From the President

Practically everyone I talk to seems to be saying "It's a busy time of year". Certainly, for the SSC, there's a lot going on, and there will be lots of activity between now and the annual meeting in June. I'd like to let you know about a few things going on in the SSC.

Fundraising and other support for the statistical community
The support of SSC members for both Canadian and international causes is truly inspiring, and has exceeded expectations more than once. An article by Mary Thompson elsewhere in this issue, on the 2017 fundraising campaign, indicates that last year a total of $13,893 was contributed to the SSC. Three projects and an endowment have just been approved. I'm looking forward to seeing what these projects will accomplish.

The generosity of our members isn't limited to the SSC. After I emailed SSC members about a crowdfunding campaign to contribute to the legal expenses of Andreas Georgou, former head of the Greek National Statistical Office, there was a noticeable increase in donations, and a good number of contributions were from Canada. In the last Liaison, we learned from Janet MacDougal that 1,925 statistics books were donated to the library in Alexandria, Egypt by statisticians in Canada.

Thank you, everyone, for your generosity!

Committee for a respectful SSC
In a separate article, I provide an update on the important topic of sexual assault and harassment, and respectful behaviour, and proactive efforts to address this issue.

Elections

By the time you are reading this, the SSC elections will be under way. Please take a few moments to consider the slate of candidates for Executive, Board and Accredited positions, and cast your vote!

Annual Meeting

The June 3 - 7 Annual Meeting of the SSC in Montreal promises to be one of the largest in recent years. The local arrangements committee, co-chaired by Andrea Benedetti and Russell Steele, are working hard on plans for the meeting, and looking forward to welcoming everyone to Montreal in a few months. The Program Committee, led by Matias Salibian-Barrera, has assembled a diverse and interesting program. Keynote addresses will include a presentation by the 2017 Gold Medal winner, Richard Cook, and the President's Invited Address, on Deep Learning, will be given by Yoshua Bengio. Just before the Annual Meeting, on Saturday, June 2, the sixth annual Canadian Statistics Student Conference will be held in Montreal. Co-chairs Janie Coulombe and Katherine Daignault have assembled a rich program, ranging from practical career advice to technical research presentations. It's sure to be an excellent opportunity for students to share their research, to learn and network.

It's hard to believe that I've served more than half of my term as President already. Although I see examples every day, I never cease to be impressed by the enthusiasm and dedication of so many members of our society. I can't put it any better than a former SSC president recently did: "Serving the SSC is an honour and a pleasure. It's family after all."

SSC 2018 Regular Registration Deadline

SSC Members,

This is a reminder that the regular registration rate deadline for SSC 2018 in Montréal is **May 18th, 2018**. On May 19th, 2018 the registration rate will increase to the onsite rate. You will still be able to register online.

Please see our pricing chart for more information.

Russell Steele and Andrea Benedetti
SSC 2018 Local Arrangements Co-chairs

REMINDER: Job Fair at the 2018 SSC Annual Meeting

You are invited to participate in the Job Fair that will be held in conjunction with the 2018 SSC Annual Meeting in Montreal as either a **Job Seeker** or an **Employer**.

Job Seekers will have free participation in the Job Fair with SSC Annual Meeting registration, prior registration in the Job Fair, and adherence to Job Fair guidelines. Interviews will be scheduled from **Sunday, June 3rd to Wednesday, June 6th.** Please confidentially register with the Job Fair Organizer, Judy-Anne Chapman **by Friday, May 11, 2018**, by sending a cover letter and your resume, along with time restrictions on availability for onsite interviews. You will receive an identification interview number known only to the Job Fair organizers. Your personal materials will be maintained confidentially, and transferred to participating Job Fair employers in block by Judy-Anne [P.Stat.]. **There is an embargo on applicants contacting employers prior to the meeting.** Please address any questions to Judy-Anne (jachapma@aol.com). You will receive an applicant blinded interview schedule by Saturday, May 26th with participant identification numbers and interviewing employers.

Employers will be charged $400 to receive a package of resume materials; this amount will be reduced to $300 for SSC Institutional Members or Employers with at least one SSC Accredited Statistician (P.Stat. or A.Stat.). The charge is per employer for any number of jobs. Employers will be able to have private on site interviews with their choice of applicants. Employers are asked to register participation with Judy-Anne Chapman, PhD, P.Stat. (jachapma@aol.com) with job description(s), Job Fair contact, and name, title, and email address of individual who the SSC Office will invoice according to the above employer classification. **There is an embargo on employers contacting job applicants prior to the meeting.** Please address any questions to Judy-Anne (jachapma@aol.com). Employers will receive a package of applicant materials by **Sunday, May 13th**, and are asked to return applicant names with identification numbers of those you wish to interview as well as days for which interviewer(s) will be on site to interview by **Thursday, May 24th**. You will receive an applicant blinded interview schedule by Saturday, May 26th with participant identification numbers and interviewing employers. The Job Fair is a service provided by the SSC and SSC Accreditation Committee, with assistance from the ASSQ. Job Fair organizers will extensively advertise this event to increase participation by both job seekers and prospective employers. We aim for successful facilitation of job recruitments that will lead to future on site Job Fairs in conjunction with SSC Meetings.

