

# The sky is the limit for new low-cost 3-D printer

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Torbjørn Ludvigsen, the inventor of the HangPrinter, is surveilling his 3D printer in action. Credit: Linnéa Therese Dimitrou.

Sliperiet at Umeå Arts Campus is in the process of making a 3-D printed Tower of Babel using a novel hanging printer. This offers a low-cost solution and increased flexibility to print large volumes.

A new type of 3-D printer has been demonstrated at Sliperiet, Umeå Arts Campus. Suspended on thin fishing lines, 'Hangprinter' is currently making a Tower of Babel as part of the +Project innovation initiative.

The machine's innovative spiderlike set up does not depend on a box, frame or rails; the printer can instead be attached to any stable surface, opening up a number of opportunities.

The Tower of Babel already measures almost three-and-a-half metres – not only the tallest object made by the Hangprinter so far, but much taller than the scope of any commercially available large format printer.

"As far as I know, the HangPrinter is the only 3-D printer of its kind. There are parallel cable-driven robots and other cable-driven 3-D printers, but the HangPrinter is unique in that all the parts except the energy source are mounted on the mobile device, and that it can use existing structures – in this case the walls – as a frame," says Torbjørn Ludvigsen, inventor of the HangPrinter.

## **Cost-efficient 3-D-printing**

Torbjørn Ludvigsen started working on the HangPrinter while still a student at Umeå University, and the initial motive for designing a hanging printer was to bring down production costs:

"The frame or box was almost half the cost of the final 3-D printer, and I thought I could do without it."

Torbjørn Ludvigsen proved its feasibility with a first prototype last year and has been improving the method and device ever since. The printer can be put together for around EUR 200, a fraction of the cost of other large format printers.

"With a 3-D printer unconstrained by a set frame or box, prints can become as tall as whatever it can be suspended from, while the horizontal print area is unconstrained by a set frame," says Linnea Therese Dimitriou, Creative Director at Sliperiet. She immediately saw

the potential in the device and suggested printing a Tower of Babel to test it on a larger scale.

"I find this technology very exciting as it gives us new and increased flexibility. Opportunities include printing over vast areas and printing large volumes – horizontally and vertically – without the need to build rails or frames. The setup could also be scaled up and adapted for other materials. Future versions of the device could be equipped with sensors for greater precision and outdoor use. The [tower](#) project at Sliperiet, where attachment points are moved along as we ascend, shows that this is a feasible idea," says Linnéa Therese Dimitrou.

**More information:** Blueprints for the tower are available online: [github.com/tobbelobb/hangprinter](https://github.com/tobbelobb/hangprinter)

Provided by Umea University

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