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### Program Level

- Bachelor's/First professional degree (17)
- Master's degree (4)
- Doctorate (2)
- Undergraduate level certificate/diploma (1)

### KEYWORDS

### Program Level

### Language of instruction

SEARCH

### Language

English (24)

### Province

- Ontario (18)
- British Columbia (5)
- Alberta (1)

### Distance Ed

Available (1)

- Certificate in Robotics and Embedded Systems**  
Ryerson University, Ontario
- BASc in Robotics and Mechatronics (Minor)**  
University of Toronto, Ontario
- PhD in Mechatronic Systems**  
Simon Fraser University, British Columbia
- M.Eng. in Mechatronics**  
McMaster University, Ontario

4  
more  
→

Not available (23)

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### Coop

Available (8)

Not available (16)

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### Universities

Carleton University (1)

McMaster University (4)

Queen's University (7)

Ryerson University (2)

Simon Fraser University (4)

The University of British  
Columbia (1)

University of Calgary (1)

University of Ontario Institute  
of Technology (1)

University of Toronto (1)

University of Waterloo (1)

Western University (1)

Show all

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### Area of Study

Mechatronics, robotics, and  
automation engineering (14)

Computer science (5)

Computer and information  
sciences, general (2)

Business administration and  
management, general (1)

Computer software  
engineering (1)

Electrical and electronics  
engineering (1)

Engineering, general (1)

Mathematics, general (1)

Mechanical engineering (1)

Science, technology and  
society (1)

### ADVERTISEMENT

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### MEng in Mechatronics Design

The University of British Columbia, British Columbia

### BASc in Mechatronics Engineering

University of Waterloo, Ontario

### BASc (major/honors) Mechatronics Systems Engineering

Simon Fraser University, British Columbia

### Bachelor of engineering and management in mechatronics engineering

McMaster University, Ontario

### Bachelor of engineering in mechatronics engineering

McMaster University, Ontario

### MASC in Mechatronics Systems

Simon Fraser University, British Columbia

### BESc in Mechatronic Systems Engineering Program

Western University, Ontario

### BSc in Mechanical Engineering with Minor in Mechatronics

University of Calgary, Alberta

### Bachelor of engineering and society in mechatronics engineering

McMaster University, Ontario

### BASc Mechatronics Systems Engineering/Bachelor of Business Administration

Simon Fraser University, British Columbia

### BEng in Electrical Engineering

Ryerson University, Ontario

### MSc in Computing

Queen's University, Ontario

### Bachelor of Computer Science (honours)

Carleton University, Ontario

### PhD in Computing

Queen's University, Ontario

### Bachelor of Engineering (Honours) - Software Engineering

University of Ontario Institute of Technology, Ontario

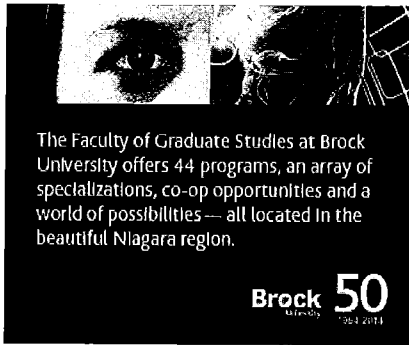
### BSc in mathematics and engineering

Queen's University, Ontario

### Bachelor of Computing (BCmp)

Queen's University, Ontario

### Bachelor of Computing (BCmp) honours



Queen's University, Ontario

**BA in computing and information science**

Queen's University, Ontario

**BSc in computing and information science**

Queen's University, Ontario



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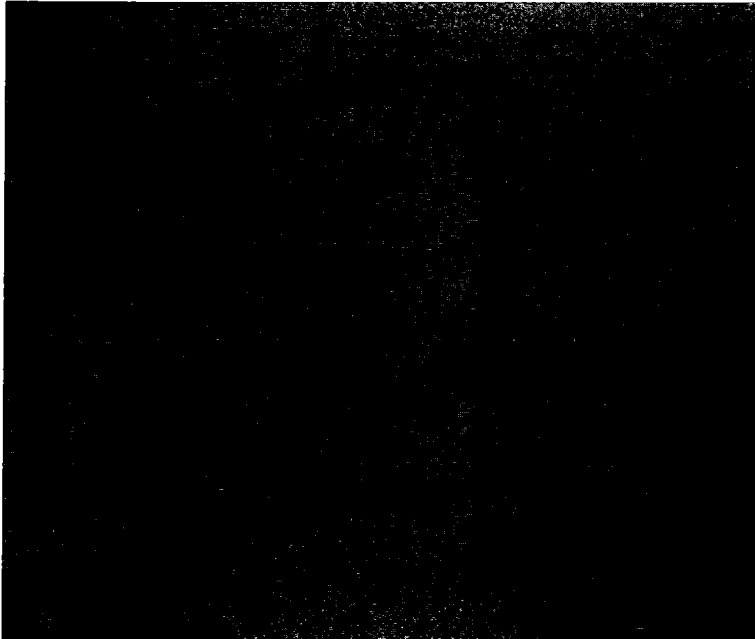
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CANADA

# Waterloo students win big at microrobotics

Friday, May 17, 2013



WATERLOO, Ont. (Friday, May 17, 2013) – A team of undergraduate students from the University of Waterloo has won a significant microrobotics competition, and they did it in less than one second.

