



New Digital X-Ray Technology Improves Image Quality While Reducing Radiation Exposure for Patients and Technicians

ActivPixel Innovations of Vancouver, British Columbia is the first company to hit the global market with a new generation of flat-panel detectors that improve the quality of X-ray images, while reducing the radiation exposure for technicians and patients.

“CMC provided access to the tools and technology that allowed us to design, make and test a proof-of-the concept prototype. The results of this research accelerated the development of next-generation technology. This allowed our company to be the first one out of the gate. This is exciting as the market for this technology could approach \$500-million within the next five years.”

Dr. Karim Karim
Chief Technology Officer, ActivPixel Innovations
Assistant Professor, Electrical and Computer Engineering University of Waterloo



Dr. Karim Karim, Co-founder of ActivPixel Innovations, has developed a microsystems-based flat-panel detector that will improve the quality of X-ray images, while reducing the radiation exposure for technicians and patients. This innovation could offer earlier detection of cancer and other diseases.

For many years, scientists have studied and debated the impact of extremely low doses of radiation on human health. In 2005, an expert panel of the National Academy of Sciences (U.S) published research results that indicated even very modest doses of radiation present an increased risk of cancer over a person's lifetime. The panel estimated that one out of 1,000 people will develop cancer from exposure to radiation from a single, full-body CT-scan.¹

ActivPixel Innovations of Vancouver, British Columbia is tackling this challenge. The company is working with a major international original equipment manufacturer (OEM) supplier to test a new medical imaging technology. This technology offers earlier detection of cancer and other diseases, while reducing radiation exposure for patients and technicians.

The Simon Fraser University (SFU) spinoff company was founded in September 2006 to commercialize a technology developed by Dr. Karim Karim, graduate of the University of Waterloo and former Assistant Professor at SFU. He recently returned to his alma mater as an Assistant Professor at the University of Waterloo.

Using design tools and fabrication services provided by CMC, Dr. Karim and his research team at the Silicon Thin-film Applied Research (STAR) lab of SFU developed a new integrated circuit that amplifies the signal at each pixel point in a digital image. Radiologists currently sacrifice picture quality when they lower the radiation dose using the X-ray systems in hospitals today. The new technology developed by ActivPixel improves picture performance without increasing the level of radiation. This will help to reduce the risks of cancer for those who require an X-ray, while enabling more accurate diagnosis of disease, more effective real-time interventions and faster recovery times for patients.

“We could not have performed the initial microelectronics research without CMC. It would have required the purchase of costly design and simulation tools that were beyond our financial reach,” says Dr. Karim.

ActivPixel is currently promoting this new technology to companies that manufacture flat-panel digital imaging devices for major corporations such as Philips, Siemens, General Electric and Toshiba. [cmc](http://www.cmc.ca)

¹ <http://www.msnbc.msn.com/id/8389834/>