

**Scientists, Engineers Connect With Venture Capitalists at Summit**

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When a UC San Diego computer science and engineering professor discovered that the university ranked among the county's largest energy users, he wanted to get to the bottom of it.

Rajesh Gupta, a former circuit designer for Intel Corp., quickly found the culprit: the school's 750-machine Computer Science and Engineering building. The five-year-old building was developed with energy efficient lighting and design, he said, but was moving large amounts of air because of codes written in the 1970s. To reduce the energy consumption, Gupta knew he had to avoid disrupting any computer networks.

Gupta introduced his solution, a prototype device developed alongside Microsoft Research, during the second annual La Jolla Research and Innovation Summit, hosted by CONNECT, a nonprofit San Diego-based trade organization. The daylong event, held at the Salk Institute for Biological Studies, gave San Diego's leading scientists and engineers a chance to describe their innovative research to about 100 colleagues and venture capitalists at an invitation-only meeting March 3. VCs had the opportunity to learn from and build relationships with researchers working on advances five and 10 years into the future.

Gupta said his device could one day reduce the energy demands created by the use of personal computers. Studies, he said, have shown that users typically keep their computers in "awake" mode when they're away in order to stay connected to networks, for running virus scans or for ensuring remote access.

"Studies show that 67 percent of office PCs are powered up after work hours," Gupta told the crowd. "One of the reasons is the machines are not alone; they're part of an infrastructure."

To come up with a way of keeping the machines "talking," but also reducing the overall energy, Gupta and his team of researchers developed a small USB-connected hardware and software plug-in system. It allows a PC to remain in "sleep" mode while staying connected to a network or running various applications.

"It pretends as if the machine is always available," Gupta said. The device, he said, has been shown to reduce 92 percent of the power used by PCs.

Ideas Abound

Besides new advances in computer technology, the event featured entrepreneurs with innovative solutions in clean technology and biotechnology.

Among the many presentations, the audience heard from a scientist who had grown mostly human livers in mice for testing gene therapies for Alzheimer's disease, an electrical engineer who has developed a new, more efficient photovoltaic panel for capturing sunlight, and a marine biologist who has discovered an oceanic organism for treating cancer.

"Today, there are very few areas of research focus that are not being focused on," said David Hale, a serial biotech entrepreneur who leads his own investment firm, locally based Hale BioPharma Ventures LLC. "Our region is very lucky in that we have that broad base of research activity across the board."

Many of the scientists pointed to biology as the next new era for solutions-driven products and technologies.

New Biological Era

Alessandro Sette, head of the Center for Infectious Disease at the La Jolla Institute for Allergy & Immunology, a nonprofit research institution, said he expects a new era of biological advancements, but not without complicated ways of handling all the new data.

A kind of behind-the-scenes movement, Sette said, is organizing to integrate big databases of knowledge in a single domain, rather than overlapping individual catalogs.

A seven-year project that began as a tool for combating bioterrorism at the La Jolla Institute resulted last year in a new database that vaccine developers are using to speed the development of new, more effective products. The project has produced what the institute claims is the world's largest collection of scientific data on how the immune system responds to infectious diseases.

"The capacity of biology to generate data has been increasing and it continues to increase at a very rapid pace," Sette said.

Another trend, Sette said, is a greater emphasis on some of the world's toughest-to-treat diseases.

"In the last five years, there has been a big emphasis in NIH (National Institutes of Health) funding in biodefense and bioterrorism," Sette said. "I see that that tide is changing. There is more and more going back toward diseases that are chronic in nature, and ongoing medical needs."