

# AI helps invent miracle material 'as strong as steel, as light as foam'

Scientists have applied artificial intelligence (AI) to design a new material that is super light but extremely durable.

The remarkable point of this material is that it has the same strength as carbon steel but is as light as foam, opening up many application possibilities in different fields.



This is considered a major step forward in the materials technology industry.

Traditionally, materials engineers have spent years testing and optimizing structures to strike the right balance between strength, weight, and durability. But with the help of AI, researchers at the University of Toronto and Caltech were able to analyze millions of different nanostructures to find the most optimal design for distributing stress under heavy loads.

AI helped scientists discover entirely new lattice shapes that had never been seen before. As a result, they 3D printed these structures into ultra-lightweight nanolattices that are twice as strong as existing designs and five times stronger than titanium.

One of the big challenges in materials science is balancing strength and toughness. Ceramic discs, for example, are strong but brittle. Similarly, nanomaterials are often very hard but brittle. However, a new AI-developed material overcomes this problem, being lightweight, which helps reduce fuel consumption for planes, helicopters and spacecraft, but also strong enough to withstand great pressure. According to the researchers, replacing titanium components in aircraft with this material could save up to 80 liters of fuel per year for every kilogram of

material swapped.



This new material could make planes lighter and more fuel efficient.

This development is not limited to one material. Now that AI has demonstrated its ability to design new materials, scientists are working to scale up production. The ultimate goal is to create stronger and lighter materials for spacecraft, high-performance cars, and even buildings.

This wonder material not only shows how AI can optimize existing technology, but also opens the door to entirely new achievements. If this trend continues, the next generation of materials could be lighter, stronger, and more sustainable than anything human engineers can design on their own.

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