The Mobile Microrobotics Challenge took place at the International Conference on Robotics and Automation in Karlsruhe, Germany. The Waterloo team won the Autonomous Mobility Challenge, where the microrobots must autonomously navigate a track in the shape of a figure eight.

"This winning team consists of engineering students who were supported by colleagues from arts and math. The fact that they worked together so well to win this competition speaks to the collaborative spirit and multidisciplinary approach we take at Waterloo," said Feridun Hamdullahpur, president and vice-chancellor of Waterloo. "They surpassed graduate students and postdoctoral candidates from other top universities, which is indicative of their work ethic and high skill. I congratulate them on their victory."

The microrobots were 500 micrometres in size—less than the thickness of a credit card—and competed in an arena measuring 3.5 millimetres by 2 millimetres. Waterloo's team finished three runs with a winning average time of .33 seconds. Organizers set up a microscope over the tiny arena and projected the race onto a large screen so that spectators could see the action.

Matthew Maclean, a third-year student in software engineering, was the controller for the Waterloo team—much like being the driver for a racing team. He controlled the microrobot with computer code, and says precise movements are critical in order to avoid catastrophe.

"When you have something that small, if you are a few milliseconds too slow when controlling the robot, it could end up off the course at a distance 100 times its size," said Maclean. "We do lose the robots from time to time when testing because it's like trying to find a speck of dust."

The implications of this performance can lead to progressive leaps in the development of micro-scale applications including targeted drug delivery, minimally invasive surgery and advanced electronics manufacturing.

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The **Institute for Robotics and Mechatronics** was established by the Faculty of Applied Science and Engineering in 2010 to bring focus on research and education in the fields of robotics and mechatronics. Activities in these fields are distributed across the Faculty, particularly, the Edward S. Rogers Sr. Department of Electrical and Computer Engineering, the Department of Mechanical and Industrial Engineering, the Institute for Aerospace Studies and the Institute for Biomaterials and Biomedical Engineering. Also engaged in IRM are extra-Faculty departments including the Department of Computer Science and the Toronto Rehabilitation Institute.

The aim of IRM is to cull the expertise and experience in the University to advance the art and science of robotics and mechatronics through collaborative research projects and innovative education programs.

### A UNIQUE EDUCATION

IRM offers students the opportunity to enhance their engineering education at the University of Toronto by undertaking a concentration of courses in robotics and mechatronics that will lead to an undergraduate Minor and/or a graduate Emphasis in Robotics and Mechatronics.

### WHERE ROBOTICS MEET THE WORLD

It is no hyperbole that we are on the cusp of a robotics revolution. The marriage of mechanical and electronics engineering—mechatronics—has already populated society with its technology and we have been given a glimpse of the world to come. In the not-too-distant future, we will be working and living side by side with robots but as this horizon opens up before us we also recognize the need for significant technological advances that will allow us to realize this new world. We are working together to create engineers and engineering that are up to the challenge, and embraced by society.





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### Ontario Robotics University Programs


Robotics undergraduate, graduate and post-graduate advanced certificates and degrees available in Ontario.

Study for a bachelor, masters or a doctorate (PHD) Robotics degree program in Ontario.

| [Canada University Programs](#) | [Robotics](#) |

### Ontario: Robotics Programs



**Robotics and Control**  
 University of Western Ontario [www], [profile]   
 Faculty of Engineering  
 Department of Electrical and Computer Engineering [www]  
 Master of Engineering, graduate studies

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### Robotics Programs by Location

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### Related Categories to Robotics

- [Computer Sciences](#)
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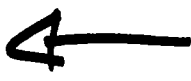
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### Alberta: Robotics Programs

- Robotics**  
University of Alberta [www], [profile]  
Faculty of Science  
Department of Computing Science [www]  
Master of Science, graduate studies
- Robotics**  
University of Alberta [www], [profile]  
Faculty of Science  
Department of Computing Science [www]  
Doctor of Philosophy, graduate studies



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[Computer Sciences](#)


