Rats Communicate Through Brain Chips

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Pairs of rats can communicate through brain chips and collaborate to perform a task, report [1] researchers in today's *Scientific Reports.* Brain activity recorded in one rat was translated into a pattern of electrical pulses that were then transmitted to another rat that had been trained to push a particular lever in response to one of two patterns of electrical stimulation in its brain. The rats also worked together, say the researchers. If the second rat chose the wrong lever, then the first rat would change its brain function and behavior in the next trial so that the receiving rodent was more likely to get it right, claim the scientists.

The research was led by Miguel Nicolelis [2], a neuroscientist at Duke University Medical Center, who has previously described a brain-computer interface through which a monkey could control a walking robot (see "The Power of Thought [3]") and another setup in which a virtual sense of touch was fed into a monkey's brain through an electrical stimulating array (see "Giving Prosthetics a Sense of Touch [4]"). A handful of labs have been making impressive progress in reading and writing to the brain in recent years with the aim of helping paralyzed people regain mobility via thought-controlled robotics. Last year, two research teams reported that quadriplegic patients could use brain implants to control robot limbs (see "Brain Chip Helps Quadriplegics Move Robotic Arms with Their Thoughts [5]" and "Patient Shows New Dexterity with a Mind-Controlled Robot Arm [6]").

But today's study, says Nicolelis, was not about improving brain-computer interface technology for patients but rather exploring new frontiers. "We observed the emergence of physiological properties that we could not predict before we did this," he says, pointing to what he calls collaboration between the two animals' brains.

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