital maelstrom, a silver lining emerged. Organizations and governments united in the aftermath, responding with unprecedented resolve. Experts worked tirelessly to dissect the breach, mitigate its effects, and share crucial insights with the global community. The incident underscored the importance of rapid response, real-time threat detection, and the need to continually strengthen the fortifications of the digital realm.

Looking Ahead

The SolarWinds hack serves as a watershed moment in the evolution of cybersecurity. It is a stark reminder that the digital battlefield is no longer limited to code and algorithms, but it spills over into real-world consequences with far-reaching implications. As governments reassess their strategies and organizations bolster their defenses, a new era of cyber resilience dawns. The SolarWinds hack serves as a haunting testament to the transformative power of technology—and the imperative to remain vigilant in safeguarding the digital frontier.

Himanshu Bordoloi
BCA 3rd Sem

ARTIFICIAL INTELLIGENCE

Artificial intelligence: A journey into the future.

In the last few decades, the rapid advancements in technology have transformed various aspects of human life. One remarkable innovation is AI(artificial intelligence). AI is a field of that focuses on creating intelligent machines capable of performing tasks that typically require human intelligence. The evolution of AI has led to ground breaking achievements in the diverse domains from healthcare and finance to entertainment and transportation. This article explores the journey of AI. It is impact on society and the ethical considerations associated with its adoption .

The concept of AI dates back to the mid 20th century when researches began exploring the idea of creating machines that could simulate human intelligence. The early years of AI were characterized by symbolic logic and rule based system where computers were programmed with explicit rules to perform tasks. A significant turning point came with the emergence of machine learning techniques, particularly neural network .

It's impact on various sector like health care finance, transpiration etc..

Healthcare:- AI is revolutionizing healthcare with applications like medical imaging analysis during discovery and personalized treatment plans , deep learning algorithms can analysed medical images, aiding in the early detection of disease like cancer. AI Powered tools also assist doctors in diagonosing and treating patients more effectively.

Finance:- AI algorithms analyse vast amounts of data to predict market trends, optimise trading strategies and manage risks.

Transpiration:-the development of self driving cars is a prime example of AI is impact on transportation these vehicles use sensors and AI algorithms to navigate without human intervation, potentially reducing accident and traffic congestion.

Ethical consideration of AI:-

(1) job displacement : the automation potential of AI rises concerns about jobs displacement while AI can streamline processes.

(2) Privacy and security: AI`s Reliance on data collection rises privacy issues. striking a balance between utilizing data for innovation and protecting individual privacy is a challenge.

AI has transcended the realm of science fiction to become an integral part of our reality. It is ability to process, learn and adapt from data has transformed industries, sparking both excitement and apprehension while AI`s evolution process ethical dilemmas, it also present an opportunity to shape a future that harnesses technology power for positive change by fostering responsible AI developments, we can navigate the uncharted territories of innovation while upholding the values that define us as a society.

Dhanjit Sarkar
BSc CS 1st Sem

SAMARENDRA KUMAR MITRA

The Father of Indian Computer Revolution

Samarendra Kumar Mitra was a mathematician and computer scientist who played a pivotal role in the development of the first computer in India. He was born in Calcutta, India, on March 14, 1916, and studied mathematics at the University of Calcutta and the University of Cambridge. After graduating, he worked as a research mathematician at the Indian Statistical Institute.

In 1955, Mitra was appointed as the head of the Computer Division of the Electronics Corporation of India Limited (ECIL). In this role, he led the development of the HEC 2M, the first mainframe computer in India. The HEC 2M was used for scientific and engineering applications, and it also helped to lay the foundation for the development of software in India.

Mitra was a strong advocate for the use of computers in education and development. He believed that computers could be used to improve the lives of people in India, and he worked tirelessly to promote their use. He was also a recipient of the Padma Bhushan, India's third-highest civilian award.

Mitra's work has had a lasting impact on the field of computer science in India. He is considered to be one of the most important figures in the history of Indian computing. His contributions have helped to make India a leader in the field of information technology.

Here are some of the key aspects of Mitra's work that are worth highlighting:

1) His leadership in the development of the HEC 2M, the first mainframe computer in India.
2) His advocacy for the use of computers in education and development.
3) His contributions to the field of software development in India.
4) His receipt of the Padma Bhushan, India's third-highest civilian award.

Mitra's work has had a profound impact on the field of computer science in India. He is considered to be one of the most important figures in the history of Indian computing, and his contributions have helped to make India a leader in the field of information technology.

Suman Medhi
BCA 5th Sem

THE ANONYMOUS HACKER GROUP

Guardians of Digital Anonymity

In the ever-evolving landscape of the digital world, a phenomenon emerged that challenged conventions and advocated for digital privacy and freedom – the Anonymous Hacker Group. This enigmatic collective, characterized by their iconic Guy Fawkes masks and a strong sense of online activism, has captured the imagination of many.

The Anonymous Hacker Group, often referred to simply as "Anonymous," is a loosely organized network of hackers and activists who share a common ideology of fighting against censorship, government surveillance, and corporate control of the internet. Operating under a banner of anonymity, members of the group use their technological prowess to initiate cyber operations, protests, and campaigns aimed at shedding light on issues ranging from political corruption to social injustices.

What sets Anonymous apart is their decentralized structure, making it difficult for authorities to target any single leader or core group. This structure is also a double-edged sword, as it can sometimes lead to actions that diverge from the group's original intent. Anonymous has been both lauded for their efforts in promoting online freedom and criticized for their methods, which can range from hacking websites and exposing sensitive information to more constructive activities such as participating in online movements like "Occupy Wall Street."

Their actions often carry symbolic weight, using hacking and other online tactics as a form of digital protest. The use of Guy Fawkes masks as a symbol of resistance further underscores their commitment to anonymity and their role as digital "freedom fighters."