Judy-Anne Chapman (2018 Job Fair Coordinator, SSC Committee on Membership, jachapma@aol.com)

Bouchra Nasri (ASSQ representative)
Gabrielle Simoneau (Local Arrangements Committee representative)
Nicholas Beck (Local Arrangements Committee representative)

2018 Case Studies in Data Analysis Competition

There is still time to register for the Case Studies competition! The deadline is **May 2, 2018.** Teams interested in participating in the Case Studies competition must e-mail the Chair of the Case Studies in Data Analysis Committee, Dr. Lisa Lix (lisa.lix@umanitoba.ca). Please provide a listing of all team members, their e-mail addresses, and the number of the case study on which the team will work.

The case studies for this year are:
Case Study 1
Does survey design information matter? Assessing the impact on population estimates of hypertension in Canada
Teams that select this case study will use synthetic data from the Canadian Health Measures Survey to assess the impact of using and not using survey design information when producing estimates of hypertension from this unique national health survey.

Case Study 2
What Predicts the Popularity of TED Talks?

Teams that select this case study will use data from the TED website to investigate characteristics that contribute to the popularity of motivational and inspirational talks on a variety of topics. This case study will require the use of a variety of tools to develop measures from text-based data and to analyze these data.

Each team will present a poster of their analysis results, along with a short oral presentation, to teams of judges at the Annual Meeting. Data for each case study can be found on the Annual Meeting website.

15th Anniversary of Accreditation by the SSC
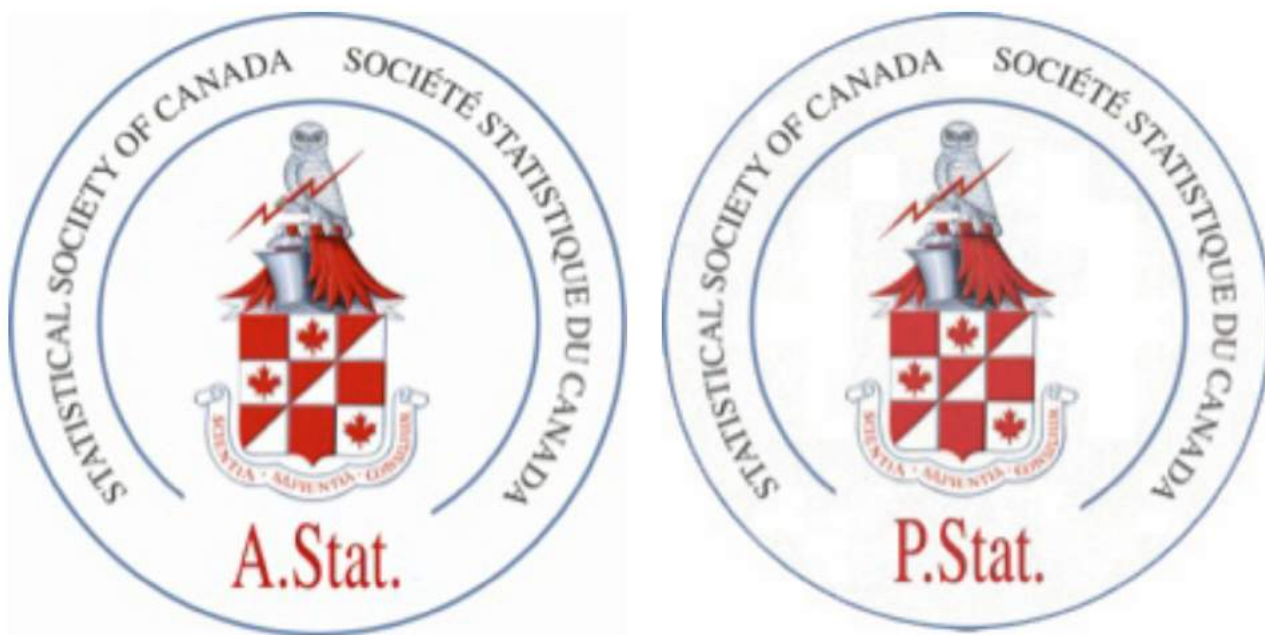
The year 2018 marks the 15th anniversary of accreditation by the Statistical Society of Canada. The country has a long statistical tradition. The first census was held over the winter of 1665–66 under the direction of Jean Talon, Intendent of what was then New France. With few statisticians over the centuries, the numbers of statisticians in Canada slowly began to increase in the 1950's. "Statistics '71 Canada" in Montréal was the first large statistics conference in Canada organized by Canadians. A letter patent was issued on 20 July 1972 by the federal government for the Statistical

Science Association of Canada (Association Canadienne de science statistique), which by a change of name in January 1978 became the present Statistical Society of Canada (Société statistique du Canada)—known by the abbreviation SSC [1].

In Canada, the first society to offer accreditation of statisticians was the Association des statisticiennes et statisticiens du Québec (ASSQ) [2], which received its letters patent from the Province du Québec on 12 May 1995. To be accredited as a Stat.ASSQ, an applicant must have completed a baccalaureate in Statistics, or the equivalent, with 24 credit hours in Statistics or Probability, or at least a baccalaureate degree with the equivalent of formal academic training in Statistics obtained through work experience.

Accreditation was a topic for discussion at the October 1999 meeting of the SSC Board of Directors. Accreditation was then discussed at the Annual General Meeting of the Society in June 2000. At its October 2001 meeting, the Board approved "the process and direction taken by the Accreditation Implementation Committee." In June 2002, the Committee on Professional Development and the Accreditation Implementation Committee merged to form what is now known as the Accreditation Committee.

