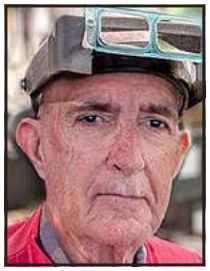


a PART of the story

Melting your automata parts

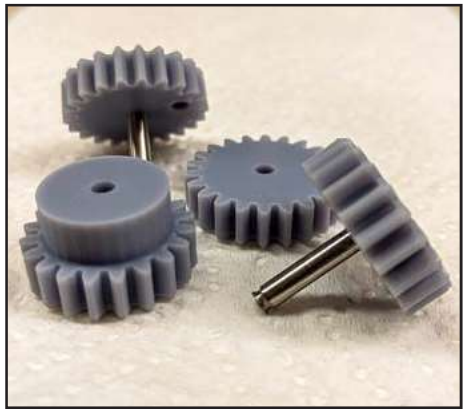
Technology: 3D Printing
Purpose: Creating automata components through 3D printing

by Jim Coffee • San Diego, California, USA • Photos by Richard Schulte

This is my 3D-printing cabinet, with the doors removed. Under the red cover is the resin 3D printer and under the yellow is the alcohol-wash station for the resin prints. The filament printer sits at the right. The cabinet keeps shop dust out and also provides a sort of climate that I can control. I can heat it and keep the drafts away from the printing process. Resins, filaments, alcohol, and wipes sit on the shelf.

Have you ever needed a part for the automaton you were building, only to find it wasn't available? Have you ever needed a component that you did not have on hand? Have you ever needed a "one-off?" Have you ever needed 10 exact copies of something? Do you need to couple an 8mm shaft to a ¼" motor shaft? Have you ever wanted to experience the pleasure of watching something that you created in your mind slowly appear before your eyes as a real thing?

These are 3D-printed resin spur gears that I designed using FreeCAD. It is my experience that these gears are very precise, strong, and reliable.



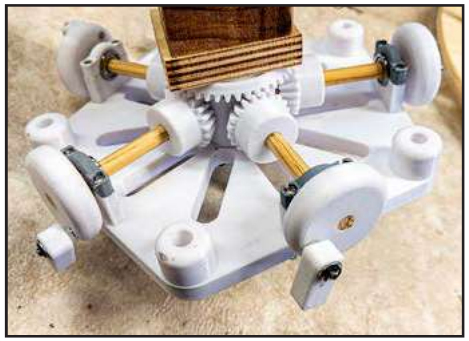
These internal spur gears were filament printed.

The figures in this still-under-construction airship were resin 3D printed, then painted with acrylics.

3D printing could be the answer to all of these questions.

Four years ago I purchased a filament 3D printer (Prusa Mini), which I use for most of my creations. Two years later I purchased an Elegoo Mars 2 Pro resin printer, which I use for small and more detailed components. I find both printers to be extremely useful. That said, though, I find myself primarily using the filament printer. It has been my experience that the filament printer is competent, reliable, and easy to use. The resin printer creates more highly detailed prints but is a bit more fussy to use.

I needed a way to mount this small gear motor. 3D printing came to the rescue with the gray housing.



This is the gear head for a carousel. There are both filament- and resin-printed components in this complex piece. The carousel has operated flawlessly under power for hundreds of hours.

This filament 3D-printed head was modeled in Make Human Community software to resemble my brother-in-law. A sculpting material was later added for his hair.

You will also need software. I use (and love) FreeCAD. The filament printer requires plastic filament to print. I use PETG, a tough and higher-temperature plastic. The Mars 2 Pro uses resin. I use Elegoo ABS-like resin with good success.

Pictures speak many words. Shown here are some images of just a few of the many components that I have 3D printed. Do you feel like stretching your wings a bit? Consider 3D printing.