

# Cultivating entrepreneurs

BINGHAMTON PROVES TO BE FERTILE GROUND FOR TECHNOLOGY TRANSFER





There's Binghamton University technology inside nearly every computer.

That's because Jiayuan Fang was encouraged to follow through on a great idea he had while he was on campus.

Fang, then an associate professor of electrical engineering at Binghamton, developed and patented software that can provide electromagnetic analysis of integrated circuits from chip to package to board, assessing overall power and signal performance. Today, he's the founder and president of a company that counts IBM, Cisco, Sony, Samsung, LG and other leading manufacturers among its clients.

"Virtually all the computer companies right now are using our tools," said Fang, who noted these tools help these firms make computer technology more reliable, faster and cheaper.

How does a faculty member's breakthrough concept travel from campus to the marketplace? Generally, that happens through a process known as technology transfer. At Binghamton, the Office of Technology Transfer and Innovation Partnerships offers guidance and encouragement to faculty members who may have a discovery worthy of a patent. Once the University invests in patent protection, the office works to license the technology's use to an existing company or a start-up firm.



In 2007-08, Binghamton faculty members filed 28 new technology disclosures and 19 patent applications. Royalties rose by 59 percent. While technology transfer is about ideas, not numbers, these statistics are still an important sign that the culture on campus is changing and that faculty members are responding to an environment that nurtures entrepreneurship, said Eugene Krentsel, assistant vice president for Technology Transfer and Innovation Partnerships.

“When you talk to faculty, what excites them is an opportunity to make an impact on people’s lives, both in their community and, more importantly, nationally and globally,” Krentsel said. “That’s where technology transfer comes in, because by transferring that knowledge, we’re able to change people’s lives. That’s the driving force.”

Fang’s story offers a dramatic illustration of that drive to make a difference.

Sigrity, the company he created about 10 years ago to help customers overcome design challenges due to ever-increasing circuit speed in the world of integrated circuits, packages and printed circuit boards, now employs about 100 people. It has offices worldwide, including locations in New York, California, Texas, China, India, Japan and Germany.

Sigrity negotiated an exclusive license on the patents owned by the Research Foundation of SUNY, which has generated more than \$1 million in revenue to Binghamton University. Fang was honored as the Licensee of Distinction in 2008 by the University’s Office of Technology Transfer and Innovation Partnerships, in conjunction with the Small Scale Systems Integration and Packaging Center (S<sup>3</sup>IP). His entrepreneurial spirit was an important factor in choosing him for the honor, Krentsel said.

Fang said he received important encouragement both from people on campus and at Greater Binghamton companies to

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— Eugene Krentsel



pursue his discovery. Such support is vital, especially because it can take three years or longer to complete the process of applying for a patent.

Scott Hancock, assistant director of technology transfer at Binghamton, said the patent process is arduous but also useful and stimulating. He has seen faculty members' work take on a new direction after meeting with a patent attorney and reconsidering one element of their idea or another.

That process helps to prepare researchers to respond to the challenges that often lie ahead as licensing deals are worked out and investors consider whether to become involved in a project.

"We're trying to maximize returns to the University, inventors, the region and students," Hancock said. "We take a big-picture view. It's a partnership. We need the faculty member's active collaboration. It's a hands-on endeavor that requires time, creativity and insight."

Fang said technology transfer challenges faculty members to consider the needs of industry in a way that pure research usually does not. "It certainly requires different thinking," he said.

That's not to say that technology transfer is a distraction from research and teaching, however. In fact, Krentsel places technology transfer at the core of a research institution's goals.

"What is the mission of a university?" he asked. "It's the creation and dissemination of knowledge. Now think about what technology is. It's part of knowledge. When you look at technology transfer as a part of the creation and dissemination of knowledge, it becomes part of the critical mission of any university." ■

— Rachel Coker