At the October 2003 meeting of the Board, Dr. Kenneth McCrae was moved as the first Professional Statistician and the fee structure was approved. The applications to register the certification marks P.Stat. (Professional Statistician) and A.Stat. (Associate Statistician) were filed on 19 December 2003. Registration of both certification marks was granted on 25 July 2006. Any one of these dates can be observed as the inception of accreditation of individuals by the Society.

The A.Stat. certification mark is granted on application to an individual who has completed the equivalent of a baccalaureate degree with the equivalent of a Major in Statistics and the equivalent of a Minor in a discipline other than Statistics or Pure Mathematics. The P.Stat. certification mark is granted after a further six years of mentored professional development. The Engineering profession in Canada provided the model for this structure.

On 16 October 2005, the Board of Directors voted in favour of a motion "to have accredited university programs in Canada." A single committee, the Accreditation Committee, is responsible for accrediting individuals and postsecondary programs at the undergraduate level. The SSC does not actually accredit postsecondary degree

programs in the usual sense. Instead, accredited postsecondary institutions offer an accredited list of courses to the national standard set by the SSC. This is independent of governance structures for degree programs at postsecondary institutions in Canada. Indeed, a Major in Statistics at an institution may not include all courses on the accredited list. But a student graduating with a Major in Statistics and desiring to meet the national standard for accreditation as an A.Stat. must fulfill the requirements on the course list.

As of 31 March 2018, there are 222 active accredited members (149 P.Stat.'s and 73 A.Stat.'s) and 17 postsecondary institutions offering accredited undergraduate programs in Statistics in Canada.

As part of the start of celebrations to mark the 15thanniversary of accreditation of statisticians by the Society, the **Accreditation Committee is sponsoring a session on mentoring open to all at the Annual Meeting of the Society in June 2018 in Montréal.** The keynote address for this session will be given by **David Morganstein** and this will be followed by a panel discussion.

Mr. Morganstein is a Vice President at Westat, Inc., and the Director of Statistical Staff, which consists of seventy MSc and PhD statisticians. A senior statistician with more than forty-five years of experience, his areas of expertise include the design and application of sample surveys, systems of evaluation, quality control, statistical analysis, estimation, and quantification. He is a Fellow of the American Statistical Association and was President in 2015. He is an elected member of the International Statistics Institute and previously chaired its Ethics Committee when it revised the ISI Declaration on Professional Ethics. Mr. Morganstein continues to serve on the ISI Ethics Advisory Board. He obtained a B.ASc. degree in Electrical Engineering at Purdue University and an MA in Statistics from the University of Michigan.

The title for Mr. Morganstein's presentation is **"Mentoring – Paying it Forward."** As Peter Drucker has said: "The best way to predict the future is to create it." As statisticians, we are often trying to predict the future. In the case of what our profession will look like, we are urged to create the future we think will best serve us and our society. One way we can shape the future we envision is to work with young statisticians, students and recent graduates, and as their mentors help them in their professional development. Are we prepared to do this? Many academic statisticians with doctoral students are. Government and private industry statisticians may have little or no such experience. What does good mentoring look like and how can we better prepare ourselves for the challenge?

All are invited to this keynote address and what is expected to be a fulsome panel discussion afterwards.

REFERENCES

1. David R. Bellhouse and Christian Genest (1999). A History of the Statistical Society of Canada: The Formative Years. *Statistical Science*, 14(1):80-125.
2. Louis-Paul Rivest and Susana Rubin-Bleuer (2005). Accreditation of Professional Statisticians in Canada. *Proceedings of the International Statistical Institute, 55th Session.*

Kevin Keen, University of Northern British Columbia

New A.Stat. Member

KEVIN MATIRA, A.Stat. #128

Profile: Recent Master of Science graduate in Statistics from I
Researched discriminant analysis for longitudinal
data using Gaussian and non-Gaussian mixture models.

Education: MSc 2017, McMaster University, Statistics
              BSc (Honours) 2016, McMaster University,
Mathematics & Statistics

Current Position: Recent Graduate

Email: kevinmatira@gmail.com

Winner of the CRM-SSC Prize in Statistics

The recipient of the CRM-SSC prize in Statistics is professor **David Haziza** of the Department of Mathematics and Statistics at Université de Montréal. This award recognizes a Canadian or permanent resident of Canada for outstanding research in the Statistical Sciences accomplished during the first fifteen years after earning a doctorate.

David Haziza grew up in Casablanca where he was schooled in the French system. His family moved to Canada when he was 15 and settled in Montréal. He obtained his BSc and his MSc from Université du Québec à Montréal before starting his PhD studies in survey sampling at Carleton University under the supervision of J.N.K. Rao. While completing his PhD degree, which he obtained in 2005, he started working full-time as a methodologist at Statistics Canada in 2000. Juggling a full-time position at Statistics Canada and completing a PhD thesis at the

same time was of course very demanding. But it provided David with a unique outlook allowing him to do academic research on topics of crucial importance to practitioners. And to keep this edge in his academic research, he remained as a consultant one day per week when he left Statistics Canada to join Université de Montréal as an Assistant Professor in 2006. Since then, David became a star in the field and his research is having a large impact in the theory *and* practice of survey sampling.

