

# NEWSLETTER

## I-TECH COMMITTEE

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### Cybersecurity Myths that You Should Know About

Even though there is increased concern regarding data

security, some misconceptions and myths prevail. Organizations must ensure that they don't regard any misconceptions about cybersecurity to appropriately safeguard their sensitive information against cyber-attacks or threats.

1. Cyberthreats Don't Target Small Businesses
2. Antivirus or Anti-Malware is Enough
3. Cyberattacks Can Only be External
4. Cybersecurity Solutions are Expensive

Understanding the myths around cybersecurity is quintessential for organizations of any size and industry. Cybercriminals attack all companies and if the business targeted does not have a robust cyber defense, then those companies will face a downfall.



After quelling these myths, you need a solid and reliable data security infrastructure to protect your systems and data from threats, and Gajshield's intelligent firewall systems and access management tools, amongst other solutions, can be perfect for you.

### ChatGPT: A Glimpse Into The Power Of AI

The capabilities of this chatbot are shocking! What's next? ChatGPT is a chatbot developed by OpenAI that uses a variant of the GPT-3 (Generative Pre-trained Transformer 3) language model to generate human-like responses to user input. It is designed to be able to hold natural, engaging conversations with users on a wide range of topics. GPT-3 is a powerful language model that uses machine learning techniques to generate human-like text. It has been trained on a massive dataset of web text, allowing it to generate coherent and relevant responses to user input. ChatGPT is built on top of GPT-3 and is specifically designed for use in chatbot applications.



Key feature of ChatGPT is its ability to learn from the conversations it has with users. As it converses with users, it can use machine learning techniques to improve its understanding of language and become more adept at generating appropriate responses.

### What Can You Create With ChatGPT?

1. Create Content
2. Generate AI Art
3. Write Code and Debug
4. Manage and Manipulate Data
5. Explain and Tutor

In conclusion, ChatGPT is an AI chatbot that uses natural language processing to create human-like conversational dialogue.

### Goldman Sachs Summer Internships

Goldman Sachs provides offline 6 months internships to students in various IT firms such as analysts this summer. Students have to first go through an aptitude test and then the further shortlisted students are interviewed for the opportunity.



### Why consider a career in Full-stack Development?

As technology becomes the driving force behind any business, organizations want professionals with both front-end (client-side) and back-end (server-side) software engineering skills. In short, they want full-stack developers.

1. Full-stack engineers are top choice candidates across industries and functions: There is an ever-increasing demand for full-stack developers.
2. Full-stack developers who can use key programming concepts such as Javascript, HTML, and CSS; design and build a React application; and set up a secure full-stack web application using the MERN stack are at the center of their organization's digital transformation.
3. Full-stack developers are paid handsomely: Since many industries want full-stack developers, they are also willing to hire the most skilled professionals at top dollar.

According to a LinkedIn report, India expects a 40% growth in MERN stack development jobs this year. Recruiters are on the lookout for full-stack developers who can work on multiple software development domains and adapt quickly to the diverse complexities of interdisciplinary IT projects.

### Machine Learning Helps Separate Compostable From Conventional Plastic Waste

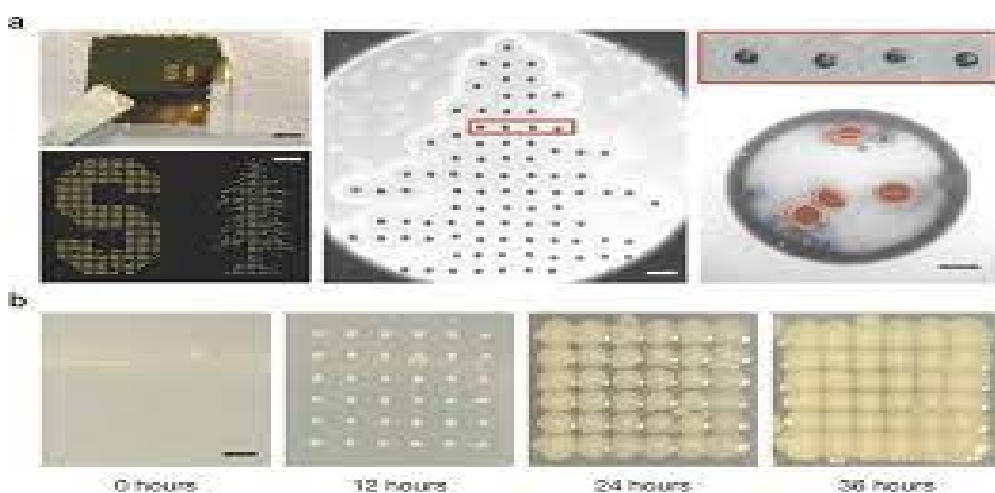
Disposable plastics are everywhere in our lives, appearing in various forms such as food containers, coffee cups, and plastic bags. Although certain plastics are designed to biodegrade under controlled conditions, they are still problematic as they often resemble traditional plastics. When these compostable plastics are recycled improperly, they can contaminate plastic waste streams, leading to a reduction in recycling efficiency. Furthermore, recyclable plastics are often mistaken for compostable ones, resulting in polluted compost.



