I FEEL YOUR PLANE

INTERFACES | In today's highly complex airplane cockpits, pilots can have trouble keeping up with information flow, especially if they become disoriented in an emergency. But at the Institute for Human and Machine Cognition at the University of West Florida, a newly developed wearable interface lets pilots use their sense of touch to complement audiovisual navigation cues. The tactile displays "reduce the pilot's workload to free up more gray matter for other tasks," says principal investigator Anil Raj.

In collaboration with the U.S. Navy, Raj has developed networks of tiny vibrators that may be strapped to a pilot's torso, connected to navigation sensors and signal-processing software, and activated by streams of pressurized air. If an aircraft is turning left, say, its pilot feels a buzz on his or her left side. The system can also warn pilots about deviations from course or approaching threats; intense buzzing against the pilot's back could signify an enemy plane behind the aircraft.

Raj's prototypes have proved effective in flight tests, says Angus Rupert, director of Spatial Orientation Systems at the Naval Aerospace Medical Research Laboratory. The Navy will use the technology in helicopter missions by special-operations troops as early as this spring, he adds. For the pilots, the bottom line is heightened spatial awareness and fewer accidents—even if they feel as if they are flying by the seat of their pants. *—Gregory T. Huang*

Networked "tactors" convey spatial information by vibrating against pilots' skin.

SLIMFILMS (I FEEL YOUR PLANE); JAMES YANG (ILLUSTRATION)

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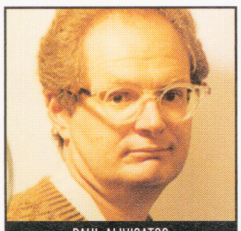

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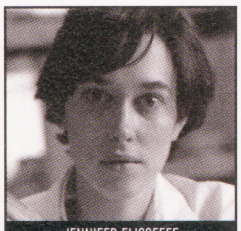

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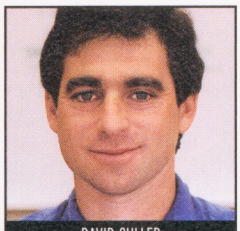

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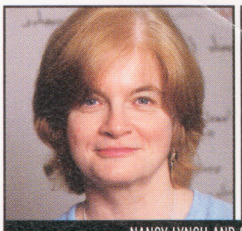

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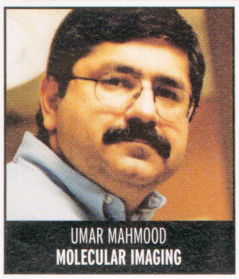

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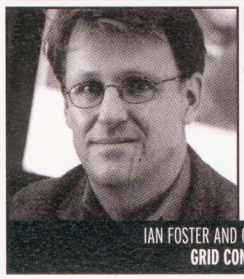

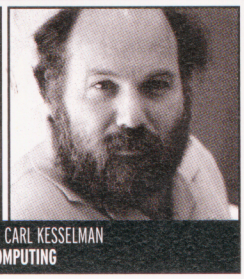

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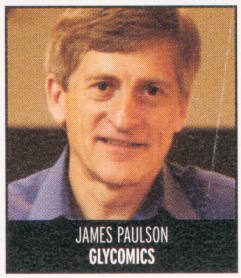

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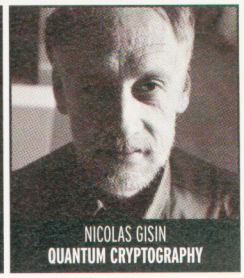

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