

CANSSI / INCASS

Industrial Innovation in the Mathematical and Statistical Sciences:
The Math Institutes Innovation Platform
CANSSI's Industrial Innovation Committee

Connect 2 Workshops
Spring and Summer, 2018



<http://canssi.ca>



What is CANSSI/INCASS?

- Canadian Statistical Sciences Institute (CANSSI)* was established in June 2012 in response to the NSERC Long Range Plan for the Mathematical Sciences.
- CANSSI is a virtual institute, building research capacity across the country, and relying on the mathematical sciences institutes (Fields, PIMS, CRM) for infrastructure and logistical support.
- CANSSI's funding for 2014 – 2019 comes from NSERC, routed through grants to the three institutes.
- For 2019 – 2024, CANSSI will apply to NSERC as an independent entity. CANSSI is currently *“inviting institutions from across the country to submit expressions of interest in becoming the host institution for CANSSI”*.

*Institut canadien des sciences statistiques (INCASS)



CANSSI Activities

- Collaborative Research Team projects [teams of 5 to 10 investigators, funded at 180K for 3 years]
 - national in scope [at least 2 regions of the country]
 - interdisciplinary collaborations and partnerships
- workshops, summer schools and conferences
- postdoctoral fellowships and internships
- collaboration on thematic programs
- *Kick-start* program
- Distinguished visitor program
- student support for SAMSI workshops (for students statistics AND mathematics)
- *Datafest* program
- Health Science Collaborating Centres



Benefits of Institutional Membership

- assistance with local research events such as workshops
- eligibility to the Distinguished visitor program
- access to partial funding of postdoctoral fellowships
- possibility to obtain funding to send undergraduate students to SAMSI events
- participation in planning of scientific directions through an annual meeting of sponsoring institutions
- the right to send a representative to vote at the Annual General Meeting (AGM)
- receipt of the financial statement from the AGM
- display of your university's logo on CANSSI promotional materials

CANSSI



INCASS



Canadian Statistical Sciences Institute
Institut canadien des sciences statistiques

Partners



CANSSI



INCASS



Canadian Statistical Sciences Institute
Institut canadien des sciences statistiques

Members





Math Institutes Innovation Platform

NSERC awarded an Institute Innovation Platform grant to the three institutes to develop a program to increase the participation by the mathematics community in research applied to industrial problems.

- Three primary objectives:
 - create successful research collaborations with industrial partners
 - **increase the participation of the mathematics community in the NSERC RP programs** (Connect, Engage, CRD) [e.g., **4,869** Engage grants awarded 2009 – 2015 of which only **61** in math & stat sciences, in spite of a global success rate of 80%, 85% in math & stat]
 - contribute to the training of HQP in the area of Industrial and Applied Mathematics
- Performance assessment/indicators: strategic Math/Industry Collaborations (SMICs), industry/academy and industrial problem solving workshops, applications to NSERC's partnership programs (Connect, Engage, CRD) and to MITACS programs, job fairs, etc.



Math Institutes Innovation Platform

- Associate directors in charge of industrial innovation at each institute:
 - Centre de recherches mathématiques: Odile Marcotte
 - Fields Institute: Tom Salisbury
 - Pacific Institute for the Mathematical Sciences: Michael Lamoureux
- What can they do for you?
 - collaborate with you to organize industrial problem solving workshops or networking events
 - put you in contact with potential industrial partners
 - assist you in putting together an application for an NSERC RP grant and also MITACS Accelerate grant (memorandum of understanding for several MITCAS internships)



CANSSI's Industrial Innovation Committee

- Created to support the three institutes in their endeavor to increase the participation of the mathematical and statistical sciences community in NSERC's (and MITACS) RP programs
- Members facilitate the link between each of the institutes' innovation platform members and the local statistical community:
 - Thierry Duchesne (Laval, chair)
 - John Braun (UBC)
 - Paul Kovacs (PACICC)
 - Mark Reesor (Laurier)
 - Tom Loughin (SFU)



Activities of CANSSI's IIC

- regular articles in the Statistical Society of Canada's newsletter *Liaison*
- participation to the organization of industrial problem solving workshops and industrial networking events
- contact with MITACS local business development officers
- conducted a survey of Canadian academics in statistics on their view & use of MITACS grants in the summer of 2016



Key findings of the survey on MITACS grants

- Biggest impediment to getting a MITACS grant: finding a suitable industrial partner. (Non-participants in MITACS list this as a major reason for not trying to get a grant.)
- Secondarily, but also very important, non-participants indicated that they did not have ideas that were suitable for the program.
- The application and review processes were **not** seen as large hurdles to participation, either by participants or non-participants.



MITACS Business Development Officers

Google “MITACS Business development”, and the first link will take you to a list of all MITACS Business Development Officers at every Canadian university:

<https://www.mitacs.ca/en/contact-us/business-development>



Take home points for academics

- Mathematicians and statisticians lag behind colleagues from other sciences with regards to industrial partnerships.
- The range in size of industrial collaborations and partnerships is great, from a collaboration that will only yield one chapter in an MSc essay to a massive project over many years that involves many researchers, postdocs and leads to many MSc and PhD thesis and several publications.
- NSERC's evaluation groups value these grants on a researchers CV, and they can significantly increase ones capacity to fund and train HQP.



Take home points for industry

- While computer scientists' and mathematicians' skills and knowledge may be familiar, the role that statisticians (or other CANSSI members) can contribute to solving data science problems may be unfamiliar.
- There are many low-risk points of entry to test collaborations, from MITACS and internships to larger scale, multi-year projects.



Take home points for everyone

- all three math institutes and CANSSI have people in place to help ... and even web resources
- NSERC and MITACS will gladly send someone to present their programs in your organization
- Applying for funding for collaborative research is easy and applications have a high success rate.
- The toughest part in establishing a research partnership is finding the right partner. We at CANSSI know our researchers in statistics quite well and we can help to identify people with specific skills. Reach out to us!