David works in several areas of survey sampling, including variance estimation, survey sampling methods robust to influential observations, calibration, small area estimation, and design. But most of his contributions address the very important practical problem of missing data. In survey sampling, we distinguish unit nonresponse (when no information is collected on a sample unit) and item nonresponse (when the absence of information is limited to some variables only). For unit nonresponse, weighting is often a strategy of choice, whereas imputation is often the key for item nonresponse. Inference that takes into account imputation is important. It can either be based on an imputation model (for the outcome variable) or a nonresponse model (for the probability of having a response). But given that there may be uncertainty in these models, the availability of robust methods that work provided that at least one of these models is valid is very useful, both from a theoretical and a practical standpoint. This is the basis of the double and multiple robust methods that David has studied.

With more than 45 publications to date, David is a prolific author. Not only has he published in journals specialized in survey sampling such as *Survey Methodology*, *Journal of Survey Statistics and Methodology*, and the *Journal of Official Statistics*, but also in top general methodology journals such as *Biometrika*, *JASA*, *Statistica Sinica*, *Scandinavian Journal of Statistics* and *Statistical Science*. This shows that his work is fundamental and influential.

Another sign of excellence is his popularity as an invited speaker in various conferences – in fact, more than 10 a year. Indeed, David has spoken or given workshops in five continents! Especially noteworthy are the one day (or half a day) workshops that he gave in Marrakech, Morocco (2017), Washington, USA (2017), Geneva, Switzerland (2016) and his keynote presentations at the Boston JSM (2014), the *Colloque francophone sur les sondages* in Dijon, France (2014), the *Journées de*

Méthodologie Statistique, Paris, France (2012) and at the Rao meeting in Kunming, China (2017).

Because of his expertise, David was invited to be part of the 2013-14 SAMSI Program on Computational Methods in Social Sciences. Since 2015 he has lead a CRT of CANSSI. In 2016 he was appointed as a member of the Committee on the Review of the Marine Recreational Information Program organized by the U.S. National Academies of Sciences, Engineering, and Medicine. His expertise and judgment are also sought by journals. He currently serves as Associate Editor of five journals, including *JASA*, *JRSS B*, and *Scandinavian Journal of Statistics*.

David has already received a number of awards in his young career, including the two most prestigious teaching awards at Université de Montréal and the 2018 Cox Award. He also became an ASA Fellow in 2016.

David is married to Mélanie. They have two daughters, Marianne and Aurélie. As for David, if you see him in a corridor, he is either talking about a statistical problem or one of the great political problems of our world.

To conclude, David's strong research record is based on strong theoretical arguments and motivated by practical issues found in the field. His impact is felt in national statistical organizations in Canada, France, and in the US, as well as in other organizations, such as Westat. He is a popular speaker in conferences and workshops. His scientific leadership in survey sampling is already well established internationally. One of the leading experts supporting the nomination summarized it best when he wrote: "His work in each of the mentioned areas is impressive, but it is the overall scale of his activity in published research, in organizing and presenting at meetings, in directing postgraduate students, in service as Associate Editor, and in other service to the profession that is truly impressive." Another one wrote that "even at this stage, he is already one of the leading researchers in survey statistics worldwide, continuing a traditional strength of statistical research in Canada", which makes us all proud.

David will present an overview of his work in a special session at this year's SSC Annual Meeting at McGill University.

The citation for the award reads:

"To David Haziza, for outstanding contributions to survey sampling theory and practice, notably, path-breaking methodology for missing data, innovative methods that improved the robustness of estimation and for their impact on the practice of national statistical agencies."

Thanks to Christian Léger, who was primarily responsible for producing this material.

Winner of the Pierre Robillard Award

This prize recognizes the best PhD thesis in probability or statistics defended at a Canadian university in a given year.

Victor Veitch is the winner of the Pierre Robillard Award of the Statistical Society of Canada. Victor's thesis, entitled "(Sparse) Exchangeable Random Graphs" was written while he was a doctoral student at the University of Toronto, working under the supervision of Daniel M. Roy.

Victor's research on sparse graph models, graph limits, and estimation has made foundational contributions to network data analysis and more generally, the problem of modeling relational data. The key technical challenge in this setting is that standard statistical assumptions do not hold. Victor's thesis starts by adopting a natural invariance principle, which then yields a new class of random graph models. This new model contains the popular stochastic block model (indeed, every exchangeable graph model) as a submodel, but also permits sparsely connected graphs, which are believed to better capture the statistics of real-world networks. Victor's thesis makes an in-depth study of this new model, uncovering sampling interpretations and identifying canonical estimators. His work also makes substantial contributions to the theory of graph limits.

Victor is from Waterloo, Ontario. He earned a BSc in mathematical physics from the University of Waterloo, and later earned a MMath, also from Waterloo, working in

quantum computation. Victor is currently a Distinguished Postdoctoral Fellow in Statistics at Columbia University.

The criteria used in selecting the winner of the Pierre Robillard Award include the originality of ideas and techniques, the possible applications and their treatment, and the potential impact of the work. The award is named in memory of Professor Pierre Robillard, an outstanding dynamic young statistician at the Université de Montréal, whose untimely death in 1975 cut short what promised to be a highly distinguished career.

Victor Veitch will present an overview of his work in a special session at this year's SSC Annual Meeting at McGill University.

The citation for the award reads:

"To Victor Veitch, for the thesis entitled "(Sparse) Exchangeable Random Graphs."

Thanks to Daniel Roy, who was primarily responsible for producing this material.