While the actions of the Anonymous Hacker Group remain controversial, they have undeniably played a significant role in shaping discussions about online privacy, freedom of speech, and the role of technology in society. In an era where our lives are increasingly intertwined with the digital realm, Anonymous serves as a reminder that the power of the internet can be harnessed for both positive change and potential misuse.

In conclusion, the Anonymous Hacker Group occupies a unique space in the digital landscape, challenging norms and advocating for digital rights and freedoms. Whether seen as heroes, villains, or something in between, they have left an indelible mark on the modern conversation about technology, activism, and the boundaries of digital expression.

Himangshu Lahkar
BCA 3rd Sem.

FROM ARPANET TO 5G

A Historical Perspective on Computer Networking

Introduction

The history of computer networking is a captivating journey that has transformed the way we communicate, work, and live. From its humble beginnings with ARPANET to the revolutionary era of 5G technology, this article delves into the remarkable evolution of computer networking, highlighting key milestones and innovations that have shaped our interconnected world.

ARPANET: The Birth of the Internet

In the late 1960s, the United States Department of Defense initiated ARPANET, a groundbreaking project designed to facilitate communication among researchers and scientists. ARPANET is often regarded as the precursor to the modern internet, introducing the concept of packet-switching and laying the foundation for global connectivity.

Ethernet and Local Area Networks (LANs)

The 1970s witnessed the development of Ethernet technology by Xerox, which allowed computers to communicate over short distances within an office or campus. This innovation led to the proliferation of local area networks (LANs), transforming the way organizations shared information and resources.

TCP/IP: The Internet Protocol Suite

The 1980s marked a significant milestone with the adoption of the Transmission Control Protocol and Internet Protocol (TCP/IP) as the standard for internet communication. This set of protocols enabled diverse computer systems to interconnect seamlessly and formed the backbone of the modern internet.

The World Wide Web: A Global Information Repository

Tim Berners-Lee's creation of the World Wide Web in the early 1990s revolutionized how people accessed and shared information. The introduction of web browsers and the HTTP protocol made the internet more user-friendly, opening doors to e-commerce, social networking, and countless other online services.

Wireless Revolution: Wi-Fi and Mobile Networks

The late 1990s and early 2000s witnessed the widespread adoption of Wi-Fi technology, allowing for wireless connectivity within homes and businesses. Simultaneously, the development of 2G, 3G, and later 4G mobile networks brought internet access to smartphones, enabling the mobile internet era.

5G Technology: The Next Frontier

As we move into the 2020s, 5G technology stands as the latest milestone in the history of computer networking. Offering unprecedented speed, low latency, and massive device connectivity, 5G has the potential to revolutionize industries such as healthcare, autonomous vehicles, and smart cities.

The Internet of Things (IoT) and Beyond

With the advent of 5G, the Internet of Things (IoT) is set to flourish. Billions of interconnected devices, from smart appliances to industrial sensors, will rely on 5G networks to transmit data in real-time, creating new opportunities and challenges for computer networking.

Conclusion

From the birth of ARPANET to the emergence of 5G technology, the history of computer networking reflects a remarkable journey of innovation and connectivity. Each milestone has brought us closer to a more interconnected world, revolutionizing the way we communicate, work, and interact with technology. As we look to the future, it is clear that computer networking will continue to evolve, shaping the course of human progress in ways we can only begin to imagine.

Bishruta Kalita
BSc CS 5th Sem

DATA AS A STRATEGIC ASSET

The value of data has been likened to that of oil, a finite resource that is essential to the functioning of modern society. However, unlike oil, data is not depleted by use. In fact, the more data we collect, the more valuable it becomes. This is because data can be used to generate insights that can be used to improve decision-making, create new products and services, and drive innovation.

In the digital age, data is becoming increasingly ubiquitous. We generate data every time we use our smartphones, computers, and other devices. This data can be used to track our movements, our shopping habits, our health, and our social interactions. It can also be used to predict our behavior and to target us with advertising.

The rise of data has led to a new era of competition, in which companies that are able to collect and analyze data have a significant advantage over their rivals. This is because data can be used to gain a deeper understanding of customers, to identify new market opportunities, and to develop more effective marketing campaigns.

In order to compete effectively in the digital age, businesses need to adopt a data-driven approach. This means collecting and analyzing data in order to gain insights that can be used to improve decision-making. It also means investing in the technologies and skills necessary to manage and analyze data effectively.

The collection and analysis of data is not without its challenges. One of the biggest challenges is ensuring that data is collected and used in a responsible manner. This means protecting the privacy of individuals and ensuring that data is not used for discriminatory or harmful purposes.

Another challenge is ensuring that data is accurate and reliable. Data can be corrupted or inaccurate, which can lead to inaccurate insights and decisions. It is important to have processes in place to ensure that data is collected and processed accurately.

Despite the challenges, the value of data is clear. Data is a strategic asset that can be used to improve decision-making, create new products and services, and drive innovation. Businesses that are able to collect and analyze data effectively will have a significant advantage in the digital age.

Here are some of the ways that data can be used as a strategic asset:

Improve decision-making: Data can be used to improve decision-making by providing insights into customer behavior, market trends, and competitive landscape. This information can be used to make better decisions about product development, pricing, marketing, and other aspects of the business.
Create new products and services: Data can be used to identify new product and service opportunities by uncovering unmet needs and trends. This information can be used to develop new products and services that meet the needs of customers.
Drive innovation: Data can be used to drive innovation by providing insights into how to improve existing products and services, or to develop new ones. This information can be used to develop new technologies, processes, and business models.
The rise of data is a major challenge, but it is also an opportunity. By addressing the challenges of data, businesses can create a better future for themselves and for generations to come.

