

Lih Y. Lin, 34

University of Washington

Built micromirror switches for faster, all-optical telecommunications networks

AT ABOUT three times the diameter of a human hair, the micromechanical optical switches that Lih Lin designed for AT&T in 1997 and 1998 were scarcely visible. And the minuscule machines she subsequently built solved a fundamental problem in telecommunications.



Information travels at high speed over the optical fibers that form the backbones of telecom networks, but converting the optical

signals to electronic bits for processing by traditional circuitry limits the network's overall transmission rate and increases its cost. Lin introduced pivoting micromirrors that can switch light-wave signals directly, circumventing the pitfalls of electronic manipulation. Her technique has since been widely developed and is enhancing the capacity and reducing the cost of the optical-fiber network, as well as enabling faster and broader-band data and video transmission over the Internet. Lin's work has yielded 16 patents and 120 published papers. As a newly appointed associate professor of electrical engineering at the University of Washington in Seattle, she plans to apply her knowledge of photonics and micromechanics to biotechnology to devise new kinds of imaging tools that can analyze individual cells.

Reuben Singh, 27

alldayPA

Provides support services and startup money for entrepreneurs

REUBEN SINGH combines technology and capital to help other entrepreneurs. He started his first business—a fashion accessories shop—at age 18, and four years later, as CEO of a retail chain, he was worth millions. Relying heavily on eight assistants, he realized that most other time-strapped entrepreneurs could use the same kind of support. So in 1999, he used \$6 million of his own money to found alldayPA in Manchester, England. The company uses custom software that enables a team of live personal assistants to handle calls, manage calendars, type letters, and perform other tasks for business owners, whose customers need never know that the assistants are at a 650-seat around-the-clock call center. AlldayPA now has a database of 94,000 registered customers, who save money by not having to hire employees. Meantime, Singh's Golden Fund, a \$24 million war chest for acquiring and turning around ailing information technology companies, has aided more than a dozen businesses. The Bentley-driving CEO is helping other entrepreneurs through Dream On Attitude, a venture capital fund that invests his and other people's cash in startups founded by innovators younger than 25.



Paul Meyer, 33

Voxiva

Brings database and Web-like services to remote areas through touch-tone phones

THERE ARE about 2.5 billion phones worldwide but only 600 million computers. Knowing this, Paul Meyer, a Yale Law School grad and former speechwriter for President Clinton, founded Washington, DC-based Voxiva in 2001 to help isolated communities access computing power through touch-tone telephones. Because phone use requires neither literacy nor much electricity, the system benefits regions that are short on both. Launched with funding from the Markle Foundation and the World Bank, Voxiva enables users to input and retrieve information by tapping phone buttons, listening to messages, and speaking responses. In Peru, health-care workers can call a Voxiva server to submit reports about patient symptoms or disease outbreaks. Peru's Ministry of Health has benefited other countries as well. Working with the International Rescue Committee in 1999, he built a wireless network that became Kosovo's first Internet service provider. He also set up a Lotus Notes system to help reunite refugees in Guinea. Impressed with Voxiva's performance, the U.S. government hired the company to track the effect of smallpox vaccinations on U.S. soldiers.

Sanjay Parekh, 29

Digital Envoy

Develops software that lets companies tailor services to their customers' locations

STUCK BEHIND a dial-up connection in 1999, Sanjay Parekh grew frustrated having to enter information like his city and state before he could find store locations on, say, the Federal Express and Ikea Web sites. "These sites should already know where I am," he thought. Rather than curse at his monitor, he formed Digital Envoy in Norcross, GA, to make his idea real. Four years later his product, NetAcuity, is used by eBay, AOL Time Warner, Microsoft, and others to determine a visitor's locality. It traces connections back through Internet switching stations to the network nodes where log-ons originate—almost always in a visitor's city or town. This is close enough to give users local weather forecasts, or the addresses of nearby electronics stores, without their having to enter any data. NetAcuity also enables Web sites to automatically tailor advertisements. A billboard ad for Home Depot, for example, could announce a sale at a store near the visitor's home. Indeed, Google uses NetAcuity to target area-specific ads. "A lot of people don't know about us," Parekh says, "but everyone is touched by us."

