

# MADEONEARTH

Report from the world of backyard technology





## Steampunk Superstar

When not digitally animating the creatures he dreams up, **I-Wei Huang** uses steam to breathe life. A 3D animator by day, Huang's extracurricular interests are far from virtual. In his free time, he employs steam engines to power robots and other mechanical motleys that he designs and builds himself — creations fitting snugly into the genre of steampunk (think cyberpunk with Victorian-era technology).

"I loved steampunk even before I knew what it was. I've always had a passion for low-tech machines."

Huang's engines of choice use water vapor at pressures of around 10-20 psi (about what a bike pump can deliver) to move pistons and turn a flywheel, generating power. After buying a miniature steam engine for fun about a year ago, Huang soon yearned for more: a fully functioning, steam-powered, radio-controlled (RC) robot. He searched, but found no such thing. To get a steambot, he'd have to build it himself. Today, Huang's fleet of homemade bots numbers in the dozens and includes a 32-legged steam centipede, an eight-legged steam spider, and a robotic arm called the Armatron.

Huang "Frankensteins" his creatures together using engines, mechanical parts, and toys bought online. Working in his bedroom with little more than a drill and a jigsaw, he hacks the parts to perform to his specifications (walking, crawling, etc.). Since the mini engines have high rpm but little torque, Huang must tweak and re-tweak the gears and pulleys until the parts work as one. Battery-powered radio controls allow Huang to shift the bots between forward and reverse remotely so that, after all his hard work, he can sit back and watch his gadgets go.

Steam may be antiquated, but Huang sees similarities between his low-tech hobby and his high-tech job. "I love seeing things in motion, which is probably why I ended up an animator," he says. For both, "you need a combination of artistic creativity, ability to figure things out quickly, and, of course, attention to how things move and work."

—Megan Mansell Williams

▶ Action videos of Steam Rover at [makezine.com/07/made](http://makezine.com/07/made)  
▶ Steambots: [crabfu.com](http://crabfu.com)