Chinmoy Pathak
BCA 5th Sem

MOVIE REVIEWS

Aamis : Ravening (2019)

Director : Bhaskar hazarika

"The definition of normal isn't universal. The creatures we consider disgusting, people savour them in different parts of the world. What is normal for us might be abnormal for others."
'Aamis' is an otherworldly tale of romance, which at first draws you deeper through its flawless storytelling. Bit by bit it shifts towards an unimaginable turn, resulting in a sickening yet deep rooted experience that will remain in your mind forever. The story tells us about an extreme obsession, true depiction of an obsessive mind which can do the unthinkable in the blink of an eye. From the very first shot to the last frame, it excels in its alignment of the framing and portraying the same in a metaphorical way. Helped by great cinematography that unravels the elegant beauty that is duly present in our casual everyday surroundings, a haunting, melancholy soundtrack that profoundly states an emptiness deep inside. Riveting notes of the Piano or the softer touch in strings abstrusely depicts the blossoming relationship on the screen that has no emotional barrier yet restrained by values. Performances were spectacular, I cant express my enough gratitude to the makers for selecting such talents in regards of two of the principal roles. Dr Lima das as Nirmali and Arghadeep Baruah as Sumon were sparkling in their respective segments. My only gripe here would be that at a certain point of time, I demanded more sensuality out of it. As being a romantic story that altogether is totally different, I craved for more deeper delve into it. Nevertheless I loved it for its unique take. In all, Aamis is a subliminal work of art that takes you into deeper dive with food, romance and obsession. A sublime thrill, that can only be felt, not told.

Himangshu Kaushik Gohain (**First in Movie Review Competition**)
BSc Geography 3rd Sem

The Dark Knight

The best comic book adaptation statement for the dark knight might not be an obnoxious review from a mad DC fan, because it has the elements required to call it a classic in the coming decades. After success of batman begins both critically and economically, Christopher Nolan brought us this almost perfect movie introducing us the joker.

Christian Bale stars as Bruce Wayne aka the Batman, Heath Ledger as the joker and likes of Michael Caine, Gary Oldman, Cillian Murphy ,Morgan Freeman in other important roles. The basic plot is that joker comes in as the new terror for Gotham with his motive to not just destroy the city but to see people and their morals fall, the batman must protect the city and also show the joker that he is wrong, what's happens who wins is part of the story
Let us talk about the positives and negatives.

The Positives :

Direction and music : Christopher Nolan cannot be questioned on his directing capabilities at all, and he delivers that right on this time too and along with his long time partner Hans Zimmer who composed the theme and soundtrack for the movie made it a memorable watch.

Practical Effects : It might be the truck flipping scene or some other Nolan made it look perfect with his practical effects with any *CGI* (we are pretty sure he didn't)

The Joker : The performance of Heath Ledger as The Joker is a complete masterpiece in itself, his dialogue, his mannerisms, his eye movement everything was perfect, sadly he passed away very soon.

The Negatives :

Some plot issues : Little niggles on the plot can be seen, what happens after joker throws Rachel through the window and batman goes for her, where he goes and what he does,things no one knows.

Batman overshadowed by villains : Its a batman movie but the villain and the other characters may have stolen some of his limelight, a heavy amount of best written dialogues were of other characters and not him.
Atlast its a fantastic movie for all the movie lovers and specially batman lovers, totally recommended 4.5/5.

Sabin Kumar Kalita
BSc CS 5th Sem

Hacksaw Ridge

"**Hacksaw Ridge**" is a cinematic tour de force that impeccably narrates the true story of **US ARMY MEDIC Private First Class Desmond Doss**, a World War II hero who stood by his convictions amidst the ravages of combat. Directed by Mel Gibson, the film was globally premiered on **September 16th, 2016**, in **73rd Venice Film Festival**. The movie combines gritty realism with emotional depth to create an unforgettable experience.
Without waiting any further, let's dive deep into the review -

- **Plot and Characterization (9/10):** According to me, the film's narrative brilliantly unfolds the journey of Private Desmond Doss, portrayed with conviction by the famous Hollywood actor, Andrew Garfield. His unwavering commitment to his beliefs, coupled with the moral dilemma he faces in a war-torn setting, forms the crux of the story. The supporting characters, notably Vince Vaughn and Sam Worthington, provide depth and authenticity to the wartime backdrop.

- **Direction and Cinematography (8/10):** I think that Mel Gibson's direction infuses the film with raw intensity. The visceral depiction of the Battle of Okinawa leaves an indelible impact. Its cinematography captures the chaos and camaraderie of war, showcasing both the true horrors for war and humanity's place in it.

- **Performance (9/10):** Andrew Garfield's portrayal of Desmond Doss is nothing short of remarkable. For me, his portrayal captures the essence of a man torn between his principles and the chaos around him. I believe the ensemble cast delivers strong performances, which is comparable to Heath Ledger's portrayal of the Joker being a standout.

- **Emotional Resonance** (**10**/**10**)**:** The film's emotional depth shines through as it explores themes of courage, sacrifice, and the strength of convictions. The intense battle scenes are juxtaposed with poignant moments of camaraderie, making the emotional journey of the characters truly resonant.

- **Soundtrack and Score** (**7.5**/**10**)**:** The music by Rupert Gregson-Williams complements the film's narrative, enhancing emotional moments and intensifying the action sequences. The score seamlessly blends with the visuals, elevating the viewer's engagement. But for me, the songs and background soundtracks did not match up in some particular scenes, that with threw me off a bit, as I feel, it could've been better in those specific spots.

- **Overall Impact** (**9**/**10**): "Hacksaw Ridge" is a cinematic triumph that pays homage to heroism in its purest form. It tells the remarkable true story of Desmond Doss, a conscientious objector who served as a medic in World War II. Portrayed brilliantly by Andrew Garfield, Doss's unwavering commitment to his beliefs and his heroism on the battlefield are portrayed brilliantly, with astonishing depth. Also, the movie and its characters ability to transport the audience into the heart of war while highlighting the triumph of the human spirit is commendable.

- **Final Verdict** (**9**/**10**)**:** "Hacksaw Ridge" is a gripping war drama that leaves an indelible mark. Its powerful storytelling, coupled with Andrew Garfield's exceptional performance, makes it a must-watch. For me, "Hacksaw Ridge" isn't just a war movie; it's a testament to the strength of individual beliefs and the extraordinary acts of heroism that can arise from them. With its riveting storytelling, exceptional performances, and emotional depth, it rightfully earns its place among the greatest war dramas.

