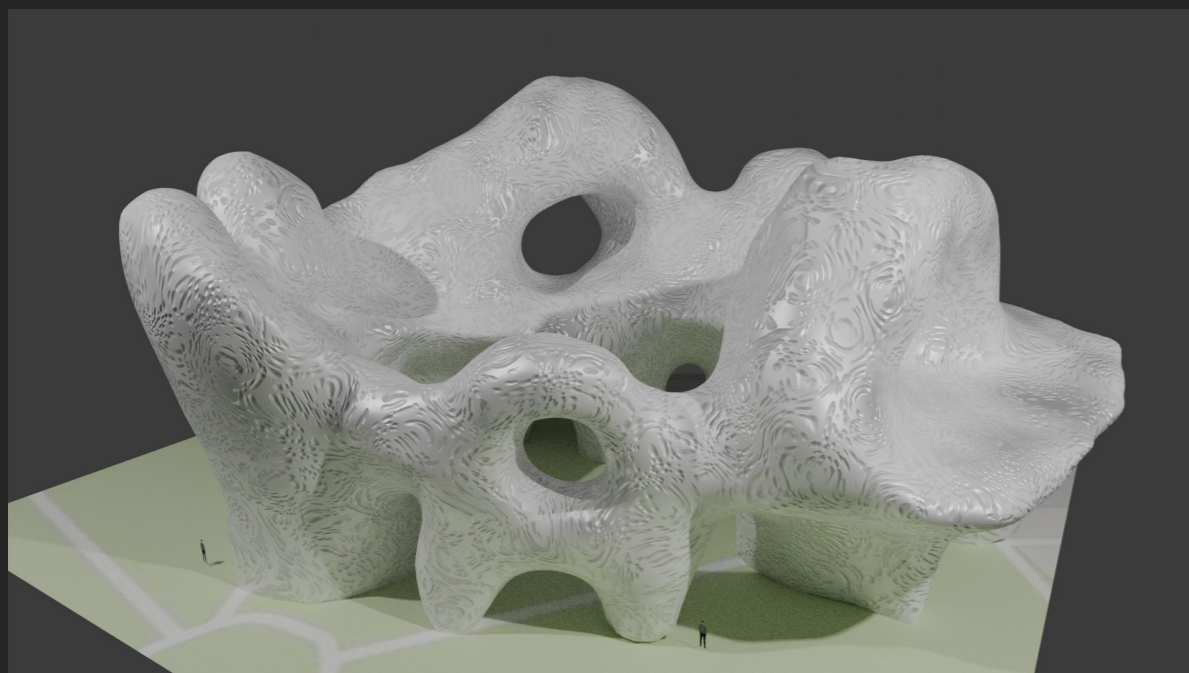
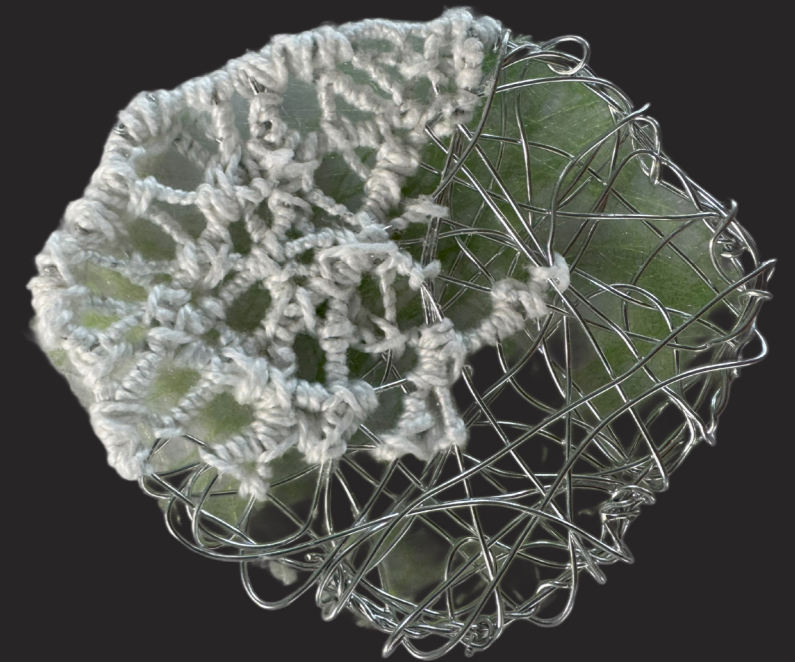
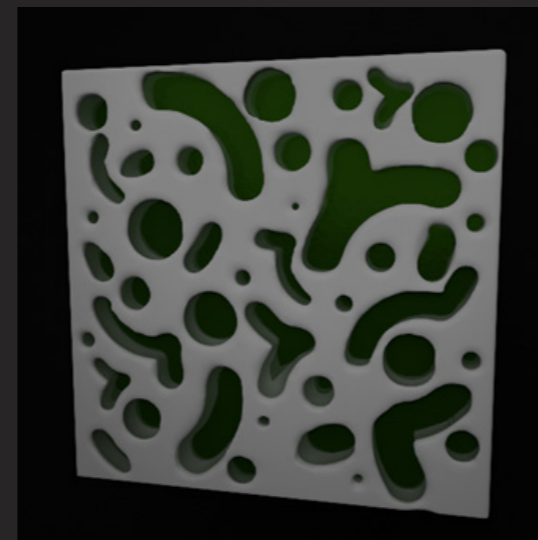
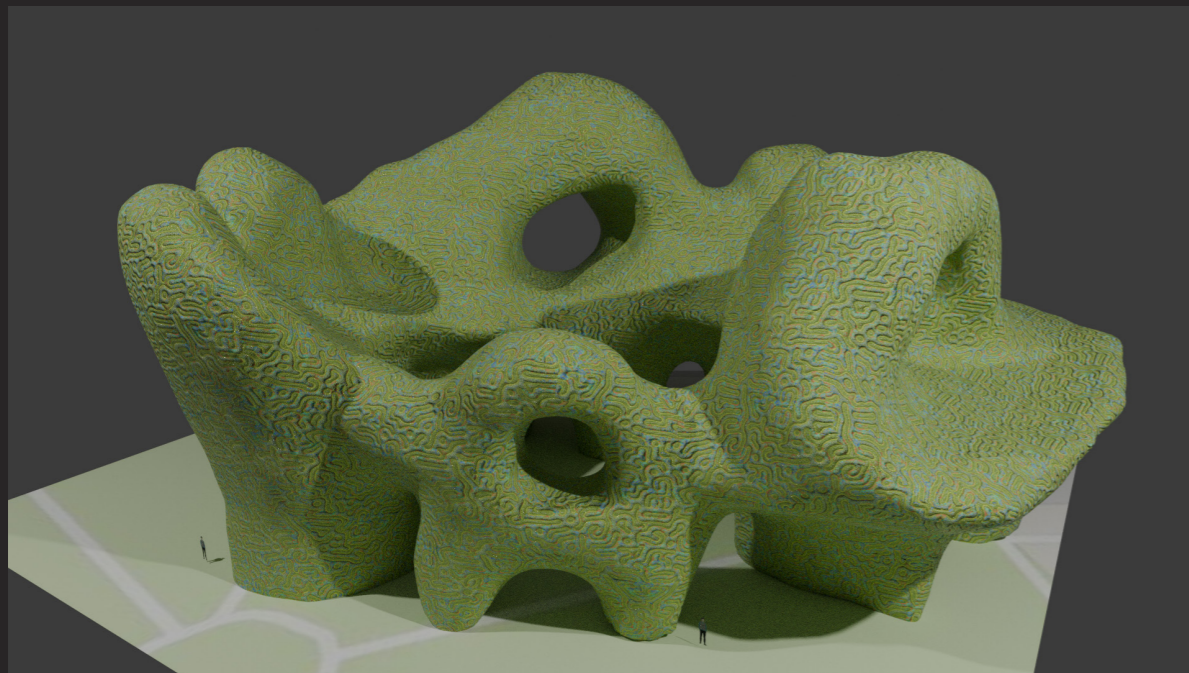


