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Sunday, January 8, 2006

## UNH capitalizing on its research

**Spinoff company brings music to cell phones; other ideas show huge promise**

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DURHAM — Some "little ideas" that started at the University of New Hampshire have created the ability to download songs on cell phones, and may one day help fight lung cancer.

Since the beginning of the decade, the university's Office of Intellectual Property Management has helped turn research initiated by professors at the school into two individually functioning spinoff companies: Chaoticom, now called Groove Mobile, and XeMed.

In November, Sprint Nextel became the first North American provider to partner with Groove Mobile in the mobile phone music download business. Bell Canada became the second when it agreed to a deal with Groove Mobile in December.



**UNH math professor Kevin Short develop the technology to download music to cell phones. (Steve Drozell/Staff photographer)**

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Groove Mobile, an Andover, Mass.-based company, is the world's leading mobile music service.

Under the new deal, Sprint Nextel customers can download full songs to their cell phones for \$2.50 each. The transfer of information is similar to the way text messages and phone calls are delivered over a wireless network.

The bridge between the university and the creation of Groove Mobile stemmed from the work of Mathematics Professor Kevin Short.

When Short began trying to break "chaotic communication schemes" in a basement at the university five years ago, digital music downloads were hardly his intent. Back then, the goal was to track what appeared to be random exchanges of information and predict their patterns and content.

The methods Short developed to make these predictions were important because they could be used to break codes and certain kinds of encryption, like those used to deliver secure credit card information from one server to another.

"Chaotic systems are like the weather. There appears to be no order, but it is not random and can be predicted," Short said.

Short could have written about the technological breakthroughs he was making, and gained a lot of notoriety because of it, but he said he knew he was onto something that could have commercial implications.

"I could have written tons of research papers, and Edison could have written a bunch of papers about the light bulb," Short said.

Instead, Short found ways to take these chaotic systems and steer them in ways that allowed data to become compressed and encrypted, making them easily transferable between two networks. Formally, it was called Chaotic Compression Technology, or CCT.

It was in June 2000 that Short started to work with Bob Dalton, who heads the university's Office for Research Partnerships and Commercialization, formerly known as the Office of Intellectual Property Management, which was responsible for protecting and licensing the university's intellectual property.

As Short's work gained notoriety and interest from investors, Dalton said it became quickly apparent the new technology was "paradigm-shifting" and was ready to be developed into a commodity that could make money.

According to a recent study by research firm Strategic Analytics, half of the 860 million cell phones sold globally will be able to download and store music by 2008.

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The UNH office helped to pair Short's technology with a management team through the university's business school and entered into license agreements with several investors.

The result was Chaoticom, UNH's first commercial spin-off. The company was formed in 2001 and was responsible for developing and marketing the compression technology.

Chaoticom has since grown into Groove Mobile, a 47-employee company that has remained in New England. Chaoticom still serves as Groove Mobile's research and development wing.

Last year, XeMed became UNH's second spinoff company.

The company specializes in the polarization of Xenon gas. The technology could allow doctors to clearly see the inside of patients' lungs during MRIs, allowing for earlier detection of ailments like lung cancer and the effects of tobacco on young smokers.

Bill Hersman, a UNH physics professor, was responsible for developing the technology that eventually led to XeMed's establishment as a commercial business.

Like Short's work, the fruits of Hersman's experimentation were spun out with the help of students and faculty at the university's Whittemore School of Business & Economics, which helped to develop a business model for XeMed.

Hersman's work has since gotten over \$2 million in small business grants to further the technology, along with FDA approval for testing on human subjects.

The company's technology is still in the research and development phase, but it could someday be marketed to hospitals and drug companies as a commercial product.

Dalton said the university plans to announce two more spinoffs within the next four months, with one announcement likely coming before the end of January. Dalton said he couldn't reveal any further details but said he was excited by the potential of both projects.

Before installing the mechanism for licensing intellectual properties in 2000, Dalton said UNH missed out on several chances for students and faculty with entrepreneurial spirits to market their ideas.

"At UNH, it was basically a hit or miss activity that wasn't looked at very strongly," Dalton said. "If there had not been an effort to put an office in place, chances are Kevin's technology would not have gone anywhere."

Hersman said the creation of XeMed allowed him to better develop the technology, because the small business grants the company received were much greater than what the university funded.

Another challenge was mustering up enough courage to set aside his daily work as a university professor to try something invigorating, but uncertain.

"I don't remember being afraid or nervous, but at certain times, when things are not going smoothly, you realize you're perched out on a limb and sawing off the branch," Hersman said.

Hersman said Dalton's office was instrumental in evaluating the marketability of the polarization technology and fronted the money to patent it. The university has an equity share in both Chaoticom and XeMed, but Dalton said the figures are confidential.

Dalton said the favorite part of his job is seeing how the projects progress from experimentation to commercialization.

"I love how these little ideas pop into someone's head, to watching it researched, to seeing it launched," Dalton said.

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