The researchers worked with different types of plastics measuring between 50mm by 50mm and 5mm by 5mm. Conventional plastic samples included PP and PET, often used for food containers and drinking bottles, as well as LDPE, used, among other things, for plastic bags and packaging. Compostable plastic samples included PLA and PBAT, used for cup lids, tea bags, and magazine wraps; as well as palm-leaf and sugarcane, both biomass-derived materials used to produce packaging. The samples were divided into a training set, used to build classification models, and a testing set, used to check accuracy. Results showed high success rates: The model achieved perfect accuracy for all materials when the samples measured more than 10mm by 10mm. For sugarcane-derived or palm-leaf-based materials measuring 10mm by 10mm or less, however, the misclassification rate was 20% and 40%, respectively.

### Stanford Researchers Develop a Faster, Cheaper Way To Spot Bacteria in Fluids

A creative integration of AI-assisted imaging with the technology of an outdated inkjet printer results in a more efficient and cost-effective method for detecting bacteria in substances such as blood and wastewater. By shining a laser on a drop of blood, mucus, or wastewater, the reflection of the light can be analyzed to accurately identify the presence of bacteria in the sample.



It can find out not just the bacteria that are present, but specifically which bacteria are in the sample. This takes comparatively lesser time as compared to traditional culturing methods.

### Webb Space Telescope Shocks Astronomers With Surprising Exoplanet Atmospheric Composition

Astronomers using NASA's James Webb Space Telescope have discovered that the atmosphere of exoplanet HD149026b is super-abundant in the heavier elements carbon and oxygen – far above what scientists would expect for a planet of its mass, and the carbon-to-oxygen ratio is elevated relative to our solar system, which could provide insight into planet formation and an important first step toward obtaining similar measurements for a large sample of exoplanets in order to search for statistical trends. Gas giants orbiting our sun show a clear pattern; the more massive the planet, the lower the percentage of “heavy” elements (anything other than hydrogen and helium) in the planet’s atmosphere. But out in the galaxy, the atmospheric compositions of giant planets do not fit the solar system trend, an international team of astronomers has found.



### Flying vehicle

#### SKY DRIVE UNVEILS ITS SD-05 FLYING CAR DESIGN

Sky drive is an Japan based manufacturer of [flying cars](#) and cargo drones [SkyDrive](#)

They have unveiled a design for the flying car -the SkyDrive SD-05. This was one of the eye

Catching news of the recent year. The company is planning to launch an air taxi service in the Osaka Bay area during the world exposition scheduled for 2025 in Osaka, Japan. ‘This is another big step towards the realization of flying cars and sky roads,’ **commented Takumi Yamamoto, SkyDrive design director.** ‘Two years have passed since the announcement of the SD-03, which successfully completed its public manned flight test in August 2020, and they are very happy to be able to announce its successor, the SD-05.’

The SD-05 is envisioned as a two-seat, electric-powered compact aircraft with vertical takeoff and landing capabilities. Operated by a driver pilot, its flight stability is secured with a computer-controlled flight system. It can also travel up to approx. 10 km with a maximum cruise speed of 100 km/h. However, design and specifications are subject to change as the model development progresses.

