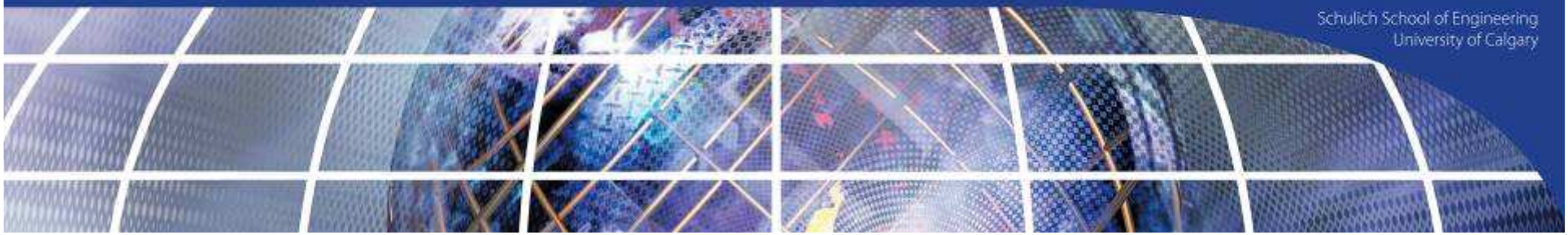


How Academia Can Help Business R&D: A Perspective from the University of Calgary

Mark Petovello
Department of Geomatics Engineering
University of Calgary
http://www.geomatics.ucalgary.ca

Geomatics in Canada & Alberta

http://en.wikipedia.org/wiki/File:Alberta,_Canada.svg

Canada: ~33.47M people
Alberta: ~3.65M people

- Canada is a recognized world leader in Geomatics
  - ~ 2,500 firms
  - >35,000 employees,
  - ~ $2.5B revenue annually
  - Represents 20% of global market and growing 20% per year

Geomatics in Canada & Alberta

- The province of Alberta has a large and growing Geomatics industry
  - Approximately 40% of the Canadian Market with over 500 companies
  - Growing at 10-15% per year with aggregate revenue of $5.7B expected by 2017

- Strong research programs at three research-intensive universities with vocational support from technical colleges & institutes
  - 60 researchers, 200 PhD/MSc, 5 major labs

The High-Level Landscape

Universities Want High Quality Research Programs

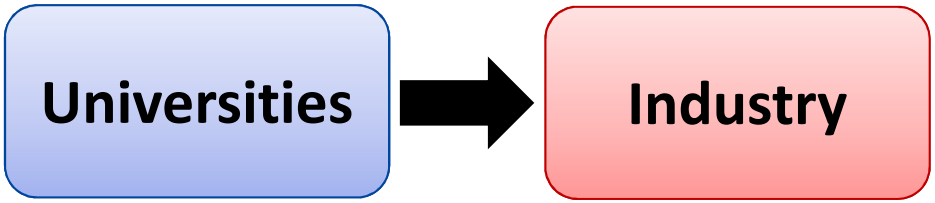
- Successful Researchers
- Cutting Edge Research Tools
- Strong Graduate Students
- Interface with Government & Industry