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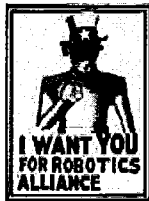
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### List of Universities with a Robotics Program

- Brown University : <http://www.cs.brown.edu/research/robotics/>
- Cal Poly Pomona : <http://www.csupomona.edu/~ece/rover/index.html>
- Caltech : <http://robby.caltech.edu/>
- Caltech : <http://www.coro.caltech.edu/>
- Carnegie-Mellon University : <http://www-2.cs.cmu.edu/~multirobotlab/>
- Carnegie-Mellon University : <http://www-2.cs.cmu.edu/~cyberscout/>
- Carnegie-Mellon University : <http://www.frc.ri.cmu.edu/>
- Carnegie-Mellon University : <http://www-2.cs.cmu.edu/~illah/lab.html>
- Colorado School of Mines : <http://egweb.mines.edu/cardi/>
- Columbia University : <http://www1.cs.columbia.edu/robotics/>
- Cornell University : <http://www.cs.cornell.edu/Info/Projects/csrvl/csrvl.html>
- Dartmouth College : <http://www.cs.dartmouth.edu/~brd/robotics.html>
- Drexel University : <http://itcsl.cs.drexel.edu/>
- Florida A&M University/FSU : <http://www.eng.fsu.edu/~panini/robot/>
- Florida International University : <http://www.eng.fiu.edu/me/robotics/>
- Georgia Tech : <http://www.cc.gatech.edu/ai/robot-lab/>
- Indiana University : <http://www.indiana.edu/~roboclub/>
- Johns Hopkins University : <http://bach.ece.jhu.edu/~etienne/labweb/>
- Johns Hopkins University : <http://www.cs.jhu.edu/CIRL/>
- Johns Hopkins University : <http://robotics.me.jhu.edu/~www/>
- Kansas State University : <http://www.cis.ksu.edu/~dag/robotics/home.shtml>
- Long Beach City College : <http://elect.lbcc.edu/pages/programs.html>
- MIT : <http://www.ai.mit.edu/>
- MIT : <http://robots.mit.edu/>
- New Mexico Institute of Mining & Technology : <http://www.ee.nmt.edu/~isrg/>
- North Carolina State University : <http://www2.ncsu.edu/CIL/CARL/index.htm>
- Northwestern Polytechnic University, Humanoid Project : <http://www.npu.edu/humanoidproject/>
- Ohio State University : <http://eewww.eng.ohio-state.edu/>
- Oregon State University : <http://eecs.oregonstate.edu/education/about.html>
- Portland State University : [http://www.ece.pdx.edu/~mperkows/ML\\_LAB/index.html](http://www.ece.pdx.edu/~mperkows/ML_LAB/index.html)
- Rice University : <http://www.cs.rice.edu/CS/AIRobotics/>
- Southern Illinois University, Edwardsville : <http://roboti.cs.siu.edu/>
- Stanford University : <http://sun-valley.stanford.edu/arl.html>
- Stanford University : <http://robotics.stanford.edu/home.html>
- Stanford University : <http://www-cdr.stanford.edu/Touch/touchpage.html>
- Tennessee State University : <http://www.tnstate.edu/imrl/>
- Texas A&M University : <http://parasol-www.cs.tamu.edu/dsmft/>
- U.S. Air Force Academy : <http://www.usafa.af.mil/>



UC Berkeley : <http://robotics.eecs.berkeley.edu/>  
 UC Berkeley : <http://www.me.berkeley.edu/hel/>

UC San Diego : <http://www-rohan.sdsu.edu/~tarokh/lab/>  
 UC San Diego : <http://cvrr.ucsd.edu/>

UC Santa Cruz : <http://www.cse.ucsc.edu/labs/taoswap/>

University of Arizona : <http://www.ame.arizona.edu/>

University of Cincinnati : <http://www.robotics.uc.edu/>

University of Florida : <http://www.mil.ufl.edu/>

University of Hawaii : <http://www.eng.hawaii.edu/~asl/>

University of Houston (Downtown campus) : <http://www.uhd.edu/academic/colleges/sciences/engineeringtech/>

University of Houston (Main and Clear Lake campuses) : <http://www.egr.uh.edu/>  
 University of Houston (Main and Clear Lake campuses) : <http://nas.cl.uh.edu/>

University of Idaho : <http://www.mrc.uidaho.edu/cisr/>

University of Maryland : <http://www.cs.umd.edu/projects/amrl/>  
 University of Maryland : <http://www.ssl.umd.edu/>

University of Massachusetts, Amherst : <http://dis.cs.umass.edu/>  
 University of Massachusetts, Amherst : <http://www-robotics.cs.umass.edu/pr.html>

