

# THE BYTEZEN

VOLUME 1, ISSUE 1 APRIL 2025

A NEWSLETTER BY THE DEPARTMENT OF COMPUTER SCIENCE, DCAC

\$ echo "Initializing... Welcome to Code-Driven Insights!"

Vision is the art of seeing what is invisible to others."

Have you ever wondered how your phone recognises your face, or how Google Photos can search for "birthday cake" among thousands of photos in your mobile or computer gallery? The magic with which these things are executed is called Computer Vision, which at the heart of CV is Deep Learning, a technology that allows machines to not just see but also understand what they see.

Computer vision is a domain of artificial intelligence and machine learning where human beings teach computers to see and interpret images, videos, or develop features like a live camera just like humans. Instead of following explicit instructions, these systems learn to recognise patterns and features from huge amounts of data and the process is as simple as training a child: where at first we show them various things, objects, and creatures and slowly gradually they inculcate the habit of distinguishing between a cat and a dog, or a tree and a car.

To make things clear, one can break down the process in following simple steps:

1. Pixels: The Building Blocks of Images

Every digital image is developed with dots called pixels.

Each pixel holds numerical values that represent colours (red, green, and blue). For a computer, an image is simply a matrix of numbers.

2. Convolutional Neural Networks (CNNs):

The real magic behind this process lies in Convolutional Neural Networks (CNNs). CNN layers play a pivotal role in decoding the image data from raw form to meaningful insights.

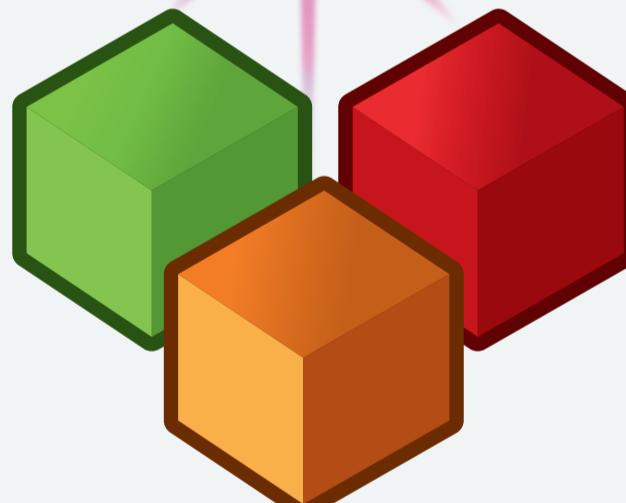
These networks mimic the human visual system by using a series of filters to scan images and then detect basic features like edges and textures in the first layers, and as the data moves through deeper layers, they start to recognize more complex patterns like parts of objects or even the objects in their entirety. In short, CNNs learn to transform raw pixel data into features that are meaningful to human beings.

3. Learning Through Backpropagation

Once a network makes a prediction, like labeling an image as "dog," it compares this guess with the correct answer. Through a process called backpropagation, the network adjusts its internal parameters (weights) to reduce errors.

## From Pixels to Perception: Deep Learning behind Computer Vision

Muntaazir Mehdji



Over countless iterations and with a lot of data, the model becomes adept at recognizing subtle patterns, hence making it incredibly accurate over time.

Impact of Computer Vision in real world

The applications of CV are far beyond stunning filters on social media, some of which are mentioned below

Healthcare: Automated analysis of X-rays and MRIs can help doctors to detect diseases earlier, save diagnostic time, and be more accurate.

Autonomous Vehicles: Self Driving cars use CV to read road signs, detect pedestrians, and navigate safely. Agriculture: Drones

equipped with CV monitor crop health, helping farmers to optimise yield. Retail: Stores use facial recognition and tracking to enhance customer experience and security. Environmental Monitoring: Satellite imagery analysed by CV algorithms helps track deforestation, pollution, and climate change effects. Tools for the Aspiring Computer Vision Enthusiast One doesn't have to be an expert to start exploring this dynamic field. Below mentioned are some tools and resources that one can start their journey with: Python: The best programming language for most CV projects.

