



ROBOTS REUSE, RECYCLE

For the past 26 years, robots have invaded Caltech each spring to battle for their makers' bragging rights—sometimes to an electronic death—in the [ME 72 engineering design competition](#). On March 8, six teams of undergrads competed in an “Extreme Recycling” challenge that pitted pairs of robotic vehicles against difficult terrain and other robots in an effort to collect plastic water bottles, aluminum cans, and steel cans. Each team built two robots designed to traverse water, sand, rocks, and wood chips to gather the recyclables and drop them into recycling bins—or prevent their opponents from doing so. The competition was the culmination of a 20-week laboratory class in which each team was given a budget of \$1,200 to build the best bots possible. The final designs followed a couple of basic themes: robots with scoopers and grippers to grab the bottles and cans, and ones with baskets to haul the loot. Other design features included ramps to wedge under opponent robots and trip them up. The winning team, named BRB, consisted of juniors Chris Hallacy, Brad Saund, and Janet Chen. Team BRB bested all five other teams without dropping a heat during the double-elimination contest. —KN

- 1 ME 72 participants check out one of the “placebos,” robots designed by the teaching assistants and used to round out a bracket when there was an odd number of contestants. Placebos were not allowed to score, or to intentionally hurt another robot, but could generally mess with the competition. This placebo featured an innocent-looking, rainbow-colored pinwheel that was actually made of magnets.
- 2 Pile up! Competing robots ram into each other like sumo wrestlers in an effort to neutralize the opposition.
- 3 A winning robot from Team BRB shows off its can-carrying skills.
- 4 The giant placebo robot menaces a much smaller competitor.
- 5 A Team Aviator robot takes a spin through the water trap, successfully picking up a can along the way.
- 6 This daring run threatened to damage the electronics. Juniors Sara Ahmed (left) and Jee Su Baek blow-dry the robot before its next round. (The third team member, senior Cole Hershkowitz, is not pictured.)