University of Michigan, Ann Arbor : <http://www.engin.umich.edu/research/mrl/index.html>

University of Minnesota : <http://www.cs.umn.edu/Research/airvl/>

University of Missouri-Columbia : <http://sun16.cecs.missouri.edu/>

University of Nebraska-Lincoln : <http://robots.unl.edu/index.html>

University of New Hampshire : [http://www.ece.unh.edu/robots/rbt\\_home.htm](http://www.ece.unh.edu/robots/rbt_home.htm)

University of New Mexico : <http://vlab.unm.edu/>  
 University of New Mexico : <http://pursue.unm.edu/robotics/>  
 University of New Mexico : <http://www-mep.unm.edu/html/radds.html>  
 University of New Mexico : <http://www.eece.unm.edu/%7Echsmith/raiv.html>

University of Notre Dame : <http://www.nd.edu/~airolab/>  
 University of Notre Dame : <http://www.nd.edu/~isall/>

University of Oklahoma : <http://www.amerobotics.ou.edu/intro.html>

University of Pennsylvania : <http://www.grasp.upenn.edu/>

University of Rochester : <http://www.cs.rochester.edu/users/faculty/brown/lab.html>

University of South Florida : <http://www.csee.usf.edu/robotics/crasar/>

University of Southern California : <http://www-robotics.usc.edu/>  
 University of Southern California : <http://www-robotics.usc.edu/~embedded/>

University of Tennessee, Knoxville : <http://www.cs.utk.edu/~parker/Distributed-Intelligence-Lab/index.html>  
 University of Tennessee, Knoxville : <http://imaging.utk.edu/>

University of Texas, Austin : <http://www.robotics.utexas.edu/rrq/>

University of Texas, Dallas : <http://www.utdallas.edu/dept/eecs/>

University of Utah : [http://www.cs.utah.edu/vision/vision\\_robotics.html](http://www.cs.utah.edu/vision/vision_robotics.html)  
 University of Utah : <http://www.cs.utah.edu/~jmh/VETO.html>

University of Washington, Bothell : <http://faculty.washington.edu/cfolson/mapping.html>

University of Washington, Seattle : <http://brl.ee.washington.edu/>  
 University of Washington, Seattle : [http://www.cs.washington.edu/ai/Mobile\\_Robotics/](http://www.cs.washington.edu/ai/Mobile_Robotics/)

University of Wisconsin, Madison : <http://robios8.me.wisc.edu/>

Utah State University : <http://www.csois.usu.edu/>

Vanderbilt University : <http://eecs.vanderbilt.edu/CIS/IRL/>  
 Vanderbilt University : <http://eecs.vanderbilt.edu/cis/CRL/index.html>  
 Vanderbilt University : <http://129.59.79.44/index.html>

Villanova University : <http://www.csc.vill.edu/lab/special.html>

# MEMS/MicroRobotics

## Faculty



Gary Fedder



Ralph Hollis



Alonzo Kelly



Metin Sitti



Lee Weiss

MicroElectroMechanical Systems (MEMS) and Microrobotics research spans design methodologies, physical investigations and manufacturing techniques involving various microsensors, microactuators and other microsystems. Selected applications include inertial sensor suites for control and guidance, miniature wall-climbing robots using micro/nano-fiber adhesives, arrayed MEMS probe manipulators for tip-based nanomanufacturing, gas chemical sensor arrays for early warning systems, and ultra-compliant neural probes for brain-computer interfaces.

MEMS and Microrobotics RI faculty have developed strong multidisciplinary research programs on integrated MEMS design and fabrication (Fedder), micro and nanorobotic systems (Sitti), and implantable medical microsystems (Fedder, Weiss). This research links the RI to many departments throughout the University through active collaborations with faculty from across CIT and MCS as well as with Pitt and UPMC. These RI faculty members also have joint appointments in other entities. Expanded research in micro-inertial navigation technologies (Kelly and Fedder) is also planned to target new DOD initiatives.

The future for research in MEMS and microrobotics remains bright, with trends toward use of the technology to access and manipulate nano-scale phenomena as well as to enable emerging biomedical applications. RI faculty are taking leads in these areas in collaboration with faculty throughout the University. One of the challenges faced is to merge systems across macro-, micro-, and nano-scales. CMU's planned Nano/Bio/Energy Building (2014 expected date of completion) for nano- and biotechnologies will facilitate efforts in this area by providing state-of-the-art shared infrastructure for nano/microfabrication. In addition, a budding collaboration in multi-scale factory automation (Hollis, Fedder) is leveraging renewed efforts in reconfigurable, high-precision minifactories (Hollis).