**Name:** SD-05 Flying Car

**Design:** SkyDrive

**Launching at:** World Expo 2025

**Maximum cruise speed:** 100 km/h

**Power:** 12 motor-propeller units

**Collaborators:** JAMCO Corporation, Toray Carbon Magic Co., Ltd.,  
Electric Power Systems Inc.

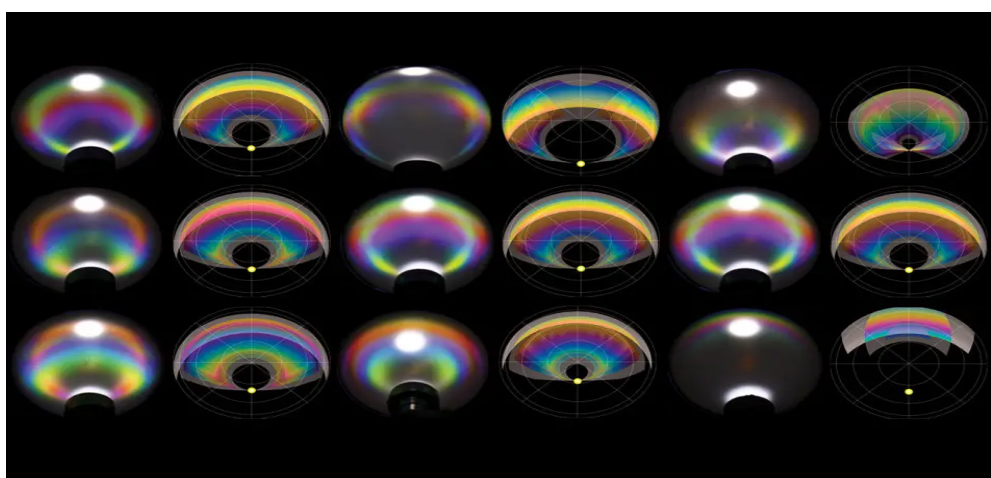


### Engineers Produce Iridescent Colors With Clear Water Droplets

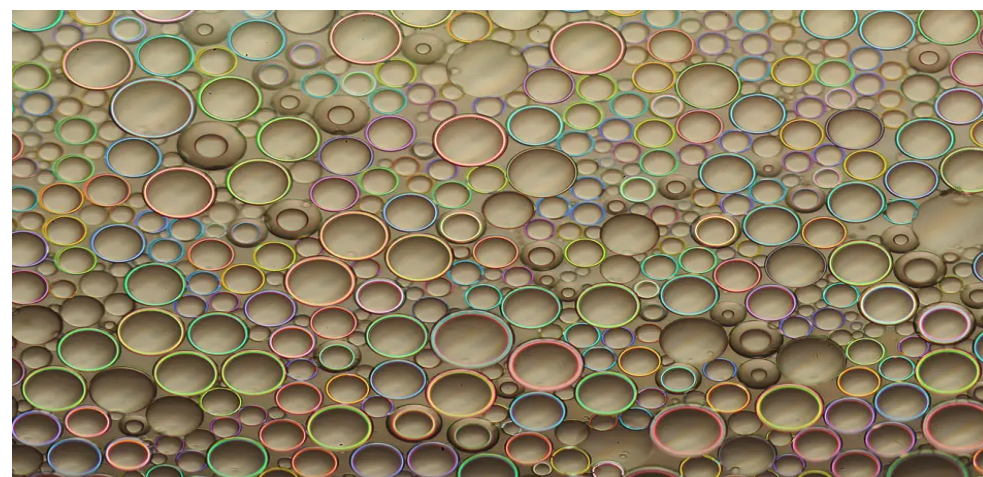
Engineers at MIT and Penn State University have found that under the right conditions, ordinary clear water droplets on a transparent surface can produce brilliant colors, without the addition of inks or dyes.

In a paper published today in *Nature*, the team reports that a surface covered in a fine mist of transparent droplets and lit with a single lamp should produce a bright color if each tiny droplet is precisely the same size.

This iridescent effect is due to “structural color,” by which an object generates color simply due to the way light interacts with its geometric structure. The effect may explain certain iridescent phenomena, such as the colorful condensation on a plastic dish or inside a water bottle.



Seen from above, transparent droplets in a Petri dish, illuminated with white light, appear as varying colors, depending on their size and shape.

