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Professor Chases Hyperspeed Computer

News Feature

By [Christopher J. Georges](#),

For years, R. Victor Jones has been attempting to create a new method of mimicking certain human traits.

But Jones is not an actor, nor is he a ventriloquist, he is the Wallace Professor of Applied Physics.

Jones is moving within range of creating a computer that imitates the eye-to-brain functions which could process vast amounts of information at speeds of about one billionth of a second--faster than the speed the with which state-of-the-art computers operate today.

Its application, moreover, could range from improving weather forecasting to facilitating electronics warfare.

Normal computers today process information using electronic wires, which limits the efficiency with which even the fastest computers can analyze large chunks of information.

In the new computer being planned by Jones, information would be passed along simply through streams of light.

These computers would be able to lighten tasks such as comparing large volumes of economic figures or analyzing visual scenes that normal computers find laborious.

"It could effectively and cheaply process information in a milli-second that would normally take 10 minutes," says Jones.

It successful, the development could have several revolutionary implications, not least of all in weapons development.

Because of its efficiency, a wireless computer could assess a variety of factors in volved in guiding missiles such as computing launch angles far more easily than current technology, scientist say.

Not surprisingly, then, the U.S. government is extremely interested in the type of work Jones does and has funded some of his research.

Competition

Currently there are several private corporation such as Bell Laboratories, and universities, such as Carnegie Mellon and the California Institute of Technology which are also working in this area of "computer optics."

Jones points out, however, that most of the scientist are taking different approaches to the problem.

While Jones says that developments of the computer may be as far as 10 years away, scientists agree that already there is a high level of competition among the researchers.

"We are all trying to do the same thing and there is a finite amount of money out there," says Carnegie Mellon Professor David Casasent, who also works in the field.

New Technology

While the concept of optics computing has existed for many years, only recently have technological advances in semi-conductors, lasers, and glass technology, brought scientists to within range of attaining their goals.

Under Jones's plans, information would be processed inside a computer by a complicated pattern of optic signalling between circuits containing bits of information.

"In information processing, we'll be able to make anything we want within five or 10 years," says Jones. "But the real question is 'what will help us the most?"

The computer would also have a major impact on robotics, through its ability to imitate how the human eye transmits messages to the brain.

Other applications include the uniquc ability to compare and analyze large volumes of complex data and present it in diagrammatic form.

Impact

The subject will have an enormous impact. Jones says adding that five years ago people would have called this a fantasy."