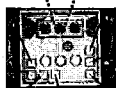
## Project Images



Water Strider



Thin film of 5 nm gold nanoparticles jetted on 200  $\mu\text{m}$  diameter interdigitated electrodes



Gas chemical sensors embedded in respirator cartridge filters



Gas Chemical Sensor





Engineering Laboratory

NIST Home > EL > Intelligent Systems Division > Microrobotics Challenge

## Mobile Microrobotics Challenge

### Motivation

Recent advances in the design and fabrication of microelectromechanical systems (MEMS) have enabled the development of mobile microrobots that can autonomously navigate and manipulate in controlled environments. It is expected that this technology will be critical in applications as varied as intelligent sensor networks, in vivo medical diagnosis and treatment, and adaptive microelectronics.

However, many challenges remain, particularly with respect to locomotion, power storage, embedded intelligence, and motion measurement. As a result, NIST has organized performance-based competitions for mobile microrobots that are designed to: 1) motivate researchers to accelerate microrobot development, 2) reveal the most pressing technical challenges, and 3) evaluate the most successful methods for locomotion and manipulation at the microscale (e.g., actuation techniques for crawling).

### NIST Mobile Microrobotics Challenge 2012

Challenge Call for Participants (pdf)

Challenge Rules (pdf)

### Previous Challenges

### Results from 2011 Challenge

#### Mobility

	Trial 1	Trial 2	Trial 3	Final Score	Place
France	1.867	2.104	2.637	2.226	1
Univ. of Hawaii	39.580	33.444	32.654	35.362	2
Univ. of Waterloo	120.000	25.770	24.959	72.312	3
Stevens Inst. of Tech.	120.000	62.018	120.000	104.317	4
Italian Inst. of Tech.	120.000	120.000	120.000	120.000	5
Univ. of Maryland	120.000	120.000	120.000	120.000	5
Univ. of Texas at Arlington	120.000	120.000	120.000	120.000	5

#### Microassembly

	Trial 1	Trial 2	Trial 3	Final Score	Place
University of Waterloo	0.000	78.000	0.000	45.033	1
Stevens Inst. of Tech.	0.000	0.000	0.000	0.000	2
France	0.000	0.000	0.000	0.000	2
Univ. of Hawaii	0.000	0.000	0.000	0.000	2
Italian Inst. of Tech.	0.000	0.000	0.000	0.000	2
Univ. of Texas at Arlington	0.000	0.000	0.000	0.000	2
Univ. of Maryland	0.000	0.000	0.000	0.000	2

### Press release

Official Rules - NIST Mobile Microrobotics Challenge

Details about the 2010 competition are available here.

Select Language

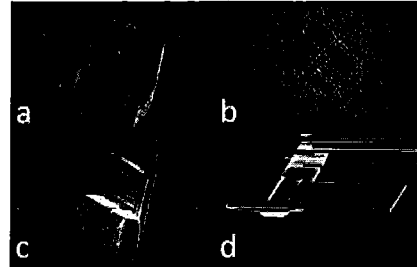
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<b>Safety Documents</b>

[ Safety Rules for Moderate and High Voltages ]

[ NIST Laser Safety Program ]



Microrobots from past competitions: a) hard magnet (Carnegie Mellon), b) polymer-based electrostatic (Simon Fraser), c) resonant electromagnetic (ETH Zurich), and d) electrostatic (US Naval Academy)

### Contact

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100 Bureau Drive, M/S 8230  
Gaithersburg, MD 20899-8230

Craig McGray, PML  
301-975-4110, Telephone  
100 Bureau Drive, M/S 8120  
Gaithersburg, MD 20899-8120

Richard Allen, PML

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### PROFESSIONAL SOCIETIES, ORGANIZATIONS, AND ACADEMIC INSTITUTIONS INVOLVED IN ROBOTIC SYSTEM DEVELOPMENT

Aerospace Robotics Laboratory, Stanford University. <http://sun-valley.stanford.edu/home.html>  
 American Nuclear Society (ANS). <http://www.ans.org/>  
 American Society of Mechanical Engineers (ASME). <http://www.asme.org/>  
 Association for Unmanned Vehicle Systems International (AUVSI) <http://www.auvsi.org/>  
 Field Robotics Center, Carnegie Mellon University. <http://www.frc.ri.cmu.edu/>  
 IEEE Robotics and Automation Society. <http://www.ieee.org/>  
 National Robotic Engineering Center (NREC). <http://www.rec.ri.cmu.edu/>  
 Robotic Industries Association (RIA). <http://www.roboticsonline.com/>  
 Robotics Institute (RI). <http://www.ri.cmu.edu/>  
 Society of American Military Engineers (SAME). <http://www.same.org/>  
 Space Systems Lab, University of Maryland. <http://www.ssl.umd.edu/>  
 Wisconsin Center for Space Automation and Robotics (WCSAR). <http://wcsar.engr.wisc.edu/>  
 Woods Hole Oceanographic Institution (WHOI). <http://www.whoi.edu/>