OpenCV: An open source library that provides tools for image processing.

TensorFlow/Keras or PyTorch: Deep learning frameworks that simplify building and training CNNs.

Google Colab: A free cloud based platform that offers access to GPUs for training your models.

At Bytezen, we are committed to more than just learning technology, we are here to build solutions that have real world impact. Whether it is designing a smart library chatbot that uses image recognition to suggest books or creating security systems that use CV to monitor campus safety, the possibilities could be endless.

Computer vision is transforming the way machines interact with the world, bridging the gap between raw data and human insights. In the journey from pixels to perception, we are not merely teaching computers to see but are also empowering them to understand, innovate, and ultimately improve human lives.

There has been a constant debate on digitalizing different aspects of our physical life. Be it art forms, documents, ancient records of expression and what not. There is the apprehension which comes with our life's being reflected across the internet. The fear of losing privacy, of wanting to follow trends, of losing our individual selves to our desires which are shared by thousand others, And I daresay, that is very viable as we see the recent controversy around the use of Ghibli animations in personalized pictures with the help of AI.

To be frank I do see the both the perspectives of wanting to imply cool art in context to our lives and its effect on the creation aspect of it. As Hayao Miyazaki said about the use of AI - "I am utterly disgusted. If you really want to make creepy stuff you can go ahead and do it. I would never wish to incorporate this technology into my work at all. I strongly feel this is an insult to life itself."

But I also see that we also pirate or bootleg movies, eBook's, songs which is also an insult to the creators. So somewhere or the other there is a hypocrisy between how much of what we consume comes from the original source and what has to be exploited in order for us to experience a certain phenomenon. Capitalistic tendencies is after all the age old nemesis which differs our opinions. Since the original is always too expensive too polished for general audience to experience, people go for its imitations and there is yet another debate on how it translates.

Now about my own dilemma of choosing Modeling Amps over Tube Amps as a rookie guitarist and the consecutive Gear Wars will be put into this aspect of wanting to achieve a specific guitar sound by replicating the tonality of guitar sounds from Tube Amps to Modelling Amps.

By definition Tube Amplifiers uses vacuum tubes (or valves) to amplify the electrical signals produced by an electric guitar. These signals, generated by the guitar's pickups, are processed through preamp and power tubes in the amplifier, ultimately driving the speaker and producing sound. While Modelling Amplifiers uses digital circuitry to emulate physical amplifiers like tube amplifiers and gives similar sound, tonality and experience to people who can't afford the Tube Amplifier Setup. The process of emulation has immensely helped in recording parts of songs from home rather than booking a recording studio for thousands and spending thousands of rupees on its mixing, mastering and production aspect of it.

The main area of conflict is the affordability of Gears like Tube Amplifiers, though it has its own uniqueness when it comes to generate original sound and full on manual control over its functioning. They are expensive and they need a tube change in 2 years which is again an interest in the eyes of those who can afford it. Other key differences is that experienced players can differentiate between the warm, and natural tones especially when driven into overdrive of Tube amplifiers but as beginners who are new to the world of tones are influenced by a lot of genres so Modeling Amps a wide range of simulated amplifier sounds allowing players to emulate various classic and modern tones.

## *Gear Wars; Switching from Tube Amplifiers to Modeling Amplifiers: A Rookie Guitarists Dilemma.*

*Smith martin Tete*

The responsiveness of Tube Amps are also better than the responsiveness of Modelling Amps but the durability of Modeling Amps is much better because sometimes the tubes burn out in the Tube Amps which again is hazardous for people because tubes are well very expensive.

