



Next-generation innovators honoured at TEXPO 2016

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Technology innovations with potential applications in touch screens, drug monitoring, telecommunications and optical imaging were the winners at this year's TEXPO Graduate Student Competition and Exposition.

TEXPO is a highlight of Innovation 360, Canada's largest annual gathering of micro-nano innovators from academia and industry, hosted by CMC Microsystems. This year's event drew nearly 30 entries from postsecondary institutions across Canada's National Design Network®. Many of the competing technologies illustrated the Innovation 360 theme: "Integrate to Innovate: Advanced Technology Manufacturing."

"Rarely do we have the opportunity to witness the outstanding talents of Canada's emerging generation of micro-nano innovators, as demonstrated here at TEXPO," says Dan Gale, Vice-President and Chief Technology Officer, CMC Microsystems.

"This year's entries are especially relevant in that they anticipate the advanced materials, processes and manufacturing techniques that will drive the future of smart technologies. These students, and their prototypes, are the future of Canada's innovation economy."

This year's award recipients are as follows:

Shichao Yue (University of Alberta, supervisor Prof. Walied Moussa): Mentor Graphics Microsystems Design Award for "A Multi-axis piezoresistive MEMS sensor array for tactile panel applications." Mr. Yue's technology, which enhances the sensitivity of touch screens, was singled out for its novelty and commercial potential, and for its breadth of work and impressive demonstration.

Honorable mention: **Stephane Leahy** (Queen's University, supervisor Prof. Yongjun Lai) for "A gap method for increasing the sensitivity of cantilever sensors."

Thang Hoang and **Mohammed Sowaillem** (McGill University, supervisor Prof. David Plant): Huawei Industrial Collaboration Award for "Indium phosphide modulators for metro and data centre optical communications." Targeting the booming demand for data network services, the students' work was praised for its research excellence in advancing optical communications to new levels of speed, and for its importance and relevance to industry in Canada.

Honorable mention: **Mahdi Olfat** (University of Waterloo, supervisor Prof. Raafat Mansour), for "Implementation and mechatronic integration of a single chip atomic force microscope array."

Sahan Ranamukhaarachchi (University of British Columbia, supervisor Prof. Boris Stoeber): Brian L. Barge Microsystems Integration Award for "Microneedle-optofluidic biosensor for therapeutic drug monitoring in sub-nanoliter volumes." Citing Mr. Ranamukhaarachchi's demonstrated expertise in



microfabrication, chemistry and optical sensing, judges lauded his painless, minimally invasive alternative to traditional needles for its integration of micro-electro-mechanical systems (MEMS), and photonics, and its commercialization potential.

Honorable mention: **Jonathan Bouchard** (Université de Sherbrooke, supervisor Prof. Réjean Fontaine) for "Hardware architecture of the LabPET II, a highly integrated APD-based PET scanner for small animal imaging."

Yunzhe Li (University of Waterloo, supervisors Profs. Karim Karim and Peter Levine): Teledyne DALSA Componentware/CAD Award for "Moonlight imaging with hybrid amorphous-selenium/CMOS photodetectors." Judges commended Mr. Li for his technical knowledge, and praised his work, which offers applications in biomedical, diagnostic and optical imaging, for its potential contribution to the optical imaging industry.

Honorable mention: **Parvaneh Saffari** and **Ali Basaligheh** (University of Alberta, supervisor Prof. Kambiz Moez) for "A self-powered wireless temperature sensor for monitoring harsh environments."

Established by CMC Microsystems in 1992, TEXPO offers graduate students in Canada's National Design Network a unique opportunity to demonstrate their novel applications of microsystems technologies to industry representatives and academic peers. Projects are judged by academic and industry representatives, and each award offers a cash prize of up to \$3,500.

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About Canada's National Design Network and CMC Microsystems

CMC Microsystems works with researchers and industry across Canada's National Design Network (NDN), enabling excellent research by providing world-class infrastructure and expertise for designing, prototyping and manufacturing innovations in microsystems and nanotechnologies. CMC provides a path to commercialization of related technologies, and enables the development and sharing of new tools, methodologies and processes to make researchers and industry more productive.

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