### ROBOT CLUBS, GROUPS, AND INFORMAL ORGANIZATIONS

Over the past decade there has been an exponential increase in the number of robot system hobbyists, who enjoy designing and building warrior robots (battlebots) for machine competitions, as well as a wide variety of robots for fun, education, and various competitive robot sports, such as soccer. Often, these "amateur" robot enthusiasts form informal groups and organizations to their share experiences and participate in competitions. Here is a short (geographically dispersed) list of some of the informal robot clubs and organizations in the United States and Canada.

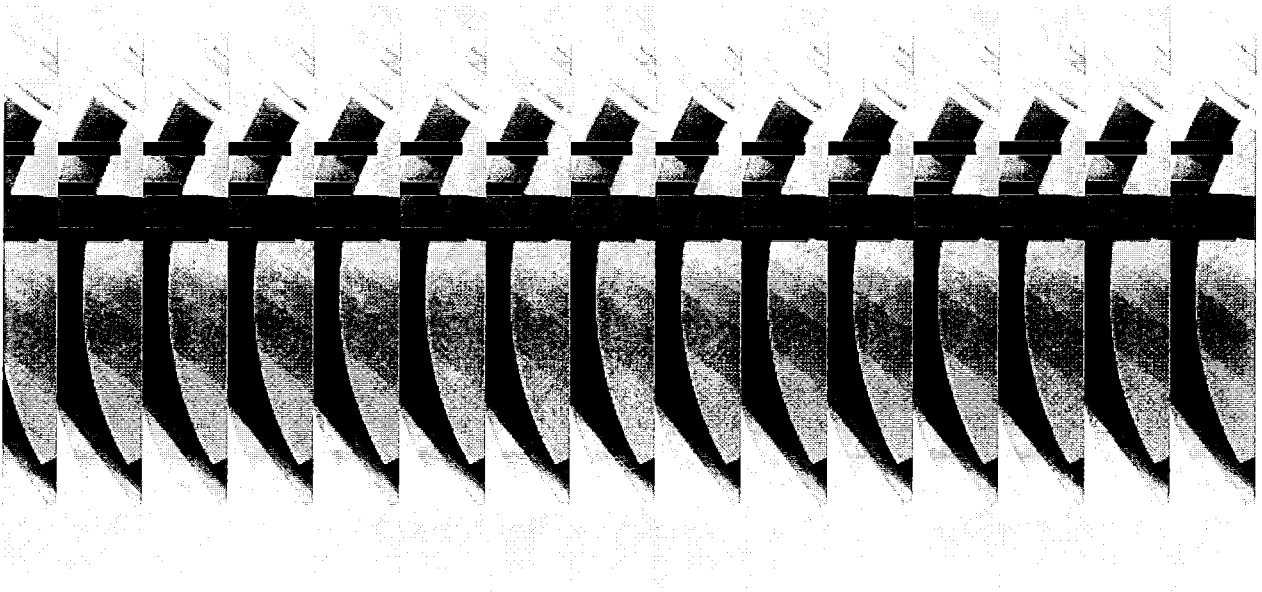
Arts and Robots Group (ARG), Toronto, Canada. <http://interaccess.org/arg/>  
 Atlanta Hobby Robot Club (AHRC), Atlanta, Georgia. <http://www.botlanta.org/>  
 Carnegie Mellon Robotics Club, Pittsburgh, Pennsylvania. <http://www.roboticsclub.org/>  
 Central Illinois Robotics Club (CIRC), Peoria, Illinois. <http://circ.mtco.com/>  
 ChiBots-Chicago Area Robotics Group, Chicago, Illinois. <http://www.chibots.org/index.php>  
 Connecticut Robotics Society (CRS), Hartford, Connecticut. <http://www.ctrobots.org/>  
 Dallas Personal Robotics Group (DPRGF), Dallas, Texas. <http://www.dprg.org/>  
 HomeBrew Robotics Club (HBRC), San Jose, California. <http://www.hbrobotics.org/index.html>  
 Nashua Robot Club, Nashua, New Hampshire. <http://nashuarobotbuilders.org/>  
 Phoenix Area Robotics Experimenters (PAREX), Phoenix, Arizona. <http://www.parex.org/>  
 Portland Area Robotics Society, Portland, Oregon. <http://www.portlandrobotics.org/>  
 Robomo-Missouri Area Robotics Society, St. Louis, Missouri. <http://robo.com/>  
 Robotics Society of Southern California (RSSC), Fullerton, California. <http://www.rssc.org/>