In Versatility Modeling Amps are the winner because I personally own a Spider V20 MkII from Line 6 which has various tones from clean and crunch patches to ambient, acoustic to heavy distortion patches. Added to that I also got a subscription of Cubase LE AI Elements DAW ( Digital Audio Workstation) which is more than a dream. I usually use PreSonus Studio One for my recordings or FL Studio on my creative days. Digital Audio Workstations have cut down the expensive recording prices to 0 bucks as the software can be pirated again and the only hardware required is an audio interface and a microphone, the bare minimum home studio setup.

In conclusion, there is a specific disliking of modern day alternatives to recording and playing in the music industry because of the loss of the original status quo of raw recordings and the use of various sound equipment's which has dramatically reduced to a laptop and audio interface home-studio setup which is way better in terms of affordability and emulation of famous sounds and tones. The accessibility to music creation and production has improved a lot while there are its own expensive gears like the infamous Neural DSP processors and sound packages which cost around lakhs for a specific audio sample from a band you like but I'm still using my BOSS ME-80 which is kind of difficult because most of its settings are manual. There are more nuances in all these sound techs but as a rookie guitarist my concern as stated is with how much accessibility I have of the sound I want to implement in my songs or guitar playing.

from PIL import ImageDraw, ImageFont  
draw.text((100, 100), "MAGAZINE TITLE",  
font=ImageFont.truetype('arial.ttf', 50), fill="black")

We are living in a time where technological change is changing everything. The biggest change we are seeing today is artificial intelligence (AI). From searching on Google to the recommendations we get on YouTube or Netflix, AI is working behind the scenes to make our lives easier.

What fascinates me the most is how many creative ways AI is being used. Nowadays, people are using AI to help them in their work. Instead of spending hours creating ideas, creators can just write a simple prompt and get ideas for their next YouTube video or Instagram reel. AI can also draw pictures, add motion to them, and even generate different kinds of sounds and voices. A recent trend that caught everyone's attention was the Ghibli-style image trend. People were using AI to turn normal photos into beautiful paintings that looked like they were taken from a film studio. While the trend was fun, it also raised some concerns. Many people were unknowingly sharing their personal information and photos with ChatGPT or with other apps and websites, which could be a threat to their privacy. This is a reminder that while AI can be amazing, we must also consider our privacy and data usage. AI is also being used in coding. People can now generate code from simple prompts using AI tools. While the code isn't always perfect, it provides a good starting point and can help when you're stuck or need new ideas. Technology and AI aren't just things we'll use in the future, they're already with us. And as students, creators, and curious minds, we're part of this exciting change.

## AI and The Tech Era

Gahil Kumar

## AI: A Force for Social Empowerment in a Technological World

Zaira Rather

lligence (AI). No longer confined to science fiction, AI in 2025 has become a powerful tool for social empowerment, bridging gaps in access, equity, and opportunity.

The year 2025 is shaping up to be quite something when you think about how AI is weaving its way into making things fairer and more accessible for people. You know, it's not just about fancy robots anymore. Take, for instance, folks in really remote areas, places where getting a stable internet connection feels like a pipe dream. Now, there are these clever AI tools that don't even need the internet to help kids learn, give health advice, and provide access to all sorts of digital stuff. It's really changing the game for education and healthcare out in the sticks.

Then you've got these AI chatbots that are getting surprisingly good at picking up on how someone's feeling. They can tell if you're stressed or down just by the way you talk, or even how you type. It's like having someone there to offer support especially for young people and those in demanding jobs who might be struggling with their mental well-being. It's all done privately too, which I imagine makes a big difference. What's also really encouraging is the big push to make sure AI is actually fair. You hear so much about bias in these systems, but in 2025 there's a real effort to iron that out, whether it's in hiring or getting a loan. The people building these things are really trying to make sure everyone gets a fair shot, no matter where they come from. It's about building trust, you know?

