i CORE
ALBERTA INFORMATICS
CIRCLE OF RESEARCH EXCELLENCE

newsletter

Special Edition
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Performance Measures 2002

*Since its inception three years ago, iCORE has developed
a critical momentum that is realizing remarkable results.*

iCORE is proud to present the results of its first performance measures. It presents the baseline results of iCORE's programs as of September 2002, after completion of our first two full years of operation.

iCORE's success can be directly linked to the focus on excellence of its skilled researchers, advisors, board, committees and staff, who share the knowledge that informatics is a cornerstone of new economies. As we maintain this course, achieve a critical mass, and forge conscious links with industry, prosperity will follow.

iCORE was created in 1999 in recognition of the need to develop a strong information and communications technology sector in Alberta. In January 2000 the first programs for iCORE major grants and graduate student scholarships were launched. In 2001 an Industry Chair program commenced and in the fall of 2002 a Visiting Professor program was announced. The impact of this focus and energy is significant.

iCORE's primary impact is on the attraction, retention, education and support of exceptional researchers. These people have had, and will continue to have, direct impact on the amount of research funding attracted to the province, and the number and quality of graduate students that are drawn to Alberta. They are having academic impact on the quality of research, teaching, and publications. They are having industry impact by establishing local access to expertise and ideas, and making students available to industry. They are having economic benefit when these high quality people create and grow new and existing businesses.

This report will be updated each fall to mark our progress.

Highlights

- iCORE has made $25 million in awards. This funding has attracted an additional $41 million to date where an iCORE Chair has been the prime recipient ($32 million federal, $5 million provincial, $4 million industry), and $120 million where the iCORE Chair has been a significant contributing influence ($60 million federal, $60 million provincial).

- 11 research teams are in place, which include 65 faculty and 156 graduate students and postdoctoral fellows.

- An additional 134 of Canada's best graduate students (recipients of federal Natural Sciences and Engineering Research Council [NSERC] awards) are currently supported by iCORE and a total of 192 have been funded.

- Alberta's percentage of Canada's NSERC graduate student awards in computer science and electrical and computer engineering has increased from 14 percent in 2000, to 21 percent in 2001, to 24 percent in 2002 — a significant accomplishment in two years.

- A survey of students supported by iCORE in 2000 shows that 100% have remained in Alberta for employment.

- iCORE Chairs and their teams have created substantial intellectual property in the form of research papers, patents, and partnerships

- iCORE Chairs hold six Canada Research Chairs, three Steacie Fellowships, and two were inducted into the Royal Society of Canada this past year.

Summary of Performance Indicators

To gauge success, iCORE measures its performance in several major areas:

High Quality People

Number of iCORE Chairs and Professors	11
Number of faculty members on iCORE research teams	65
Number of graduate students and postdocs on iCORE research teams	156
Number of graduate student scholarships awarded	192
Percentage of graduate students who stay in Alberta after graduation	100

Economic Impact

iCORE investment	$25 M
Funding acquired directly by iCORE research teams	$41 M
Funding acquired with iCORE research team collaboration	$120 M
Spinout companies	3
Licenses	$2.55M

Partnerships

Number of collaborations with researchers nationally and internationally	47
Partnerships with industry	38

Awards

Number of major awards by iCORE researchers	9

Intellectual Property Produced

Breakthrough publications	27
Refereed Publications	186
Patents	23

Economic Impact

Economic impact can be measured by looking at the investment made in research in Alberta and its consequences for industry. iCORE has been very successful in attracting investment to Alberta. For every dollar that iCORE has invested, the excellence of the people and confidence around the research program has led to the investment of an additional four dollars from other sources.

iCORE investment — $25M

Funding acquired directly by iCORE research teams

Federal	Canada Foundation for Innovation	$23M
	Canada Research Chair	$7.5M
	Natural Sciences and Engineering Research Council	$3M
Provincial	Universities	$3M
	Alberta Science and Research Authority	$2M
Industry	Private sector partners	$4M

Funding acquired with iCORE research team collaboration

Federal	National Research Council	$60M
Other Alberta	Alberta Innovation and Science	$60M

Licenses (complete information not yet available)

Lifetime	$2M
Since iCORE award	$0.55M

Spinout companies

Lifetime	3
Since iCORE award	0

High Quality People

The total number of researchers actively engaged in research fostered by iCORE has grown to over 200, with an additional 134 graduate students supported in related areas.