# ROBOTICS ONLINE

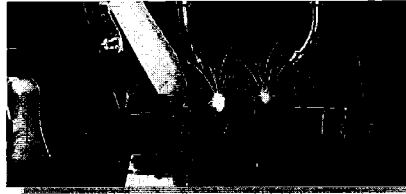
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The Association

History

The International Federation of Robotics was established in 1987 in connection with the 17th International Symposium on Robotics [ISR](#) as a non-profit organisation by robotics organisations from over 15 countries. Since 1970, an International Symposium on Robotics has been organised every year in different continents, countries and cities. Each Symposium is organised in conjunction with an International Robot Exhibition.

Purpose

The purpose of IFR shall be to promote and strengthen the robotics industry worldwide, to protect its business interests, to cause public awareness about robotics technologies and to deal with other matters of relevance to its members.

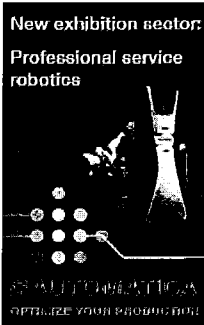
Major Activities

IFR shall undertake especially the following activities:

- Help manufacturers and integrators of robotics to enter into new market and to gain information about the latest technological trends in the field of robotics.
- Collection and interpretation of market relevant data for world-wide surveys, studies, statistics and other data on the world-wide use of robotics.
- Establish links to and actively co-operate with other national and international organisations in the field of robotics.
- Manage the links between the robotics industry and research & development activities in new fields of emerging robots and related technologies.
- Sponsor the International Symposium on Robotics [ISR](#).

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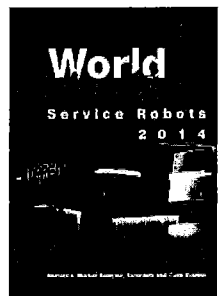
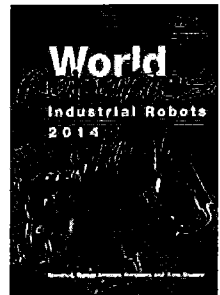
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### Overview

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## Internationally Located Automation and Robotics Associations

### Australian Robotics & Automation Association Inc.

The Australian Robotics and Automation Association Inc. (formerly the Australian Robot Association Inc.) is a professional society in Australia and New Zealand that is concerned with robots, their applications and their implications, and related automation technologies. The Association organizes conferences and other meetings, and serves as a focal point for Australian industry and researchers concerned with robotics and automation.

### British Automation & Robot Association (BARA)

The British Automation and Robotics Association provides a voice for the Robotics and Automation Industries, when dealing with government, industry, financial and academic institutions. The aim of the BARA is to promote the use of, and assist in the development of Automation in British industry. In 2009 BARA joined forces with the PPMA (Processing & Packaging Machinery Association) to become a special interest focus group and has gathered more influence, members and provide more support to the end-user community.

### Canadian Tooling & Machining Association (CTMA)

The CTMA represents and promotes the interests of the Canadian tooling and machining industry nationally and internationally. Membership is restricted to manufacturers in the tooling industry encompasses all involved in the design, manufacture, repair, or assembly of tools, dies, moulds, models, patterns, jigs, fixtures, gauges, machinery, machining systems, robotics, automation equipment, machine shop products, cutting tools and all related industries and service providers including general jobbing.

### European Design and Automation Association (EDAA)

The Association is a non-profit association. Its purpose is to operate for educational, scientific and technical purposes for the benefit of the international electronics design and design automation community. The EDAA will, in the field of design and design automation of electronic circuits and systems, promote a series of high quality technical international conferences and workshops across Europe and will cooperate actively to maintain harmonious relationships with other national and international technical societies and groups promoting the purpose of the Association.

### Finnish Society of Automation (FSA)

A professional association for specialists within the field of automation technology. The FSA operations cover all branches of the industry. The members represent various fields of automation, including trade, research, manufacturing, education, design and use.

### IEEE Control Systems Society

An international scientific, engineering, and professional organization that was founded in 1954 and is dedicated to the advancement of research, development, and practice in automation and control systems. The society and its members are involved in a number of activities, including publishing journals and a magazine, holding a number of conferences, and sponsoring committees in various areas of technical specialization.