And think about the millions of people who don't even have a basic ID. It's hard to imagine, but it's a reality for so many. Now, AI is stepping in to create digital IDs using things like biometrics. This is huge for refugees, people who are undocumented, and the homeless, giving them access to things we often take for granted, like healthcare, education, and even the ability to vote. What I also find really interesting is how communities are getting involved in actually training these AI systems. Instead of some distant tech company just feeding in data, it's the local people who are shaping the AI. This means the AI becomes much more accurate and actually understands the nuances of the community it's serving. It just makes sense, right?

And finally, the language barrier. It's such a fundamental hurdle for so many. But in 2025, AI tools are getting much better at handling all sorts of languages, even smaller regional ones. This means people can learn, get information, and access services in their own language, which is so important for keeping cultures alive and making sure everyone feels included in the digital world. At the end of the day, all this tech is great, but what really matters is how it impacts people. In 2025, it feels like there's a real focus on using AI to lift people up, give a voice to those who aren't always heard, and just make life a little bit easier for those who need it the most. It's not just about making things smarter; it's about making things more compassionate, inclusive, and ultimately more human. And that's a future worth looking forward to.

“  
from PIL import Image  
Image.new('RGB', (800, 600), (255, 200,  
150)).save("background.png")

Nvidia, the powerhouse behind the AI chips today's tech revolution, is making a big move: it's bringing production of its AI supercomputers to the United States for the very first time.

The company has announced a bold plan to build up to \$500 billion worth of AI infrastructure in the U.S. over the next four years. The goal? To meet the skyrocketing demand for AI chips, strengthen its supply chain, and reduce reliance on overseas manufacturing. The company has announced a bold plan to build up to \$500 billion worth of AI infrastructure in the U.S. over the next four years. The goal? To meet the skyrocketing demand for AI chips, strengthen its supply chain, and reduce reliance on overseas manufacturing. "Making chips in the U.S. helps us stay ahead of the curve and handle the growing appetite for AI," said CEO Jensen Huang. "It also makes our supply chain stronger and more resilient."

This shift comes just as President Donald Trump pushes for more domestic manufacturing by introducing high tariffs on imports. Earlier, he slapped a 32% tariff on products from Taiwan, where Nvidia's chips are mainly produced, and a whopping 145% tariff on Chinese goods sparking concern for major tech companies like Apple that heavily depend on Chinese manufacturing.