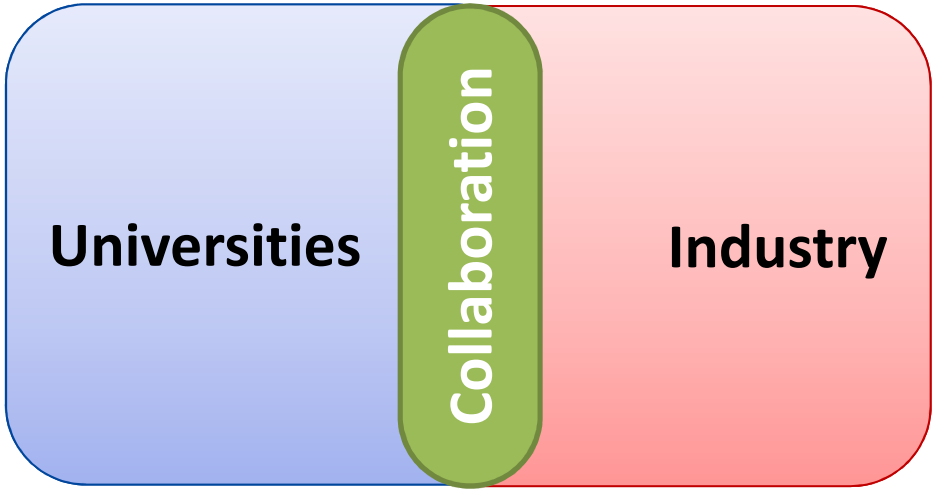
Companies Want to be Successful

- Gain a Competitive Edge
- Improve Products
- Hire High Quality Employees

Where's the Link?

- Why are Universities commonly viewed as 'producers' and companies as 'consumers'?
- Universities are a *tremendous resource* that can be used by industry to their benefit through proper collaboration
- Collaboration also benefits the University, a professor's research program and the students





Possible Relationships

- Technology licensing
  - Software
  - Patents

- Research collaboration/sponsorship
  - Company is actively involved in shaping (and possibly directing) the scope of research

Technology Transfer

- Software licensing and patents are most common forms of technology transfer with the following benefits
  - Support a product/application
  - Conduct independent testing
  - Serve as new internal research tool
  - Excellent “training” tool
  - Source code licenses (for software) can save time and money

- Technology transfer from Department of Geomatics Engineering since April 2000
  - 33 different technologies have been licensed
  - 11 patents applied for or awarded

Collaboration – An Overview

- Companies directly sponsor research projects targeted at topics that are of *primary interest to them*
  - Range in duration from a few months to several years
  - Level of involvement with the research varies by company and/or nature of the research (e.g., theoretical vs. applied)

- Outcomes also vary by project
  - Proof of concept
  - Demonstration system/prototype
  - Software
  - Technical report

Collaboration – Benefits

- To the company…
  - Targeted research that addresses specific needs
  - Access to leading world-recognized experts and future graduates for reasonable cost
  - First access to research results
  - Access (direct or indirect) to world-class lab facilities
- To the University…
  - Funding and recognition
  - Assurance that research is relevant to industry
  - Better training opportunities for students; both technical and professional skills

Collaboration – Challenges

- Intellectual Property (IP)
  - An IP agreement is *negotiated* between the company and the University
  - Ultimate goal is to allow the University to continue using the resulting technology but also recognizing the contribution of the sponsor
    - "First right of refusal" for third-party licences
    - Review of publications prior to publishing
- Maintaining perspective
  - Outcomes are never known
  - Students are not employees

Collaboration – Fund Matching

- Many agencies are interested in funding research projects between industry and academia especially if you have a Canadian collaborator
  - ISTP Canada and several Indian governmental departments are working together to encourage collaboration

- Leg work is needed to find and secure this funding
  - Funding may be targeted for specific initiatives
    - R&D
    - Commercialization
    - Specific fields/topics
  - Timing of grant competitions may be inconvenient

Department at a Glance

- Formed in 1979 as the centre of Geomatics education for Western Canada

- Currently has
  - ~150 students enrolled the undergrad program
  - ~150 graduate students
  - 19 faculty members

General Research Areas

Positioning, Navigation and Wireless Location (7 faculty)

- GNSS
- Indoor location
- Inertial Navigation Systems
- Integrated systems
- Precise Engineering Surveys

Earth Observation (4 faculty)

- Geodesy
- Geodynamics
- Environmental monitoring
- Remote sensing applications
- Global change

GIS & Land Tenure (5 faculty)