Winners of The Canadian Journal of Statistics Award

The Canadian Journal of Statistics Award is presented each year by the Statistical Society of Canada to the author(s) of an article published in the journal, in recognition of the outstanding quality of the methodological innovation and presentation.

This year's winner is the article entitled "Bayesian analysis of a density ratio model." (Volume 45, no. 3, pp. 274-289) by V. de Oliveira and B. Kedem.

The paper proposes a Bayesian approach for the analysis of a semiparametric density ratio model, a model useful for the integration of data from multiple sources. The

proposed Bayesian analysis uses a non-parametric likelihood and a transformed Gaussian prior for the "non-parametric part" of the model that guarantees the validity of the Bayesian analysis. The model is illustrated with the analysis of motor vibration data obtained from three different locations on a motor. The committee noted that the paper contains a novel application of the Metropolis-Hastings algorithm to fit a complex model; it was innovative and the presentation was of very high quality.

Victor de Oliveira is a Professor in the Department of Management Science and Statistics at the University of Texas at San Antonio (UT--San Antonio). He holds a PhD in Statistics from the University of Maryland--College Park and a MSc in Water Resources from Simon Bolivar University (Venezuela). He was a faculty member at Simon Bolivar University and the University of Arkansas (USA) before joining UT--San Antonio in 2006. His main research area is spatial statistics, with emphasis on geostatistical methods, and more recently he is working on semiparametric modeling. He received the Distinguished Achievement Award from the American Statistical Association Section on Statistics and the Environment, and is an elected member of the International Statistical Institute.

Benjamin Kedem is a Professor, Department of Mathematics, and an affiliate of the Institute for Systems Research, University of Maryland. He received his PhD in statistics from Carnegie-Mellon University in 1973. His research is summarized in the books *Time Series Analysis by Higher Order Crossings*, IEEE Press, 1994; *Regression Models for Time Series Analysis*, Wiley, 2002 (with Kostantinos Fokianos); and *Statistical Data Fusion*, World Scientific, 2017 (with Victor De Oliveira and Michael Sverchkov). He is the recipient of several awards including the IEEE W.R.G. Baker Award, IBM Faculty Award, and NASA Award in connection with the Tropical Rainfall Measuring Mission. He is an ASA Fellow.

Benjamin Kedem will present an overview of their work in a special session at this year's SSC Annual Meeting at McGill University.

The citation for the award reads:

The article entitled "Bayesian analysis of a density ratio model" by Victor de Oliveira and Benjamin Kedem is recognized for creativity and excellence in presentation.

A Respectful SSC

At the end of February, I sent an email to all members on "sexual harassment in the statistical sciences, and the SSC":

In the last year, the #metoo movement has heightened awareness of sexual assault and harassment, especially in the workplace. These issues affect all professions. Indeed, in December, a blog post raised serious concerns and called out individuals and their actions at international statistics conferences.

There are not any complaints related to the SSC that we are aware of. But it would be naive to assume that there are no concerns. It is timely to consider what, as a professional organization, the SSC can do to ensure an inclusive and safe environment for all. Over the coming months, the SSC will be seeking input and giving careful thought on how to proceed. As a path forward evolves, you can expect more information and opportunities to provide your input on this very important issue.

There has been progress, and I hope that by the time you are reading this note, there will be more. At their March 2018 meeting, the SSC Board of Directors passed a motion to form a committee for a "Respectful SSC", to consider the issue of sexual assault and harassment and respectful behaviour in the context of the SSC. The committee will include diverse representation, including those most likely vulnerable in cases of harassment. Representatives from the Committee on Women in Statistics and the Student and Recent Graduate Committee will serve on the Respectful SSC

committee. Accredited members will also be represented, as the "Code of Ethical Statistical Practice" is pertinent to the discussion. There will be other representatives, and it will be important that all members of the Society have an opportunity to contribute to the discussion.

Other statistical organizations are undertaking similar efforts, and there should be opportunity to share information. The topic has come up with the Committee of Presidents of Statistical Societies (COPSS). The American Statistical Association formed a Task Force on Sexual Harassment and Assault in November 2017, and the International Society for Bayesian Analysis formed a Safe ISBA Task Team in December 2017.

The committee will consider a variety of related issues. Preliminary discussions among the Board and the Executive have identified many dimensions, including a possible code of conduct and safe mechanisms for those wanting to report sexual assault, harassment, or other disrespectful behaviour. The scope of any policy will need consideration. Policies would apply to meetings organized by the SSC, but could also include other interactions connected to the SSC, for example communications with committees and volunteers acting on behalf of the SSC, and communication with SSC employees. There could be questions of jurisdiction, as many members would also be governed by policies of their employer. Some recommendations may also need assessment from a legal viewpoint. What the committee will (and won't) consider is not set in stone. Indeed, a first step for the committee will be to decide on priorities.

The work on a respectful SSC is as serious as it is important, and it will not be easy. But it is an opportunity for the SSC to be a society that is supportive and welcoming, professional and respectful in how our members interact with each other and broader society.

Hugh Chipman

SSC Fundraising in 2017 a Success!

In the SSC's First Annual Fundraising Drive, which took place in 2016, the past presidents were invited to make substantial gifts to a matching fund, and did so with great generosity, to a total of over $31,305. Other members were then invited to contribute, in support of the educational and outreach mission of the SSC. By the end of 2016 altogether $42,420 had been collected. To build on this achievement, the current Fundraising Committee was formed following the SSC Annual Meeting of 2017, with a mandate to "plan, publicize and conduct fundraising activities", "work with the Executive and Board to identify, promote and monitor projects to be supported", and plan, monitor and report the financial aspects.

