NSERC INDUSTRIAL RESEARCH CHAIR IN OPTICAL DESIGN

Faculty of Science and Engineering

MISSION

To train highly qualified personnel in optical design, metrology and assembly to support the photonics industry.

CHAIR CREATION: September 1st, 2008

This research chair is part of Université Laval's PAIRE Program (a program for the advancement of innovation, research and teaching) whose aim is to foster a research environment conducive to innovation, inventiveness and creativity within the university's community of professor-researchers.

CONTEXT

In the last decade, fascinating progress in advanced imaging techniques have significantly improved the performance of optical systems in a vast number of applications such as astronomy, sensing, medicine and microscopy. In fact, we can now rely on imaging systems that combine optical technology with powerful image processing resulting in smart imaging systems. In addition, further development in the area of LEDs has allowed us to envision smart lighting systems.

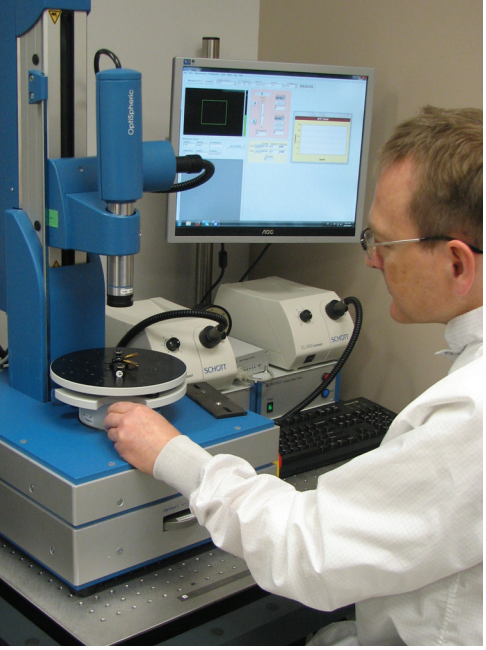
Optical design and engineering have spurred this progress, as in any optical device or laboratory set-up, somewhere, light must be focused, split or deviated and wavefronts must be shaped. Optical design is therefore absolutely essential in the increasingly widespread implementation of photonic technologies.

The NSERC Industrial Research Chair in Optical Design is working on modeling, designing and analyzing optical systems. It delivers crucial support to Canadian industry and research.

Over the past forty years, Université Laval has led the way in the development of optics and photonics in Canada. The Chair is perfectly aligned with the extraordinary development that has taken place in the field and provides expertise currently not found in Canada, and presently available only in a few universities in North America. Furthermore, the Chair is associated with the largest university research facility in optics and photonics in the country, the Centre for Optics, Photonics and Lasers (COPL), and conducts its activities in a world-class infrastructure.

CHAIRHOLDER

Simon Thibault received a bachelor's degree in engineering physics from Université Laval, in 1994. As an INO Fellow, he pursued graduate studies at the same university earning a Master's degree in 1995 and a Ph.D. in 1998. He was in charge of the optical design program at INO from 2000 to 2005 and worked as the senior optical designer at ImmerVision for three years. In 2008, he became a professor at Université Laval's Department of Physics, Engineering Physics and Optics, in the Faculty of Science and Engineering. Professor Thibault holds over 15 patents and has authored or co-authored some 120 papers in recognized peer-reviewed journals and conferences. Since his Chair was established, he has trained over 40 students. He sits on scientific program committees and organizing committees of numerous international conferences. He is also associate editor of the journal Optical Engineering and invited editor of Physics in Canada.



OBJECTIVES

- To train highly qualified personnel in optical design, metrology and opto-mechanics.
- To establish effective design teams and networks in collaboration with industrial partners.
- To increase the awareness and appreciation of the importance of optical design and metrology among researchers and other interest groups.
- To promote innovation in the advanced concepts developed as well as in the novel methods utilized.

PARTNERS

The work of the NSERC Industrial Research Chair in Optical Design is made possible by a strong partnership with innovating companies like ImmerVision, ABB, XEOS Imaging, Gentec-EO and Lumca as well as support from the Centre for Optics, Photonics and Lasers and the Natural Science and Engineering Research Council (NSERC). Together they fund an annual research program totalling over $450,000.

CRSNG NSERC

ImmerVision
ENABLING PANORAMIC TECHNOLOGY

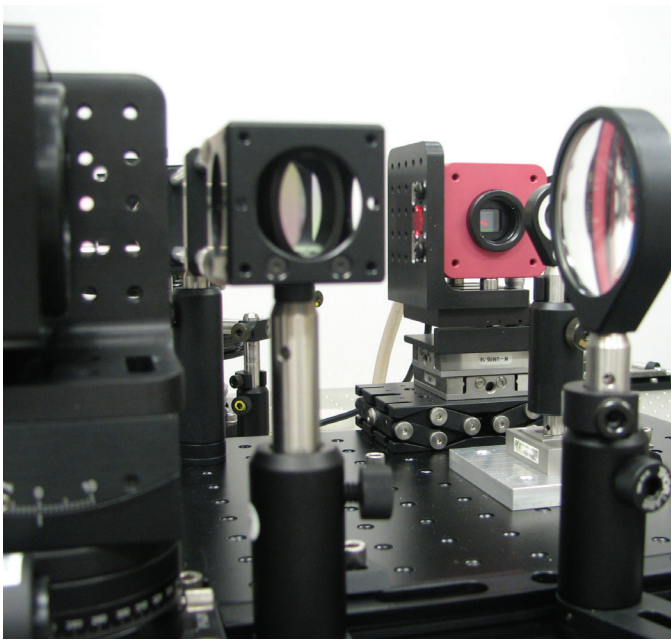
ABB

XEOS
Imagerie aérienne à haute résolution

gentec-eo

Lumca
ISO 9001

COPL
Centre d'optique, photonique et laser



OUTCOME

The Chair has allowed the establishment of Canada's only research laboratory in optical engineering. Thanks to the training offered and the unique infrastructure, industrial partners can improve, explore and develop new technologies that will enable them to market innovative systems. The Chair has several achievements to its credit such as the improvement of resolution in panoramic imagers, the development of a new polarization difference imaging system, the design of more efficient instrumentation for astronomy and the optimization of smart lighting systems based on LED technology. Professor Thibault has also lent his valuable expertise to his COPL colleagues and has provided innovative solutions for the benefit of countless companies.

INFORMATION
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