Bendable concrete

Concrete is the world's most widely-used building material thanks to its incredible strength – but it doesn't stand up well against bending. Now, researchers at Swinburne University have developed a new type of concrete that can not only bend better, but doesn't require cement to make, reducing its environmental footprint. The newly-developed concrete is made using industrial waste products such as fly ash, the airborne debris given off in coal-fired power stations. This geopolymer composite, as it's known, can be cured at room temperature, so it's far more environmentally friendly to make.

"Production of this novel concrete requires about 36 per cent less energy and emits up to 76 per cent less carbon dioxide as compared to conventional bendable concrete made of cement," says Behzad Nematollahi, corresponding author of the study. "Our laboratory test results showed that this novel concrete is about 400 times more bendable than normal concrete, yet has similar strength."

And even when the new material finally does crack, tiny polymeric fibers in the mixture make sure that it doesn't shatter. Instead, it will continue to hold strong under tension with multiple tiny fractures.



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Photosynthetic cyanobacteria are inoculated on a biogel medium into the individual triangular cells, or bio-pixel, forming the units of biological intelligence of the system. Their metabolisms, powered by photosynthesis, convert radiation into actual oxygen and biomass. Among the oldest organisms on Earth, cyanobacteria's unique biological intelligence is therefore gathered as part of a new form of bio-digital architecture



Coral