In 2017 the members again responded with heartening enthusiasm to the appeal for donations with membership renewals. Over the course of the year there were at least 114 individual donors and more than 126 individual donations, for a total of $13,893 received; and further 2018 renewal donations of $820 have arrived after the end of 2017. The total pool of funds raised now stands at over $55,000!

It has been proposed that, at least to begin with, a majority of the funds will be dedicated to funding specific initiatives in education and outreach. Some will be used for ongoing projects such as Census@Schools, and the use of Hootsuite for SSC Public Relations, while some will be allocated to one-time initiatives, like the Canada 150 Contest.   A first competition round for proposals with range $500-5000 has recently been concluded.

The winning projects are:

1. **International Data Science in Schools Project**: **Canadian Contribution** (Alison Gibbs, Raymond Ng and Wesley Burr): Supporting Canadian participation in an international project to

develop curriculum for the introduction of data science to high school students and their educators.

2. Creating a Canadian national competition website and promotional video for the **International Statistical Literacy Project poster competition** (SSC Statistics Education Committee, Chair Sohee Kang): In addition to creating a website and a video, the project will promote the competition to school boards.

3. **Developing a commenting/rating functionality for StatSpace**, a platform for statistics learning resources developed at UBC, to help expand the reach of StatSpace nationally and internationally (Bruce Dunham and Nancy Heckman).

Plans for the next competition round will be announced after the SSC Annual Meeting in June 2018.

As well, at its meeting of March 16, 2018, the Board accepted the recommendation of the Fundraising Committee to use $20,000 from donated funds to start an **endowment (permanent fund)** with the Ottawa Community Foundation. It is hoped both to grow these funds and to use the existence of the endowment to attract planned gifts and corporate donations. The disbursement to the SSC will be 4.25% each year, and the service fee will be 1.5%, with any return from the fund above 5.75% being added to the principal.

Many thanks to SSC donors for making all of this possible!

Mary Thompson, Jack Gambino and Robert Platt

CANSSI News

Canadian Statistical Sciences Institute
Institut canadien des sciences statistiques

Data • Discoveries • Decisions
Données • Découvertes • Décisions

Spotlight on a CANSSI Program – Support for Undergraduate Datathons

CANSSI would like to encourage undergraduate participation in datathon or hackathon competitions. Last year, we helped support three such events: ASA DataFests at the universities of Toronto and Waterloo and VanSASH at Simon Fraser University.

The ASA DataFest is a well-established datathon, founded at UCLA in 2011. It's a weekend event, where undergraduates wrangle and analyze data, prepare a two-slide presentation and try to impress the judges. Prizes are awarded for Best in Show, Best Visualization and Best Use of External Data. The ASA provides a new database each year and their website includes an excellent planning guide. Check out this map to see all the schools taking part in 2018.

Alternatively, you could come up with your own event like the students in the Sports Analytics Club at SFU did. Dani Chu, Abe Adeeb and Lucas Wu organized an impressive event that they called the Vancouver Sports Analytics Symposium and Hackathon (VanSASH). The two-day event included various talks along with a hackathon where students worked with hockey, soccer and basketball data.

CANSSI member institutes can take advantage of a streamlined funding application process. Why not start planning an event like this for the next school year? Learn more about the Support for Undergraduate Datathons online.

Upcoming CANSSI Deadlines

- Call for Letters of Intent for Collaborative Research Team Projects – due **April 30, 2018**
- Workshop and Conference Proposals – due **June 15, 2018**
- Distinguished Visitor Program Applications – due **July 31, 2018**
- Call for Partial Postdoc Support – due **January 31, 2019**
- Support for Undergraduate Datathons – applications accepted at any time
- Kick Start Research Program – applications accepted at any time

Postdoctoral Positions and Employment Ads

Did you know that CANSSI maintains a list of graduate and postdoctoral fellowship positions from all around the world? Currently, there are quite a few postings in biostatistics. Feel free to send us your ads at info@canssi.ca.

CANSSI also maintains a list of employment ads for our member institutes and partners. If you're looking for a faculty or research position, that's the place to go.

CANSSI's Annual General Meeting

Join us at CANSSI's Annual General Meeting. Have your say in how CANSSI continues to grow and evolve. Represent your university and make sure your vote is counted!
This year's meeting is at 4pm on June 2, 2018 at McGill University. See our website for more details.

CANSSI Annual Report 2017

Our 2017 Annual Report is available online. Find out what the Collaborative Research Teams were up to. Read about CANSSI-sponsored workshops or learn about the CANSSI postdoctoral fellows. In it, you can see all the exciting things that happened in 2017.

Upcoming Events

We're excited to partner with these events coming up in the next few months:

- Statistics Graduate Student Research Day, Fields Institute, Toronto, ON, **April 18, 2018**

- Quantitative Risk Management & Financial Analytics Workshop, Telfer School of Management, Ottawa, ON, **May 10, 2018**
- Financial Risk Analytics Workshop, Ivey Tangerine Leadership Centre, Toronto, ON **May 14, 2018**
- Summer School in Health Statistics, McGill University, Montreal, QC, **May 28-June 1, 2018**
- Geospatial Methods for Closing the Global Mortality Data Divide, University of Toronto, Toronto, ON, **June 14-15, 2018**
- R in Montreal, Université du Québec à Montréal, Montreal, QC, **July 4-6, 2018**
- Summer School on Mathematical and Statistical Uncertainty, Simon Fraser University, Burnaby, BC, **July 23-27, 2018**
- XIX International Congress on Mathematical Physics, Centre Mont-Royal, Montreal, QC, **July 23-28, 2018**
- 20th Meeting of New Researchers in Statistics and Probability, Simon Fraser University, Burnaby, BC, **July 26-28, 2018**

SSC at JSM 2018!