## *AI's Coming Home: Nvidia Moves In*

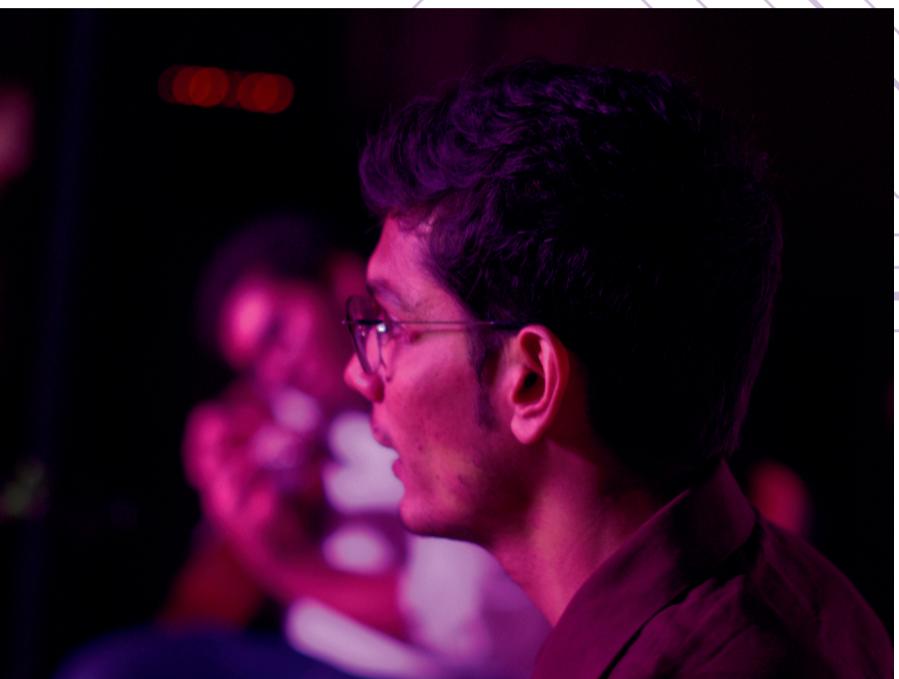
*Nausheen*

But in a surprising turn of events, Trump later announced exemptions for certain tech products including - chips, smartphones, and computers, only days before hinting at fresh tariffs on semiconductors. Meanwhile, Nvidia is moving full steam ahead. It shared that it's already secured over 1 million square feet of manufacturing space in the U.S. Production of its latest Blackwell AI chips has started in Phoenix at facilities operated by TSMC. It's also working with Amkor and Siliconware Precision Industries in Arizona for packaging and testing. Although Nvidia designs its own chips, it typically outsources manufacturing to partners like TSMC. Now, it's expanding its footprint with new supercomputer plants in Texas, teaming up with Foxconn in Houston and Wistron in Dallas. These sites are expected to hit mass production in 12 to 15 months. To bring these high-tech factories to life, Nvidia is using its own advanced tools, including digital twins (virtual models of the plants) and automation robots to streamline operations. The White House celebrated the announcement, calling it a clear sign of the 'Trump effect.' Nvidia, however, chose not to comment on whether its decision was directly influenced by recent tariff policies.

**\$ echo "Stay tuned for more exciting articles!"**

# YEAR AT A GLANCE

// run recap(); // catch all the magic



Bytezen organised the freshers ceremony for the batch of 2024-2027/28 on 14<sup>th</sup> October 2024 in the Swami Vivekananda Hall. The event was graced by the students of the new batch along with the organising team members followed by some exhilarating cultural performances. The department organised an Expert Talk on 15<sup>th</sup> October on Introduction to AI by Prof. Anil Singh Parihar from the department of Computer Science & Engineering, Delhi Technological University. Students across departments attended the engaging talk and delved into the nuances of AI. On 15<sup>th</sup> April, 2025, the department organised an Expert Talk on Generative AI by Mr. Ashutosh Pandey, Assistant Professor from the department of Information Technology, Delhi Technological University. Bytezen from February 2025 onwards began a new initiative of community development through daily lectures including those of programming languages.

**Delhi College Of Arts & Commerce**  
**(University Of Delhi)**

Department Of Computer Science & Department  
Of Mathematics in collaboration with IQAC

**Expert Talk**  
on  
**INTRODUCTION TO AI**

Learn how AI is shaping the future of technology and industries

Date: 15th October 2024  
Time: 10:30 AM – 11:30 AM  
Venue: Dr. APJ Abdul Kalam Azad Seminar Hall,  
DCAC College

**PROF. ANIL SINGH PARIHAR**

Department Of Computer Science & Engineering  
(Delhi Technological University)

**Let's Start!**

**Prof. Rajiv Chopra**  
Principal, DCAC

**Prof. Shrikant Pandey**  
IQAC Convener

**Dr. Mamta Kumari**  
TIC, Computer  
Science

**Dr. Indarpal Singh**  
TIC, Mathematics Departments

**Mr. Aman Kumar Pandey**  
Asst. Professor, CS



# MESSAGE FROM THE PRINCIPAL



Prof. Rajiv Chopra

Principal, Delhi College of Arts & Commerce

It gives me immense pleasure to see the Department of Computer Science taking such a dynamic initiative with the launch of Bytelog, the official tech newsletter by Bytezen. In this ever-evolving digital age, fostering a culture of innovation, critical thinking, and technical dialogue is essential. I commend the department and the students for creating a platform that not only highlights achievements but also encourages knowledge-sharing and creative expression. I extend my best wishes for the continued success of Bytelog and hope it inspires many to explore the vast frontiers of technology.

