

## UR PATENTS

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Some UR patents attracted significant attention from 1997 to 2002—a sign of high-quality research, officials say. Patents filed on behalf of UR inventors were cited multiple times by subsequent patents during the five-year period.

"A high number of citations is a qualitative indicator that the invention was considered of interest and of some importance to a number of later inventors," Fraser said.

A patent is an official document giving an inventor the right to exclude others from making, using, offering for sale or selling an invention. The U.S. Patent and Trademark Office requires inventors to cite every prior patent related to a particular invention. Inventors are expected to state how their inventions differ from the cited patent.

"In general, the more fundamental inventions are cited a lot," Fraser said. "The minor improvement or trivial inventions tend not to be cited."

Citations do not translate into revenue gains for the university, but could be the harbinger of new license deals.

"(Citations) can provide a lead to companies which are doing work in the area and (who) may want to license your earlier, more fundamental patent to go with your later patent," Fraser said.

UR in the past has benefited from successful licenses, including its technology transfer to Wyeth Lederle Vaccines & Pediatrics. The Wyeth license has generated more than \$70 million in royalty revenue for the university, a Center for Governmental Research Inc. report states.

David Williams' patent—issued in mid-1998—on the method and apparatus for improving vision and the resolution of retinal images was the most frequently cited UR patent. It was cited 58 times in the past five years. The patent has been licensed to a company, but UR officials declined to disclose the name of the firm.

Williams is the William G. Ailyn professor of Medical Optics at UR and is director of the Center for Visual Science.

"I am honored to discover that people are paying attention to my patents and citing them," Williams said. "It is as flattering as

can be. When people are referring to the work that is going on at (UR), it is great for me; it is great for the university."

Three other patents based on Williams' work also were cited numerous times, making the scientist the major player on the list of top 10 UR inventors whose research has been noted by other patents. Four of his patents combined received 148 citations.

"If it weren't for these top two or three inventors, we wouldn't be there," Fraser said. "Dave Williams really dominated a number of later inventors' work on a separate invention related to a data security software

technology recently led to a license deal with Salt Lake City-based mobileLexis Inc. for UR.

Michael Morris' patent issued in 1998 was cited 17 times. A former professor at the Institute of Optics, Morris is CEO of Apollo Optical Systems LLC, a spinoff of Corning Rochester Photonics Corp.

Ruola Ning's patent issued in 1999 had 14 citations. Ning is an associate professor of radiology at URMC and founder of startup Koming Corp.

"It is telling us that our investment in patents, especially in the arts, sciences and engineering areas is a good investment," said Mark Coburn, associate provost and director of technology transfer at UR.

Williams last month won the 2003 R&D 100 Award. The contest, sponsored by R&D Magazine, honors the most innovative inventions.

He developed an optical system that dramatically improves sight—even of those with 20/20 vision. Using a highly focused spot of light, researchers measure the reflected light, which provides a topographic picture of the eye. A wave front sensor analyzes the deviations in the cornea and lens. The results then are sent to a mirror that can bend and customize its shape according to eye measurements. The shaping alters the light to counter the eye's specific distortions.

In the mid-1990s, Williams altered his research focus to include commercial applications, going a step beyond answering basic research questions. Williams adapted optical techniques from astronomy to remove the distortions present in the human eye.

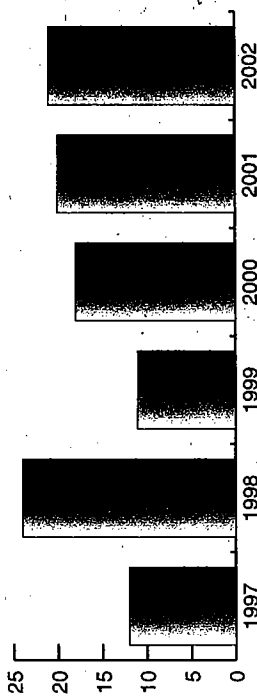
"I think what happened is that we developed ways of measuring the properties of the eye that hadn't been possible before and more importantly is that not only can we measure these properties, but we can do something about them," Williams said. "There has been enormous interest in this; the whole refractive surgery industry has been turned around by it."

Williams hopes the attention to his patents and others will generate new licensing agreements for UR.

"We will see," he said.

sjacob@rj.net / 585-546-8303

## University of Rochester patents



Source: University of Rochester

## UR inventors with most patents cited by other patents

Inventor	No. of times cited	Patent issue date
David Williams	58	1998
David Williams	45	1999
David Williams	32	2000
Murat Tekalp	26	1997
Eric Kool	26	1998
Michael Morris	17	1998
Ruola Ning	14	1999
Shenge Wang	13	1998
David Williams	13	2000
Stephen Jacobs	11	1997

Source: University of Rochester

## UR ranks No. 3 in the nation for its patents

By SMRITI JACOB

University of Rochester ranks among the top three universities nationwide, based on the impact of its patents, a new report shows.

Data compiled by CHI Research Inc., an intellectual property consulting firm, ranks UR No. 3 in terms of current impact. Its index refers to the number of times a university or a company's previous five years of patents are cited in the current year relative to all patents in the U.S. patent system.

"We are following behind the quality work of Carnegie Mellon and Princeton," said Jack Fraser, senior manager of technology licensing at UR's office of technology transfer.

UR had a score of 1.87 in 2002, up from 1.4 in 1997. CHI Research uses 1 as the value of average citation frequency and a value of 2 represents twice the average. Carnegie Mellon University's current impact index was 2.25, followed by Princeton University with 2.

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