I'm sure everyone is aware that the Joint Statistical Meetings are taking place in Vancouver this summer. Christian Léger is the Program Chair, and we expect a large turnout and heavy participation by the SSC at the conference. I look forward to seeing everyone there. Please look out for our request for help with the SSC booth. As always, we hope to have a strong presence at the expo, and we need volunteer support. I hope that the local meeting generates lots of interest in the SSC!

We are trying something NEW at this year's JSM. The**annual SSC reception** will be hosted off-site, at **Steamworks Brew Pub**, which is about a 10-minute walk from the convention centre. Come join us for some light snacks and good conversation, and sample the local craft beers!

Robert Platt, SSC Representative to JSM

JSM is in Vancouver: Highlights of the JSM 2018 Program

The SSC is one of the partner societies organizing the Joint Statistical Meetings (JSM) and in 2018, JSM will take place in Vancouver, British Columbia from July 29 through August 2. JSM 2018 promises to be a fantastic meeting! The JSM Program Committee has prepared a wonderful program with a total of 681 sessions, including 4 plenary sessions, 178 invited sessions, 167 topic-contributed sessions, 181 regular contributed sessions, 26 speed sessions, 40 poster contributed sessions and 76

roundtables for a total of 2480 individual paper presentations, 509 speed presentations, 437 individual poster presentations and more than 100 discussants. Although it is too early to tell, the number of submissions indicates that JSM 2018 will be one of the largest JSM meetings ever.

Such a large meeting sometimes discourages potential participants due to its sheer size, with between 41 and 43 parallel sessions in each non-plenary time slot from the first time slot, on Sunday July 29 at 2pm through the last one on Thursday August 2 at 10:30am. The flipside is that every participant is ensured to find exciting sessions in all time slots from Sunday to Thursday! But to take full advantage of what JSM offers, it is important to plan in advance to choose the sessions to attend. Consulting the online program is the best way to select the sessions of interest for each participant as you can construct your own program and eventually use the mobile application to consult it. But to help you plan, I will highlight some particular sessions in the next few paragraphs.

Let me begin with the plenary sessions. The first one is the ASA President's Invited Address on Monday, July 30 at 4pm. On Tuesday, July 31 at 4pm, the Deming Lecture, **Improving the Quality and Value of Statistical Information: Fourteen Questions on Management**, will be delivered by **John L. Eltinge** of the Census Bureau. Tuesday night at 8pm, **Lisa LaVange** will present the ASA President's Address. Finally, the COPSS awards will be presented on Wednesday, August 1 at 4pm, followed by the Fisher Lecture by **Susan Murphy**, Harvard University, on **The Future: Stratified Micro-randomized Trials with Applications in Mobile Health**.

Sunday night, as you mingle with colleagues and friends during the JSM Opening Mixer, you won't want to miss the opportunity to learn about various topics during the Invited Poster Session when 40 electronic posters will be presented along with the vendors in the EXPO. **Paul McNicolas**, McMaster University, organized this Invited Poster Session and many Canadian researchers are featured.

This year, JSM innovates by presenting a public lecture to raise the profile of statistical sciences in the community hosting the meeting. **Jeff Rosenthal**, University of Toronto, will deliver the first JSM public lecture entitled **Born on Friday the Thirteenth: The Curious World of Probabilities**. Held on Monday night, July 30, to accommodate high school math teachers and the general public, its principal audience, the public lecture is also open to JSM attendees who may be interested.

Introductory Overview Lectures are among the most popular sessions at JSM. They are high-quality introductions to timely and important statistical topics of interest to

broad JSM attendees. This year JSM will host 6 Introductory Overview Lectures. The first one, Sunday, July 29, 2pm, **The Deep Learning Revolution**, will explore this Machine Learning tool that has proven to be extremely useful in several applications and has witnessed an absolute explosion of interest. Then, Sunday, July 29, 4pm, **Examining What and How We Teach at All Levels: Key Ideas to Ensure the Progress and Relevance of Statistics**, will highlight changes in introductory level material as well as both undergraduate and graduate programs in statistics, biostatistics, and data science at a time where demand for our profession continues to grow while the emergence of data science has invigorated both industry and academia. On Monday, July 30, 8:30am, in **Leading Data Science: Talent, Strategy, and Impact**, data science leaders from major technological firms will demystify real-world data science applications at scale and illustrate how to become an excellent data scientist, how to build a high-impact data science team, how to design data science curriculum and how to lead with statistics. **Multivariate Data Modeling with Copulas**, Monday, July 30, 10:30am, will describe in simple terms the fundamental principles of copulas and copula models, one of the most powerful and appealing ways of accounting for dependence in multivariate data, and provide concrete illustrations of its use in finance, insurance, biostatistics and environmental sciences. This IOL will be presented by **Christian Genest** and **Johanna G. Nešlehová**, both of McGill University. On Tuesday, July 31, 8:30am, **Reproducibility, Efficient Workflows, and Rich Environments**, will explore the need for reproducibility of results from modern data analysis and how getting the most of rich computing environments can help building efficient workflows, and organize computations to encourage validity, reproducibility, and collaborative sharing. Finally, on Wednesday, August 1, 8:30am, **The Statistical and Data Revolution in the Social Sciences**, will highlight new statistical methods for three areas of social science where the impact of statistics has been expanding rapidly, spurred by a huge expansion in available social science data, new kinds of social science data, and the establishment of several interdisciplinary centers and institutes in US universities on this interface: demography, social network analysis, and criminology.