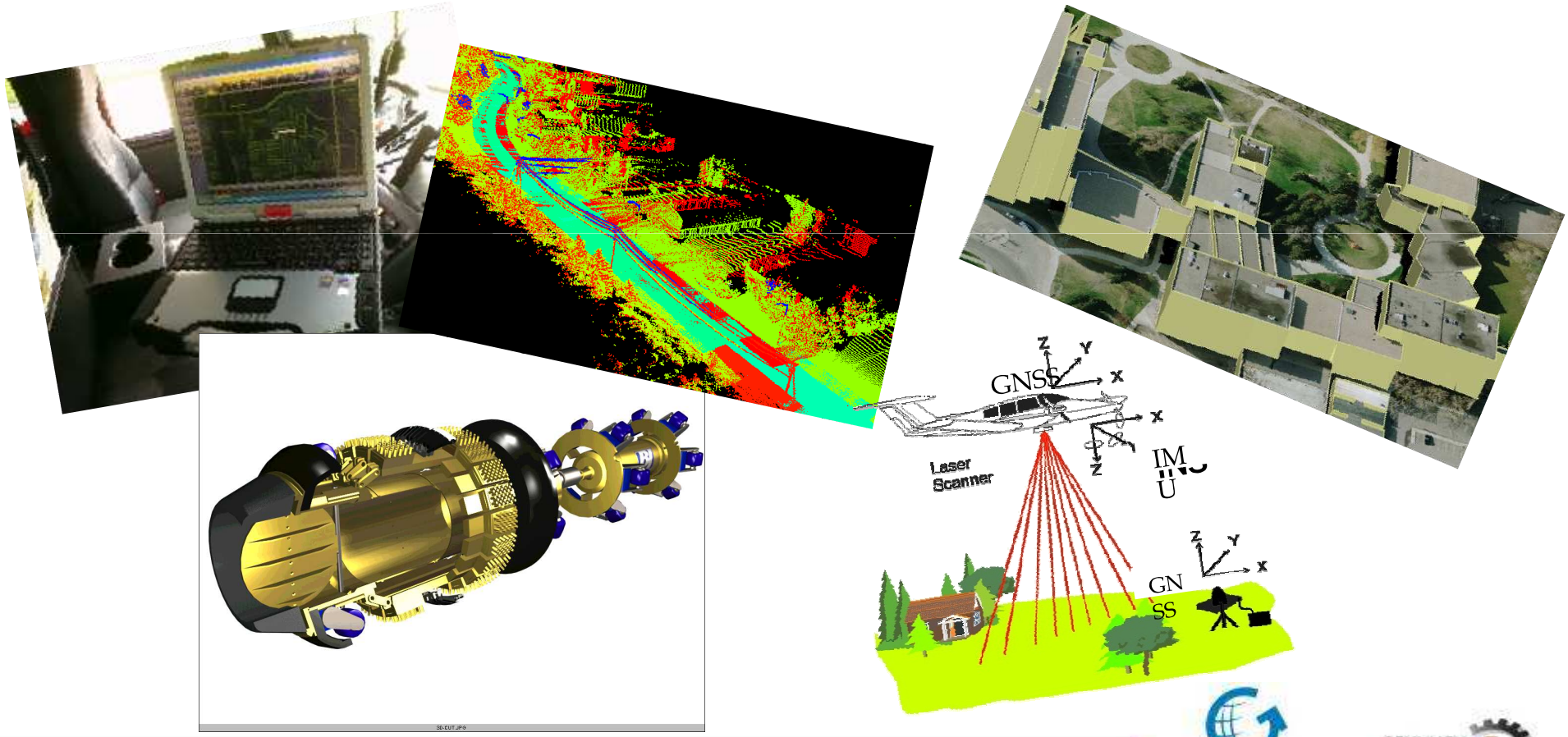
- Geospatial Information Systems
- Geocomputation
- Cadastral systems
- Land tenure
- Environmental modelling

Digital Imaging Systems (3 faculty)

- Photogrammetry
- Close range imaging
- LIDAR/SAR
- Remote sensing systems
- Engineering Metrology
- Biomedical imaging

Past Projects

- Since April 2000 we had between 68 and 101 projects/grants in any *single* year



More Information

- Geomatics Engineering
  - http://www.geomatics.ucalgary.ca
- Alberta Government
  - http://www.AlbertaCanada.com
- ISTP Canada
  - http://www.istpcanada.ca

- Stop by our booth in the exhibit hall
  - Above agencies as are several Canadian companies have people and/or information available