### VDI/VDE-GMA Society for Measurement and Automatic Control

The Society for Measurement and Automatic Control (GMA), a joint organization of the VDE and the VDI, gives users orientation about the current trends in automation being supported by innovations in information technology, microelectronics, optics and sensorics. The Society organizes meetings, conferences, seminars and other events

### PHONE

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# ROBOTNOR

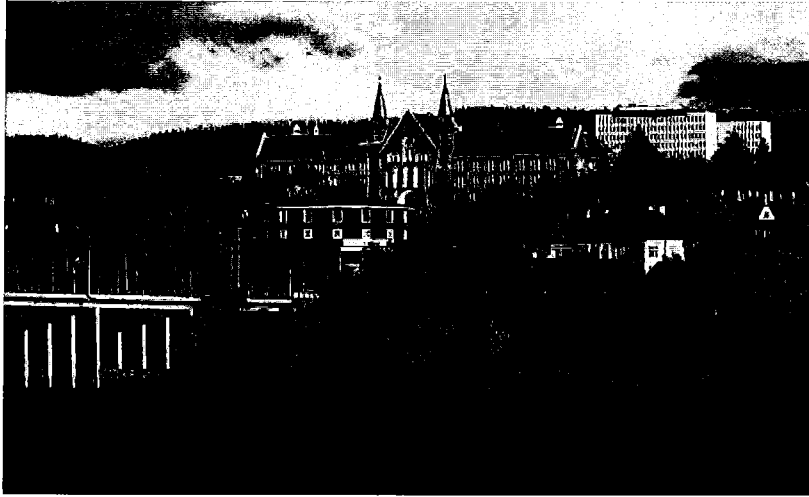
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## ABOUT US

**ROBOTNOR – Centre for Advanced Robotics** in Trondheim, Norway, is funded by NTNU and SINTEF. We specialize in development of next generation robotics technologies and concepts, promoting education and industrial innovation.

**ROBOTNOR** was initiated by Dr. Ingrid Schjølberg and formally opened in November 2012. The establishment of the centre is heavily based on support from the IME faculty at NTNU. An important part of ROBOTNOR is the Lighthouse Robotics initiative at IME.

The centre consists of the following member organizations:

- NTNU IME Faculty of Information Technology, Mathematics and Electrical Engineering
- NTNU IVT Faculty of Engineering Science and Technology
- SINTEF

## CONTACT OUR EXPERTS



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## VIDEOS



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**Simultaneous proportional myoelectric control**

Demonstration of simultaneous proportional myoelectric control of a prosthetic hand. The video was developed by [...]

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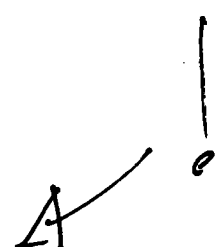


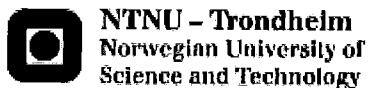
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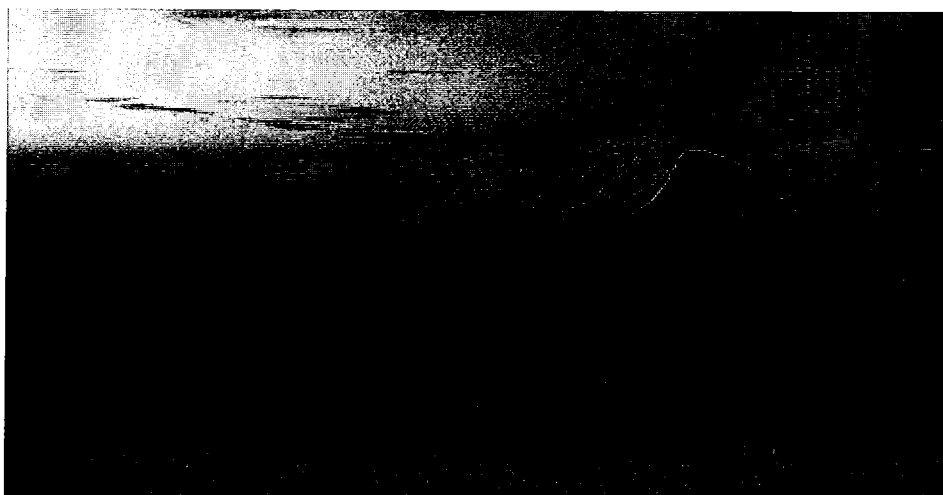
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## NORUS

- Technology development for marine monitoring and ocean observation

### **An North America-Norway educational program**

'Technology development for marine monitoring and ocean observation' is a novel research-based higher education program focused on climate-induced differences in marine key environmental variables and its effect on bio-diversity. The program will initiate an international partnership between Norway (NTNU and UNIS) and the United States (Cal Poly and Rutgers) and will facilitate and develop state-of-the-art technology for marine monitoring and observation.



### **Program goals**

1. Build an integrated ocean observatory network/educational programme for climate-induced variation of key-environmental variables on marine bio-diversity in the Arctic