Technology

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Review

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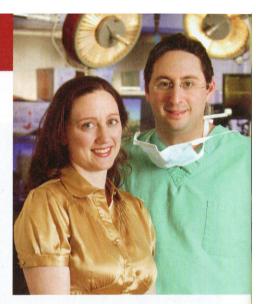
NEWS FROM AROUND CAMPUS

Make Me a Match
Algorithm optimizes paired kidney donations

Some patients who require kidney transplants are lucky enough to find close relatives or friends willing to make organ donations. About a third of the time, however, the donor's blood type isn't a good match, or another incompatibility interferes. It could end there, but a handful of hospitals now support paired kidney donations. In these cases, a donor and recipient who are incompatible with each other are matched with their "mirror image"—another pair with the opposite incompatibility. The idea is that the first donor gives to the second recipient, while the second donor gives to the first recipient.

It's a creative solution to an all-too-prevalent problem, but hospitals still have a difficult time finding the best matches overall.

Sommer Gentry, PhD '05 in electrical engineering and computer science, found out about the situation through her surgeon husband, Dorry Segev. After Segev explained it to her one day, "he said, 'I'm sure that you must know how to solve this better than we're doing now,'" Gentry says.

Gentry and Segev tackled the problem using graph theory—a branch of applied mathematics—to develop an algorithm for matching. The formula compares standard compatibility information from every possible donor-recipient combination available and determines which pairs should be matched to create the highest number of successful donations. Gentry, Segev, and their colleagues reported on the technique in the *Journal of the American Medical Association*. They hope that hospitals will work together to form a national matching program for paired kidney donation. **LISA SCANLON**