The film's ability to balance intense battle scenes with moments of profound emotion showcases its cinematic prowess. It earns a solid **9**/**10** for its impactful narrative and remarkable execution.

Himanshu Bordoloi
BCA 3rd Sem

The Social Network

"The Social Network", a 2010 David Fincher film that explores the birth and development of the game-changing social media site Facebook, is engrossing and thought-provoking. The movie examines Mark Zuckerberg's development from a Harvard student with an idea to a successful software entrepreneur. Jesse Eisenberg plays Zuckerberg in the movie.

The movie gives a fictionalized depiction of the occasions surrounding the establishment of Facebook and is based on the book "The Accidental Billionaires" by Ben Mezrich. The story is framed by two lawsuits that are ongoing at the same time: one involving Andrew Garfield's Eduardo Saverin, A former friend and business partner of Mark Zuckerberg, and the other involving Armie Hammer's Cameron and Tyler Winklevoss and Divya Narendra, who allege that Zuckerberg stole their idea for Facebook. The charismatic and crafty co-founder of Napster, Sean Parker, is portrayed by Justin Timberlake, which gives another level of intrigue to the story.

The movie deftly examines the moral complications of achievement as well as themes like ambition, betrayal, and power. It calls into doubt Zuckerberg's genuine objectives, whether he plagarised or just benefited from his own ideas, and the impact his behaviour has on his connections and personal relationships. The dialogue in Aaron Sorkin's screenplay is quick-witted, incisive, and packed with action to keep the viewer interested the entire time.

Jesse Eisenberg portrays Zuckerberg as an ambitious and socially uncomfortable genius who is also clever and morally confused in a great performance. The emotional foundation of the movie is furthered by Andrew Garfield's portrayal of Eduardo Saverin, who emphasises the effects of the shattered friendship.

The flawless directing of David Fincher creates a tight and elegant visual environment that enhances the storyline. The use of flashbacks and non-linear narrative in the movie keeps viewers interested and provides understanding of the motivations of the characters.

The movie "The Social Network" also sheds light on the broader societal ramifications of the invention of Facebook, including the degradation of individual privacy and the dual-purpose nature of social media. It serves as a warning about the costs of accomplishment and the moral dilemmas that can occur when striving for greatness. In conclusion, "The Social Network" is an engaging and skillfully made movie that provides a fictionalised view into the early years of Facebook and the interpersonal and legal disputes that surround its founding. It is a stimulating investigation into aspiration, friendship, and the influence of technology on contemporary life.

Arjun Pratap Das
BSc CS 5th Sem

Rockstar

Directed by:- Imtiaz Ali

Starring :- Ranbir Kapoor, Nargish Fakhri

Rockstar is a Musical romantic movie . A masterpiece delivered by Imtiaz Ali. Ranbir Kapoor lived the character of Jordan , His journey from Janardhan to Jordan with his marvelous acting skills is the highlight of the movie .
The self inflicted pain of 'Jordan' is the soul of this movie and moves the audience.

The another great aspect of the movie is the music of the movie. Each song itself is a story.The melodious fusion of religious and cultural essence by the maestro take it to the skies.. A.R Rahman's Music with Mohit Chauhan's graceful voice is just superb.

The director Imtiaz Ali has delivered one of his best work till date. With his amazing talent of storytelling and amazing cinematography.The movie's themes of love, heartbreak, and artistic expression are explored in a raw and honest way, making it a must-see for fans of the genre.

In a scene where Ranbir Kapoor's Jordan reunites with Nargis Fakhri's Heer after all the drama at her Prague's house, he says "Guitar jaisi hai tu," (You're like a Guitar) and by the end in Nadaan Parinde song, he sees a Guitar burning indicating the end of Heer. She was suffering from Bone Marrow Aplasia and died because she got pregnant with Jordan. This indicates how Heer got better because of Jordan and passed away also (partially) because of him. She was his music, but he was her disease.
And both lived forever.

Irfan Aktar Rahman
BCA 5th Sem

The Bucket List

The Bucket List is just such a picture: a sentimental and predictable script; a concept that explores and wishes fulfillment and roads not taken.
I love every genre. Maybe it is where I feel life is so unpredictable that people should fulfill their wishes before they die. This film moved me like no other.

The story is quite predictable, but I still enjoyed it. Never mind how impossible the storyline is because it is a great movie about friendship - how two men become great friends in a short time and help each other out throughout the time they are together. It moves along at a smooth pace and I never got bored, so the writer gets credit for that. The acting was top notch as Nicholson and Freeman delivered the right emotion in the audience at the right time. The emotional parts are done just right, but the funny scenes are the best. I laughed throughout the movie but not as much as I would in a true comedy movie, but the comic scenes in this one really work and Nicholson is the "main man" in them. It does have a message at the end about how you should live your life to the fullest, how your family is important, and how you should be happy in life and the movie delivers that message perfectly. The operative word is sob. I have certainly shed a tear or two at countless films. One I would like to mention “Grave of Fireflies” which also made me sob after the movie which I am reviewing now .This film just struck a chord. Not everyone who sees it will feel this way. I know that, but Nicholson is so damned brilliant as is Freeman. It is a joy to watch their characters for a little over 90 minutes, and the message, well, I hope it hits you as it did me. I wanted to go hug everyone that means anything to me.
Usually I'm not into these kinds of movies, but with the casting of Jack Nicholson and Morgan Freeman I had to see it. I'm really glad that I decided to give this a try and also I recommend everyone to watch this beautiful work by director Rob Reiner and his team.

Usually I'm not into these kinds of movies, but with the casting of Jack Nicholson and Morgan Freeman I had to see it. I'm really glad that I decided to give this a try and also I recommend everyone to watch this beautiful work by director Rob Reiner and his team.