Number of iCORE Chairs and Professors

11 research teams have been funded in the following areas:

- Wireless Communications Laboratory (Norman Beaulieu)
- Advanced Technology Information Processing Systems (Graham Jullien)
- Wireless Location Research Group (Gérard Lachapelle)
- Nanoscale Engineering Physics Initiative (Michael Brett, Mark Freeman)
- High Performance Artificial Intelligence Systems Laboratory (Jonathan Schaeffer)
- Broadband Wireless Networks (Carey Williamson)
- Software Engineering Decision Support Laboratory (Günther Ruhe)
- Algorithmic Number Theory and Cryptography (Hugh Williams)
- High Capacity Digital Communications (Christian Schlegel)
- Wireless Science and Technology Initiative (Jim Haslett)
- Wireless Traffic Modeling and Simulation (Carey Williamson)

**Number of faculty members on iCORE research teams**

65 additional research associates and collaborators are involved on the teams.

**Number of graduate students and postdocs on iCORE research teams**

With 156 graduate students and postdocs working on these teams, the total volume of researchers actively engaged in research supported by iCORE has reached over 200.

Number of graduate student scholarships awarded

To date, 192 graduate students holding NSERC awards in the areas of computer science and electrical and computer engineering have also been attracted to and funded in Alberta by complementary iCORE graduate student scholarships. These students represent the highest achieving Canadian students.
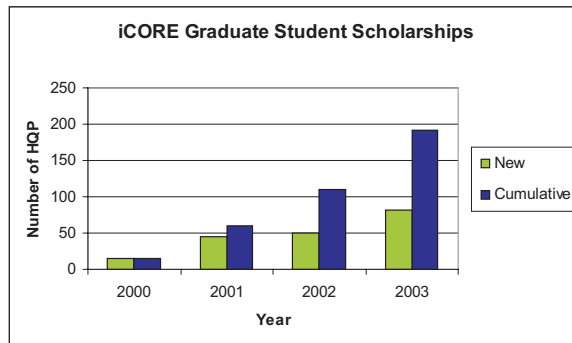
iCORE Graduate Student Scholarships

Alberta's percentage of Canada's NSERC graduate student awards in computer science and electrical and computer engineering has increased from 14 percent in 2000, to 21 percent in 2001, to 24 percent in 2002 – a significant accomplishment in two years.

Percentage of NSERC PGS Awards in CS and ECE held in Alberta
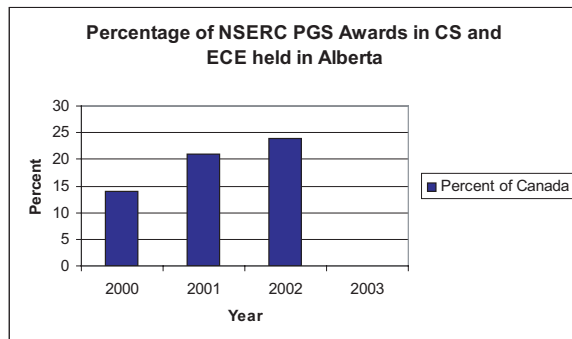
Percentage of graduate students who stay in Alberta after graduation

In its first survey of the students supported by iCORE in 2000, all who responded had stayed in Alberta.

Partnerships

Collaborations are an endorsement by other researchers that a researcher brings value to a larger project. iCORE researchers have many connections with colleagues around the world, and are actively involved in collaborative research projects. Details on these partnerships and industry projects can be found in the iCORE Research Report, Volume 1.

Partnerships with researchers

National and international research collaborations	39
Multi-discipline or multi-institutional partnerships	7

Partnerships with industry

Researcher-industry projects	38

Awards

iCORE awardees are recognized by other adjudicated processes, reinforcing the excellence of the research supported by iCORE in Alberta. iCORE's Chairs and Professors have earned several awards this past year:

Number of major awards by iCORE researchers

Canada Research Chairs	6
Steacie Fellowships	3
Royal Society of Canada appointments	2

Intellectual Property Produced

The output of iCORE researchers is an indicator of the level of achievement in research. These measures reflect the breadth and quality of intellectual property produced, which yields both intellectual and economic returns.

Breakthrough publications (major impact on the discipline)

Lifetime	25
Since iCORE award	2

Refereed publications

Current year	186

Patents

Lifetime	17
Since iCORE award	7