# MESSAGE FROM THE FACULTY

## TEACHER IN-CHARGE

**Department of Computer Science**

Mr.Aman Kumar Pandey

The launch of Bytelog Vol. 1 marks a proud moment for the Department of Computer Science. Bytezen has always been a hub of enthusiasm and creativity, and this newsletter is a testimony to the students' passion for tech and learning. It provides a glimpse into the efforts, innovations, and intellectual spirit that define our department. I congratulate the team behind Bytelog for their hard work and vision, and I look forward to seeing it grow as a reflection of our academic and technical pursuits.



## FACULTY ADVISOR **Department of Computer Science**

Dr.Mamta Kumari



Bytelog represents more than just a collection of articles; it is a vibrant expression of our students' dedication, curiosity, and engagement with the world of computer science. It brings forth perspectives that are both insightful and inspiring. I am proud to be associated with a department that continues to nurture talent and promote such meaningful initiatives. Heartfelt congratulations to the editorial team and all contributors—may Bytelog continue to thrive and evolve with each edition.

# MEET OUR TEAM

// Not just a team - we're the source code



## HEAD OF EDITORIAL

It gives me immense pleasure and honor to serve as the first Editorial Head of Bytelog, the Department's official newsletter. Bytelog is a student-led initiative, brought to life with the guidance and support of our faculty members. The primary aim of this newsletter is to showcase the knowledge and expertise that students possess across departments, particularly in the fields of technology and innovation. I congratulate the entire Bytelog team on this significant achievement and wish them the very best for future editions.

**KUMAR TUSHAR**



## CORE TEAM MEMBERS 2024-2025

**MUNTAZIR MEHDI**



**TUSHAR PANDEY**



**SAHIL KUMAR**



**UNNIT KUMAR**

The core team at Bytezen is extremely delighted to release the very first edition of its newsletter. Artificial Intelligence has been the theme of this edition which will let the readers have a nuanced understanding of the subject matter through the entries published. We are extremely grateful to our faculty advisory and the college administration for giving us this wonderful opportunity which not only highlights effective team work but also exhibits the talent of young individuals.

// Behind every great project, there's us... and

**99 bugs**

# FUN WITH CODING

// meme.commit("laughter")

Why do programmers prefer dark mode?

Because light attracts bugs!

PROGRAMMING JOKES - WWW.PUN.ME

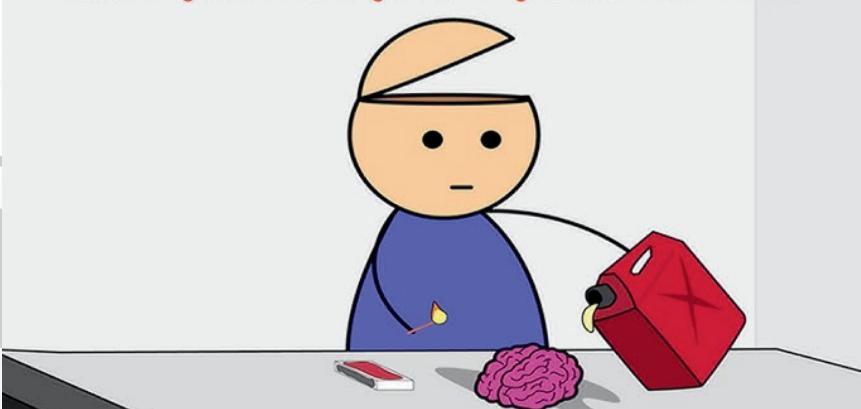


Why do programmers prefer dark mode?

Because light attracts bugs!

PROGRAMMING JOKES - WWW.PUN.ME

When you read your 3 years old code



MY CODE DOESN'T WORK

I HAVE NO IDEA WHY  
MY CODE WORKS

I HAVE NO IDEA WHY