Jyotishmoy Sarma
BSc Chemistry 3rd Sem

ARTWORKS

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Saurav Sarmah
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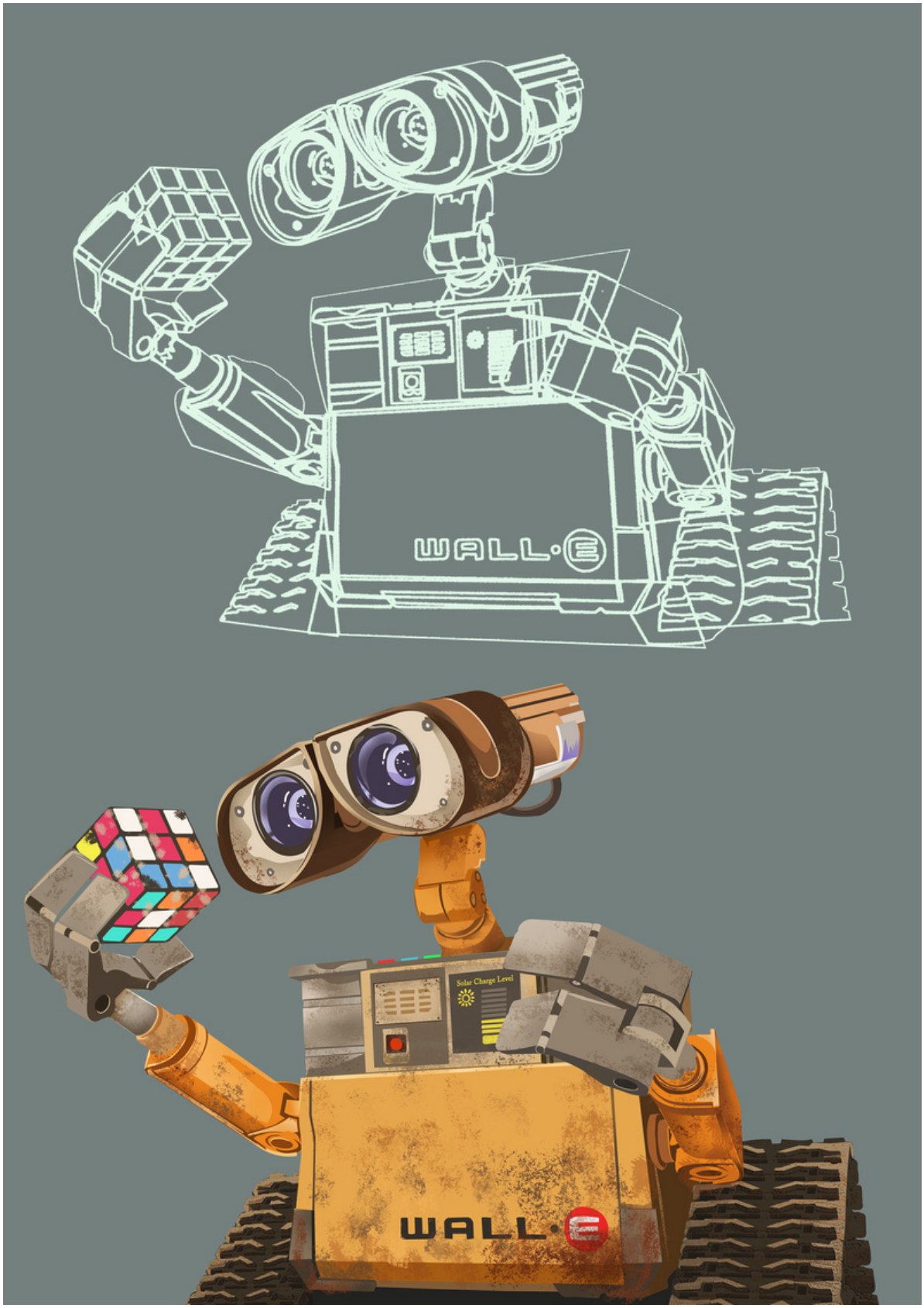