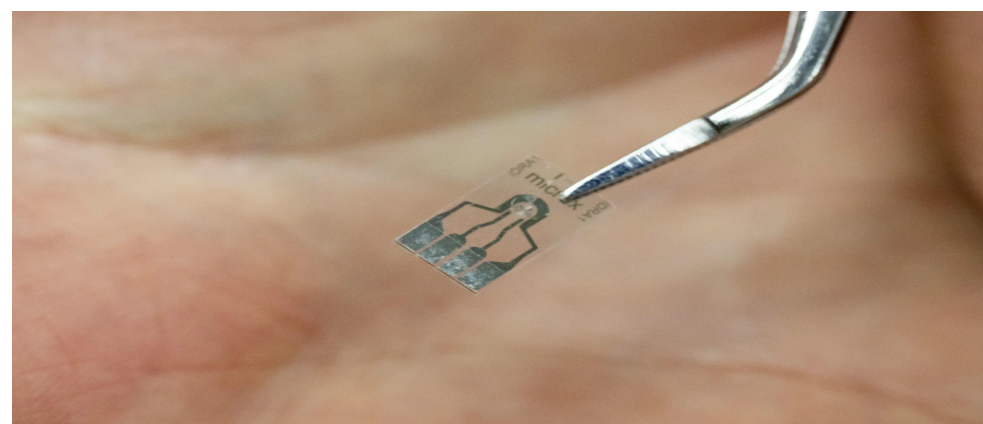


### Cheaper and Faster: A New Device for Measuring Cholesterol

Researchers at the [Ural Federal University \(UrFU\)](https://www.urfu.ru/) have created a brand-new sensor device for measuring blood cholesterol levels. The system does not use protein compounds, namely enzymes. They were replaced by chemists with copper chloride, an inorganic analog. This made it possible to create cholesterol meters more affordably and to improve the speed, convenience, and accessibility of blood testing. The study’s findings were recently published in the *Journal of Electroanalytical Chemistry*.

“Cholesterol determination is currently performed using colorimetry, chromatography, and enzymes. However, these methods use either extremely aggressive reagents or complex and expensive equipment, or – as recognizing and sensitive elements that determine cholesterol levels – enzymes – biological molecules that are extracted from living organisms. For example, the enzyme cholesterol oxidase is produced by some species of bacteria.”

He continues, “Also enzymes are natural polymers, proteins, therefore, they are prone to denaturation and require certain storage conditions, temperature and acidity regimes. We decided to select a non-biological analog of this enzyme to make the process of cholesterol analysis cheaper, easier and faster. One of the most affordable options is copper chloride, which we first discovered to be highly sensitive to cholesterol,” explains Andrei Okhokhonin, Associate Professor at the UrFU Department of Analytical Chemistry.



The microfluidic chip, in which all elements of the system are integrated, is printed on a 3D printer.

### Inkjet-Printing System Could Enable Mass-Production of Large-Screen OLED Displays

Based on years of Institute research, MIT spinout Kateeva has developed an “inkjet printing” system that could cut manufacturing costs enough to pave the way for mass-producing flexible and large-screen OLED displays.



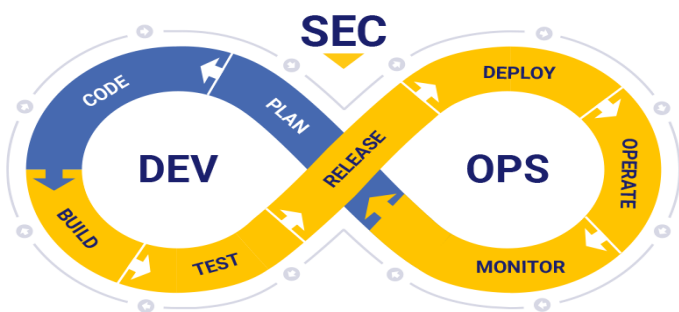
Many of those displays were made using organic light-emitting diodes, or OLEDs — semiconducting films about 100 nanometers thick, made of organic compounds and sandwiched between two electrodes, that emit light in response to electricity. This allows each individual pixel of an OLED screen to emit red, green, and blue, without a backlight, to produce more saturated color and use less energy. The film can also be coated onto flexible, plastic substrates.

### Best practices while implementing DevSecOps in your Organization

DevSecOps stands for **development, security, and operations**. It's an approach to culture, automation, and platform design that integrates security as a shared responsibility throughout the entire IT lifecycle.

1. Implementing threat modeling
2. Pursuing scalable governance
3. Training developers to carry out secure coding

Incorporating DevSecOps enables you to build software applications in a secured manner. While you implement DevSecOps, certain best practices must be adopted to optimize the process.



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