consequences of the events that transpired. In both cases, people felt their lives had meaning and purpose. Or so the theory goes. Some of us, of course, are just crying over spilt milk.

LAUNDROMATIC Sure, hover cars haven't yet been realized, but here's the next best thing: a robot that can do laundry. A team of researchers led by graduate student Jeremy Maitin-Shepard and Professor Pieter Abbeel of Electrical Engineering and Computer Sciences have engineered a robot that can fold towels. Though a seemingly simple task, it involves a robust artificial intelligence and some fancy computing. Now if only it could put the laundry away....

For the Common Good

Carpool lanes may benefit us all, whether we use them or not.

COMMUTERS IN THE BAY AREA are all too familiar with the traffic jams that plague most freeways during peak hours. Carpoolers, meanwhile, zip by a few cars at a time in a lane that seems underused. "Your intuition is to say, 'What a waste. Why don't they turn this lane over to all drivers so it can be fully used and everyone will be better off? This carpool lane, because it's underused, is making my life worse,'" says Michael Cassidy, Berkeley professor of transportation studies. "That's not necessarily true."

In fact, very often all traffic can move more efficiently while carpool restrictions are in force. This is true, according to Cassidy, even when the carpool lane is lightly used—as few cars as 1,200 per hour while typical rates range from 1,400 to 1,600 vehicles per hour. In a recent study, Cassidy and his colleagues Carlos Daganzo and Kitae Jang identified the cause of this apparent paradox: Drivers change lanes less frequently during carpool hours, contributing to a "smoothing effect" that reduces backups.

Not only is it counterintuitive, their findings also challenge previous research that suggested underused carpool lanes slow everyone down by reducing the amount of roadway available to commuters. But these studies didn't account for the smoothing factor, which could only be found by accurately identifying traffic bottlenecks. Sometimes these points of congestion are obvious, say, when four lanes merge into two. Other times, they elude the casual observer. In fact, the bottleneck may actually occur downstream of the point where backup is visible. Only by analyzing video could Cassidy's team pinpoint areas of congestion in place and time. The videos also revealed that, within a few minutes after activation of the carpool restriction, drivers changed lanes less frequently in the lanes adjacent to the carpoolers. Cassidy estimates this difference in behavior could translate into an almost 300 percent increase in how quickly cars could move through the traffic jam.

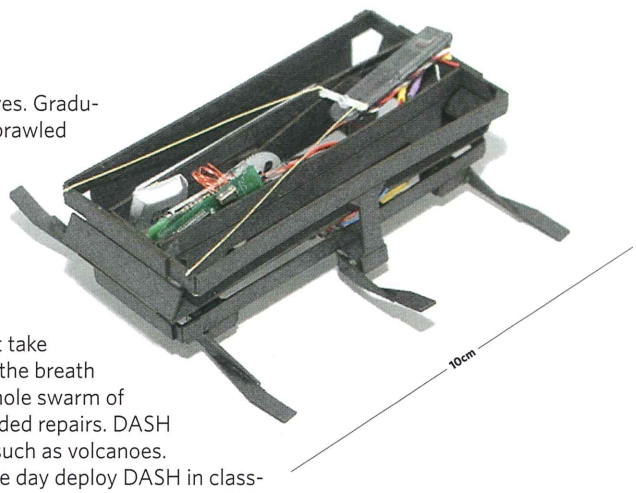
Cassidy's research could open up new, more creative ways of traffic management. Slowing traffic down at critical junctures or discouraging lane changes in certain areas could alleviate jams. Despite the science and methodology behind his findings, though, Cassidy frequently encounters skepticism. "I realized you can't disabuse people of what they think," he said. "And there's a bumper sticker that says, 'Don't always believe what you think.'"

—A.P.

DASH to the Rescue

A tough, versatile little robot arrives on the scene.

IT MAY LOOK LOW-TECH, BUT THIS POCKET-SIZED ROBOT could one day save lives. Graduate student Paul Birkmeyer, the project leader, designed the Dynamic Autonomous Sprawled Hexapod, or DASH, to be cheap, fast, and sturdy, ideal for dangerous and unpleasant tasks. Almost four inches long and just over half an ounce in weight—about the same as three quarters—DASH can survive a seven-story fall. It could cost as little as $5 a unit, is controlled wirelessly, and its components, cut from plastic-encased cardboard, can be folded and glued together in under an hour. Its oar-like legs are powered by a single motor and can propel it across all kinds of terrain. Although it can't yet scale walls, it can climb over obstacles taller than itself.



Fitted with the right equipment, DASH could accomplish a variety of missions that take advantage of its size and expendability. A carbon dioxide sensor would let it seek out the breath of survivors trapped in a collapsed building or mine. Mounted with minicameras, a whole swarm of these robots could crawl over bridges or other structures and alert technicians to needed repairs. DASH could also aid researchers by collecting data from places too dangerous for humans, such as volcanoes.

Birkmeyer, who studies electrical engineering and computer sciences, hopes to one day deploy DASH in classrooms. Educators can use it to teach students about programming, or about physics by demonstrating how DASH runs over various surfaces. But Birkmeyer also has another aspiration, perhaps less heroic but no less valuable. "I always thought that it would be fun to be a toy designer," he says. "I think these would be really fun toys." *—Lauren DiPerna*