UNIVERSITY OF TORONTO

Boundless Innovation

THE UNIVERSITY OF TORONTO takes great pride in seeing nine members of our community recognized with awards from the Natural Sciences and Engineering Research Council of Canada. Their accolades represent an unprecedented performance by U of T scholars, ranging across the academic life-cycle from graduate students through rising stars in mid-career to lifetime achievers. Meet our winners...

Gerhard Herzberg Canada Gold Medal for Science and Engineering

STEPHEN COOK, Computer Science & Mathematics

Stephen Cook's pioneering mathematics research has spawned new fields of inquiry. In addition to celebrated contributions to complexity theory, Cook has made fundamental contributions to computational theory, algorithm design, programming languages and mathematical logic, and it is expected that his still-growing body of work will be cited for many decades to come. He received an A.M. Turing Award for his work, the highest honour for a researcher in computer science. His theoretical results are now essential knowledge for all computer science graduates.

NSERC John C. Polanyi Award

GREGORY SCHOLES, Chemistry

Greg Scholes has established himself as a leader in the field of energy transfer. His research has shown that quantum mechanical effects are involved in the capture and distribution of the sun's energy during photosynthesis. By studying the mechanisms used by some natural organisms to capture and make use of the sun's energy with extreme efficiency, humanity could learn crucial lessons in making better use of solar conversion to meet our growing energy needs. Scholes' work has been featured in Nature, Wired, Scientific American and on CBC News, Discovery and Quirks & Quarks.

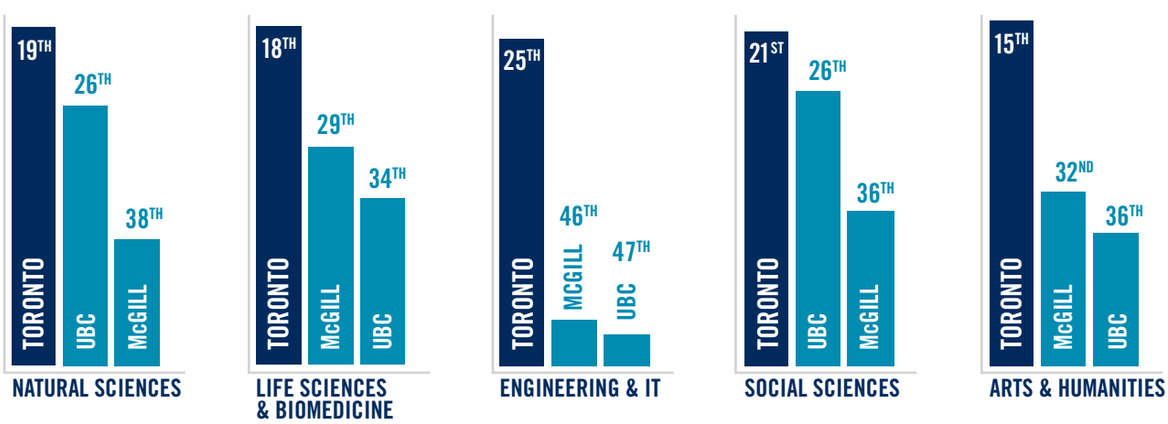
Synergy Awards for Innovation

J. PAUL SANTERRE, Dentistry & Biomaterials and Biomedical Engineering (shared with Interface Biologics, Inc.)

Paul Santerre is recognized for outstanding achievement in industry-university collaboration, in partnership with Interface Biologics, Inc. They are developing biomedical polymers to make medical devices safer and more effective, and their proprietary materials have led to products ranging from catheter lines to polymer-coated stents for opening blocked arteries. Their research is creating commercial opportunities for Canada's growing medical device industry, helping to reduce health care costs—and ultimately helping to save lives.

Canadian universities in the top 50 worldwide

The University of Toronto ranks **first in Canada** in all five disciplinary areas considered by the *QS World University Rankings* (2012). U of T is also **one of only nine institutions** that rank in the **top 25 worldwide** in each of these five areas (along with Cambridge, Oxford, Harvard, Stanford, UC Berkeley, UCLA, University of Tokyo and the National University of Singapore).



The QS World University Rankings for the five subject areas are based on a survey of over 32,000 academics worldwide. (Note: respondents are prevented from providing responses on their own institution.) These results are the centrepiece of the rankings.

E.W.R. Steacie Memorial Fellowships

YU SUN, Mechanical and Industrial Engineering

Yu Sun is an international leader in developing robotics and automation technologies for manipulating biomaterials. His research into automated processes for biological cell manipulation is revolutionizing how genetic studies, cancer research and clinical cell surgery and diagnostics are conducted. He leads the Advanced Micro and Nanosystems Laboratory, developing technologies for biomedical, clinical and precision industry environments.

WARREN CHAN, Biomaterials and Biomedical Engineering

Warren Chan is a global leader in the field of nanotechnology, breaking new ground using quantum dots in biomedical applications. He is leading the development of a handheld device to screen for molecules indicating the presence of pathogens, including HIV, hepatitis B and hepatitis C, malaria and syphilis. The tool will be especially beneficial in the developing world. Chan has co-founded two companies, including Cytodiagnostics, which is one of the world's top five nano-biotechnology companies.

ANEIL AGRAWAL, Ecology and Evolutionary Biology

Aneil Agrawal is one of the world's foremost young evolutionary biologists, conducting ground-breaking experiments that put longstanding theories to the test. He has also conducted transformative work in understanding how harmful genetic mutations enter populations and may then be removed by different forms of selection. This is adding to our understanding of the evolutionary consequences of such mutations, and will lead to practical benefits in medicine.

André Hamer Postgraduate Prizes

CHRISTINA NATALIE NONA, Pharmacology and Toxicology

Christina Nona is researching two neural mechanisms found in the brain, kainate and NMDA receptors, and the role they play in learning and memory. By demonstrating improved performance and conducting detailed examinations of brain sections, Nona is working toward better treatment for those with maladaptive forms of learning and memory, such as those suffering from addictive disorders.

GRAHAM CAREY, Electrical and Computer Engineering

Graham Carey is exploring key challenges in making quantum dot photovoltaic systems more efficient. Quantum dots are microscopic pieces of semiconductor that can be layered onto a surface like paint. Carey is working to improve the stability of each layer and to minimize current and voltage loss to create a more efficient system. His research promises significant economic and environmental benefits.

NSERC Gilles Brassard Doctoral Prize for Interdisciplinary Research

MELANIE MASTRONARDI, Chemistry

Melanie Mastronardi is developing greener and cheaper silicon-based nanocrystals, to address concerns about the use of heavy metals in nanocrystal manufacturing. Her work will make an important contribution in developing silicon as a nanomaterial for use in smartphones, computers and other devices. As nanotechnology is adopted for wider use, her research will help ensure it has a smaller environmental footprint.