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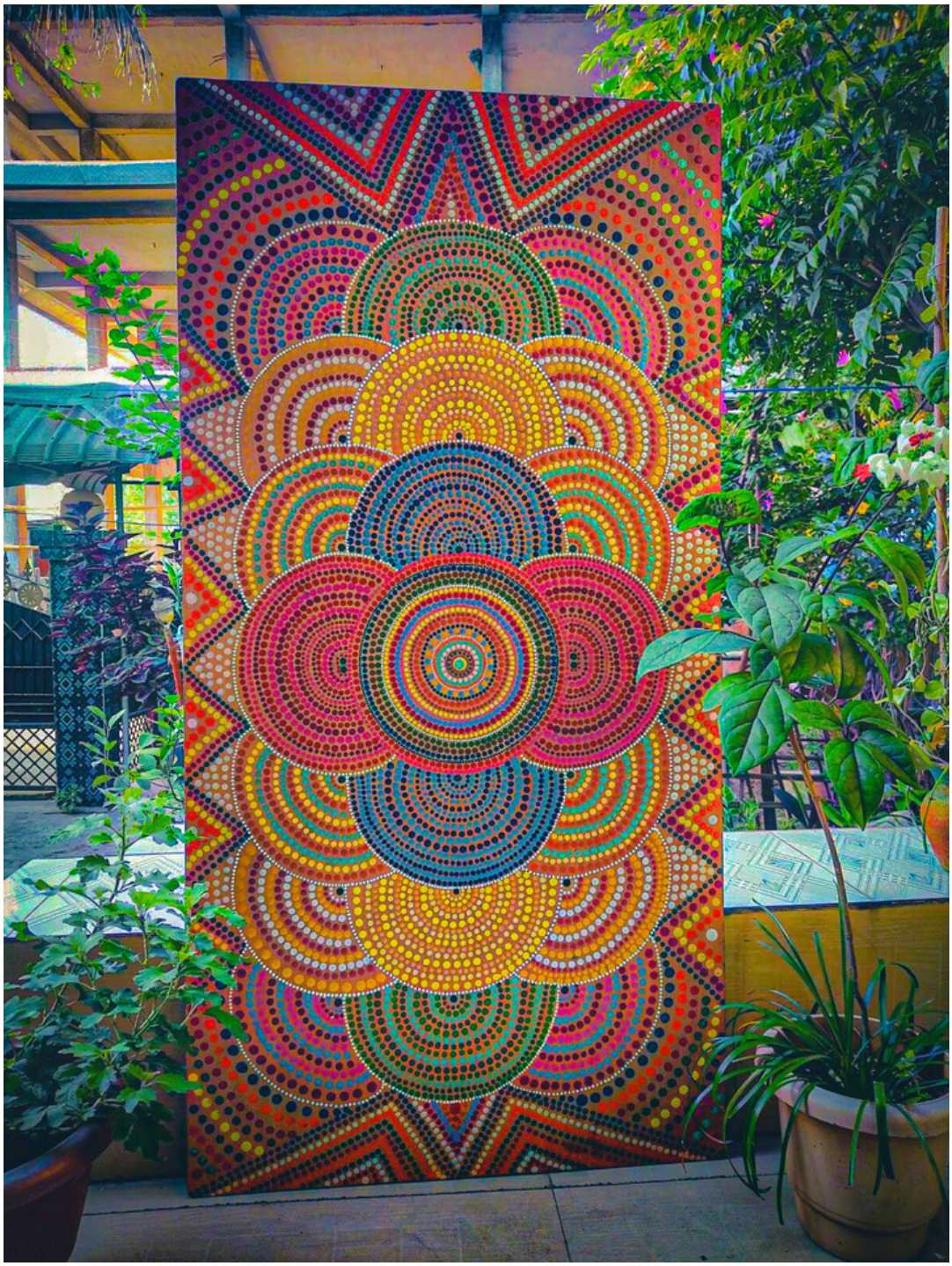

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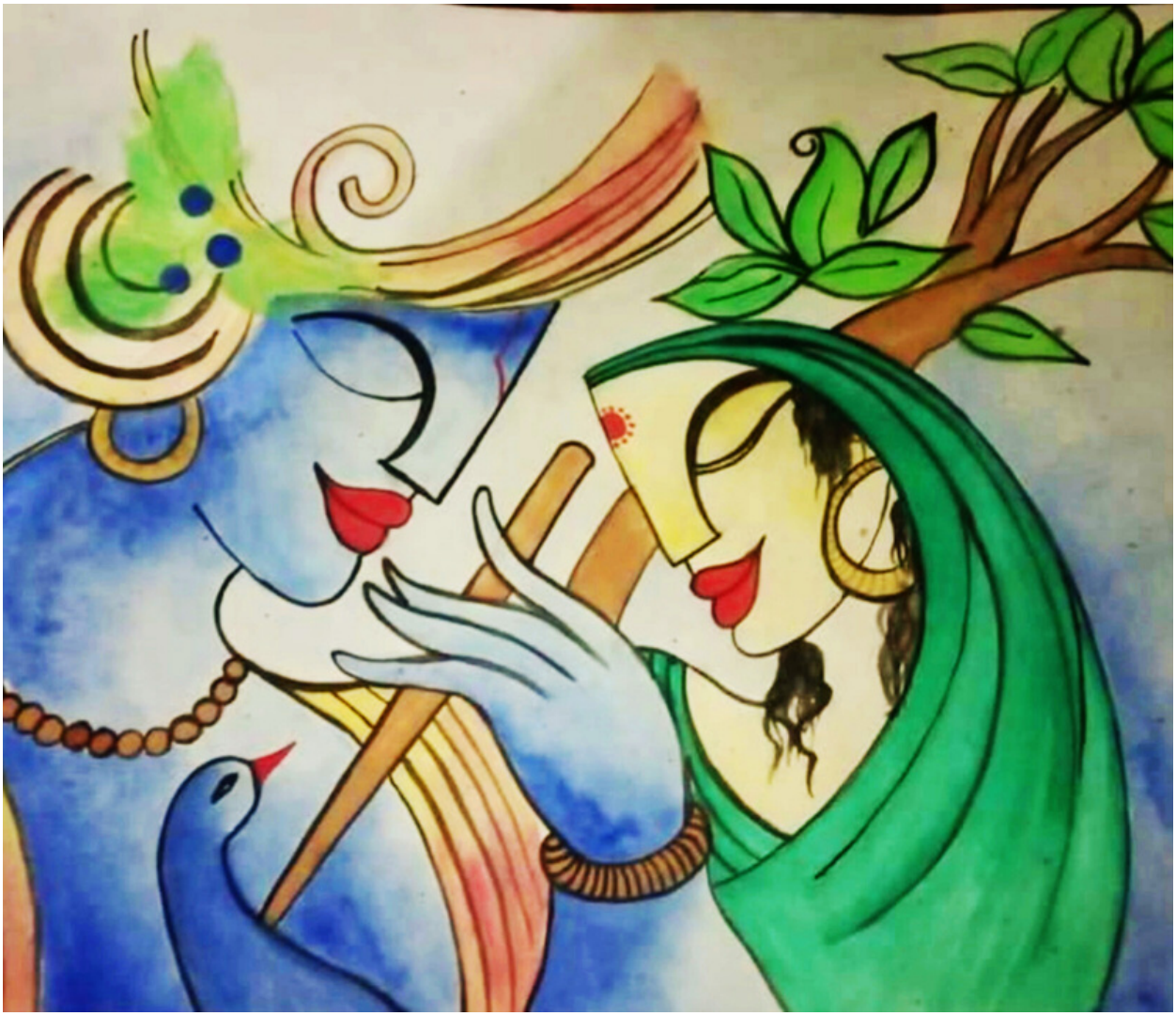

