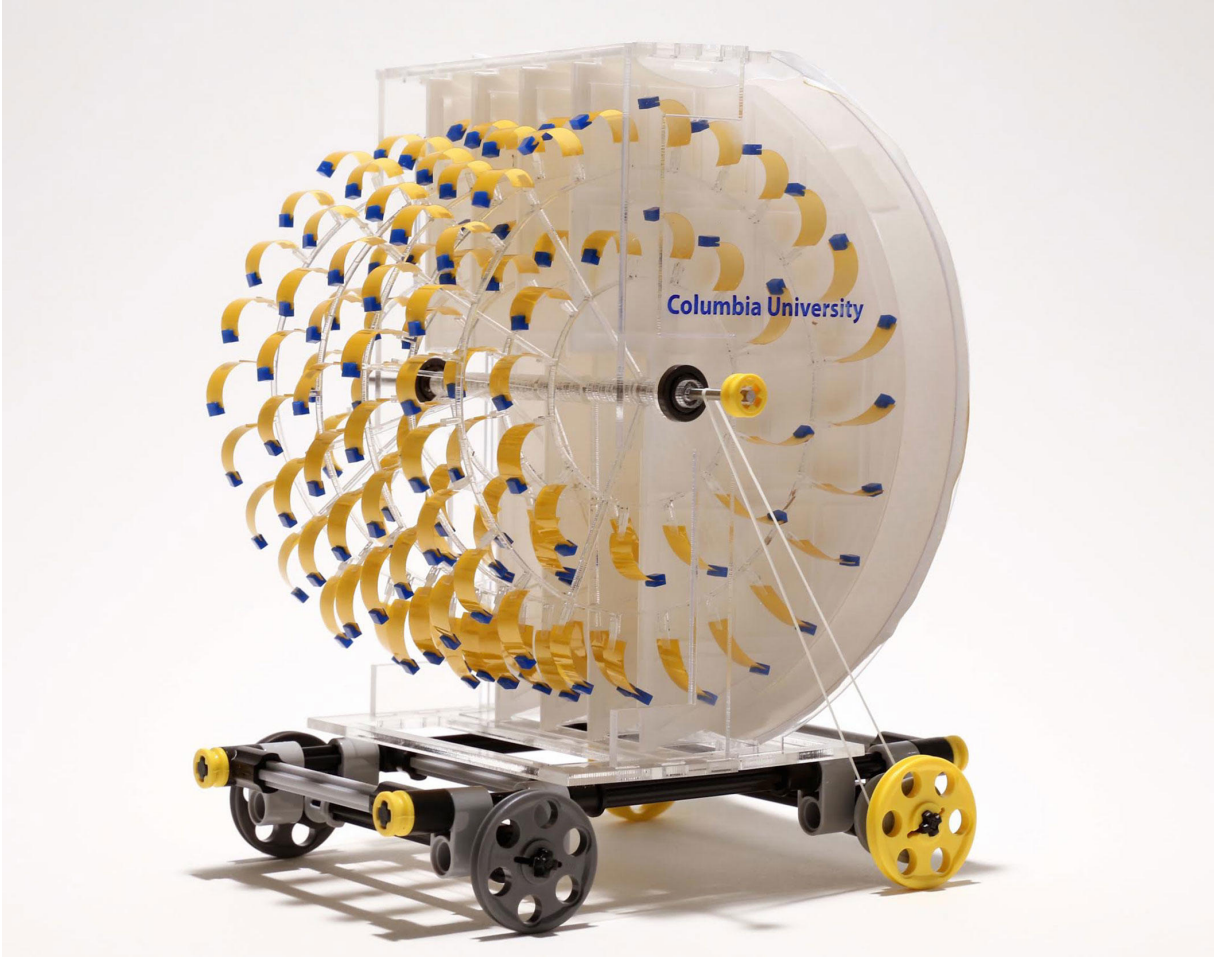
Science & Technology

Fill 'er Up — With Bacteria?

Fall 2015



Xi Chen

A miniature car powered by microbes and evaporating water is the latest invention to come out of the laboratory of Ozgur Sahin, a Columbia biophysicist who is convinced that the moisture rising off any body of water can be harnessed as a source of renewable energy. The eight-inch-tall vehicle, named Eva, is powered by a flywheel made of soft plastic flaps. These flaps are coated in bacterial spores — of a harmless variety found in soil — that expand in the presence of water vapor. When water is spritzed into a humidity chamber that covers one-half of the flywheel, the flaps on that side will straighten, creating a slight shift in weight that starts the flywheel spinning. The flywheel will keep spinning so long as the air inside is humid,

its flaps straightening and curling as they pass in and out of the chamber.

Sahin, an associate professor of biology and physics, believes that the design could be scaled up to generate electricity over any large standing body of water. “Our device may seem like a toy,” he says, “but a lot of big technologies start out that way.”

See Eva in action.

Guide to school abbreviations

All categories >