

Supporting Information

Di Leonardo et al. 10.1073/pnas.0910426107

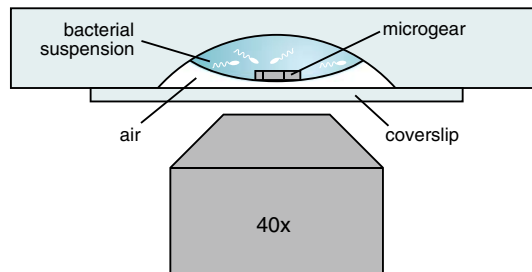
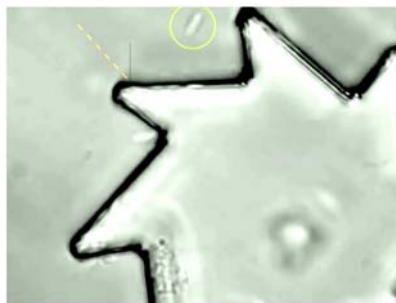


Fig. S1. Experimental setup for gears on a liquid–air interface. A drop of bacterial suspension hangs from the concave part of a glass slide, leaving an air gap between the liquid suspension and the bottom coverslip.



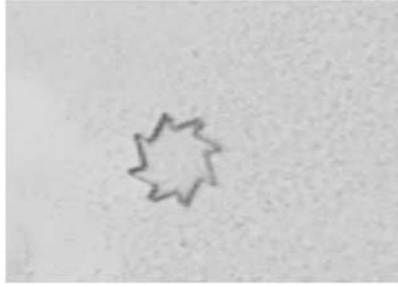
Movie S1. Two *E. coli* cells interacting with gear boundaries. The cell pointed out by an orange circle aligns parallel to the wall and slides towards the corner where it gets stuck, contributing a torque. The other one (*Green Circle*), pointed out by the black arrow, aligns along the wall and slides back into the bulk solution.

[Movie S1 \(MPG\)](#)



Movie S2. A nanofabricated asymmetric gear (48- μm external diameter, 10- μm thickness) rotates clockwise at 1 rpm when immersed in an active bath of motile *Escherichia coli* cells, visible in the background. The gear is sedimented at a liquid–air interface to reduce friction. The video plays at twice the original frame rate; a moving crop area guarantees an almost stationary center of mass of the gear.

[Movie S2 \(MPG\)](#)



Movie S3. When sitting on a liquid–oil or liquid–glass interface, all gears spin faster but always clockwise, whatever their shape. The video plays at twice the original frame rate and shows a type I gear spinning at 4 rpm over a liquid–oil interface.

[Movie S3 \(WMV\)](#)