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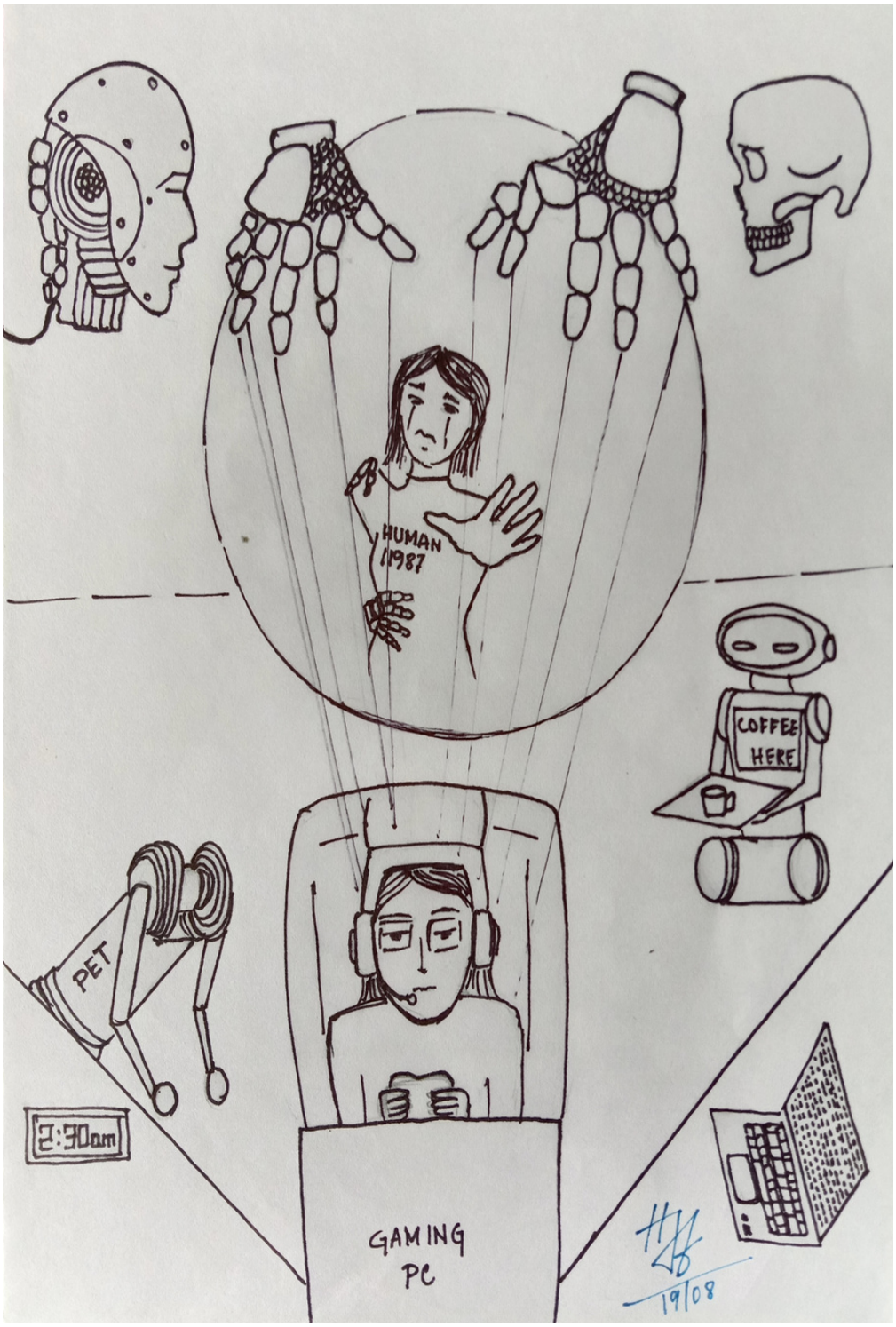

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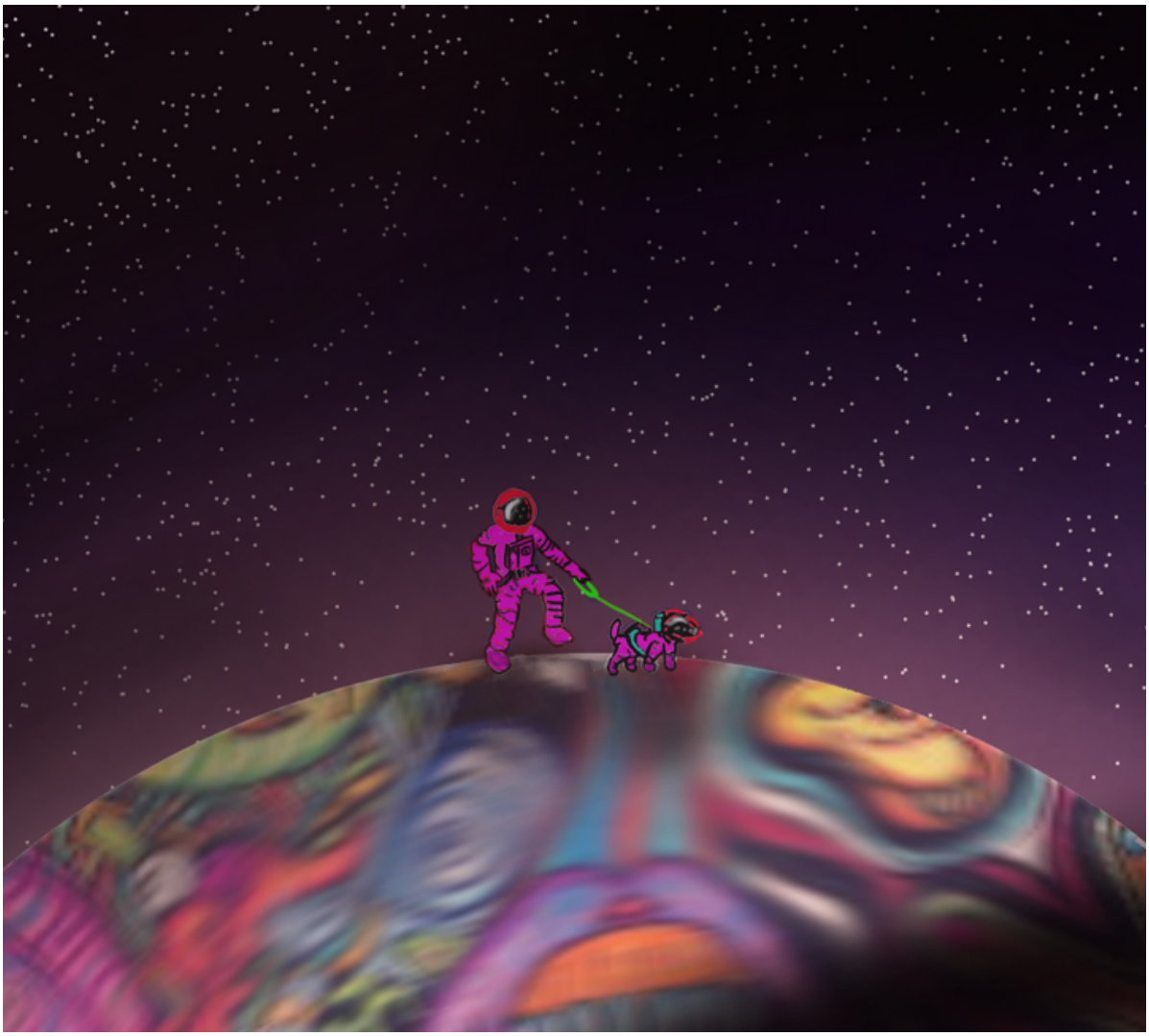

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Priyanshu Sharma
HS 2nd Year

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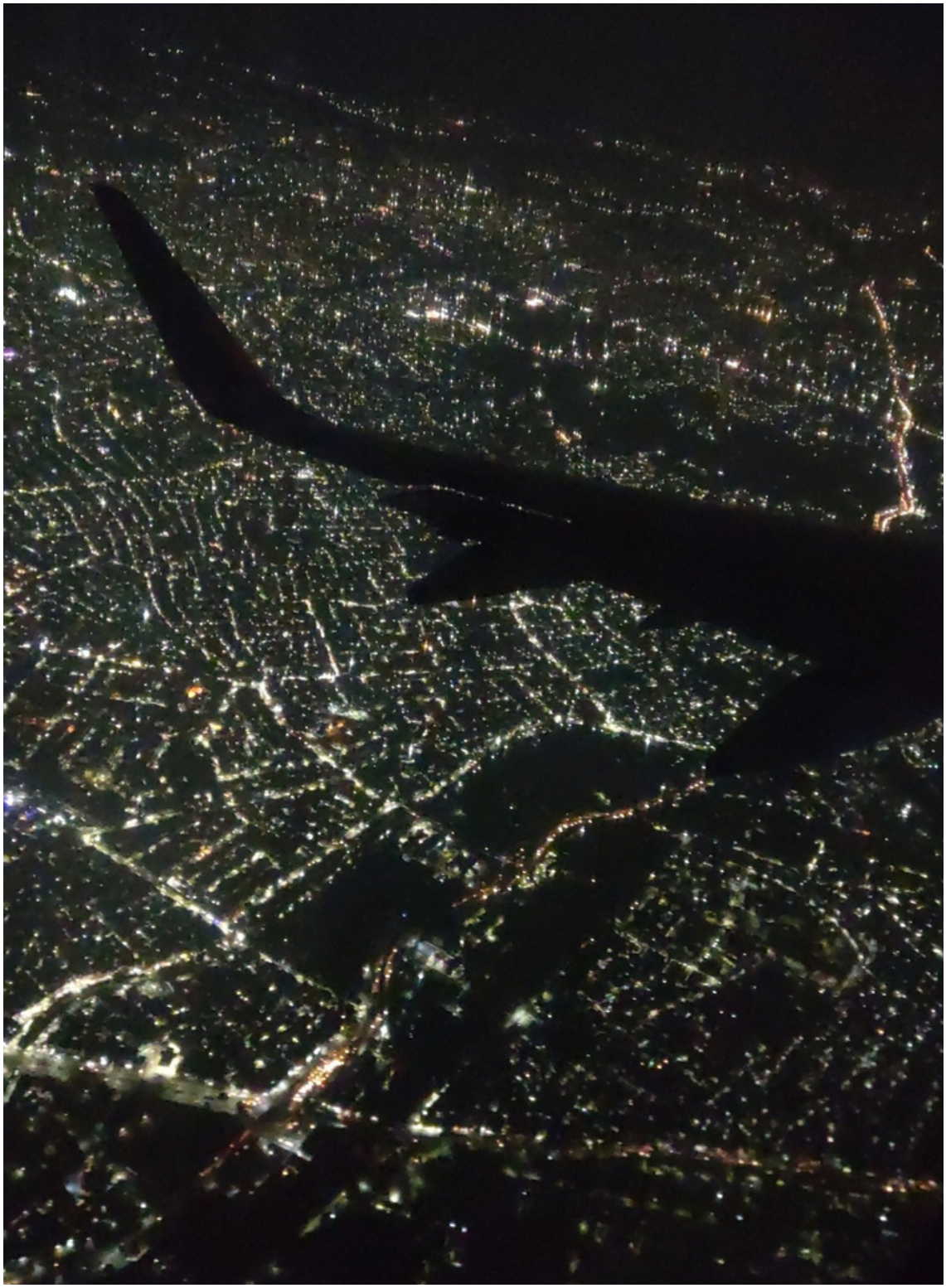

Shivanga Hazarika
Department of Anthropology

“The Science that drives nuclear missiles also takes rockets into space. Inovation and destruction are two sides of the same coin, it is what we choose ”

Pragjyotish College

Department of Computer Science