Every year, we remember the contributions and personalities of some extraordinary statisticians who died in the recent past through Memorial Sessions. This year, we salute **Stephen E. Fienberg** (Sunday, July 29, 2pm), **Charles Stein** (Monday, July 30,

2pm), **Ingram Olkin** (Tuesday, July 31, 2pm), **Alastair Scott** (Thursday, August 2, 8:30am) and **Joseph Hilbe** (Thursday, August 2, 10:30am).

Several journals have invited sessions to highlight some of the best papers that they publish. This year, the following journal have invited sessions scheduled: Journal of Statistics Education (Sunday, July 29, 2pm), JASA Theory and Methods (Monday, July 30, 8:30am), Annals of Applied Statistics (Monday, July 30, 2pm), Technometrics (Tuesday, July 31, 8:30am), Journal of Agricultural, Biological, and Environmental Statistics (Tuesday, July 31, 2pm), Statistics Surveys Online Journal (Wednesday, August 1, 8:30am), Statistica Sinica (Wednesday, August 1, 10:30am), JASA Applications and Case Studies (Wednesday, August 1, 2pm), and CHANCE (Thursday, August 2, 8:30am).

The invited, topic-contributed, and regular contributed sessions will cover technical subjects of interest to statisticians from all ASA sections and all organizations who partner to make the great meeting that JSM is. The following topics are well represented in the program: Use of electronic health records, several topics of omics data and genetics, precision medicine, causal inference, evidence based decision making, clinical trials, underutilization of data bases, combining survey and administrative data, networks, high dimensional data, big data and several topics related to data science and machine learning, cross-disciplinary research, applications to climate change, forensics, and several other fields, plus societal topics such as federal research on improving measurement of LGBT populations as well as the impostor syndrome.

The SSC has organized 4 Invited sessions, 1 Topic-Contributed session, and 2 Regular Contributed sessions. The SSC Program Chair was **Wenqing He**, Western University. The invited sessions are **Some New Perspectives and Developments in Biostatistical Research in the Era of Data Science** (Monday, July 30, 10:30am), **Advances in Dependence Modeling through Copulas** (Tuesday, July 31, 8:30am), **New Statistical Methods for Lumber Analytics** (Wednesday, August 1, 10:30am), and **Spatial Statistics when Sampling is Informative** (Thursday, August 2, 8:30). Another invited session was organized by the CANSSI: **State Space Assessment Models for Complex Fisheries and Biological Data** (Sunday, July 29, 2pm).

Here are some other sessions that you may find interesting. The **Medallion Lecture I**, **Statistical Inference for Complex Extreme Events**, by **Anthony**

Davison (Sunday, July 29, 2pm), **The Good, the Bad, and the Ugly: The Future of Statistics and the Public** (Sunday, July 29, 4pm), the following three panels entitled **Theory vs Practice** (Monday, July 30, 10:30am), **Addressing Sexual Misconduct in the Statistics Community** (Monday, July 30, 2pm), and **Statistical Leadership: Insights from experiences of prominent leaders** (Tuesday, July 31, 10:30am); **Worldwide Statistics Without Borders Projects: Statistics, Data Visualization, and Decision Making** (Wednesday, August 1, 8:30 am), the **Noether Award** with **Jianqing Fan** and **Anirban Bhattacharya** and the **Sirken Award** with **Colm O'Muircheartaigh**, both sessions on Wednesday, August 1, 10:30am. **Are we (academia) producing leaders with necessary statistical skills? (**a panel), **The State of Peer-Review and Publication in Statistics and the Sciences**, and the **Medallion Lecture II, Statistical Analysis of Large Tensors**, by **Ming Yuan**, all Wednesday, August 1, 2pm. **Theory at the Intersection of Machine Learning and Statistics** (Thursday, August 2, 8:30am) and **Data Science for Social Good** (Thursday, August 2, 10:30).

Up to two Late-Breaking sessions may be added to the program on Monday, July 30, 2pm and Tuesday, July 31, 10:30am (the deadline for the submission of proposals was April 16).

One way to diminish the number of parallel sessions is to encourage researchers to present in a speed session rather than a contributed paper session. Such a presentation is delivered in two parts: a five-minute oral advertisement for the topic in a session with 19 others on a similar theme, followed by a 45-minute electronic poster in the following session. This year we have increased the number of speed sessions from 18 last year to 26 this year. I invite you to consider attending at least one such session. You may like them and consider submitting your research to a speed session next year.

The theme of the meeting is **#LeadWithStatistics** and as you will discover throughout the program, our field is healthier than ever and full of energetic members ready to lead with statistics. On behalf of the JSM Program Committee, I wish you a wonderful JSM 2018 in Vancouver and we hope that you will learn and enjoy it as much as we did preparing its program!

Christian Léger, JSM 2018 Program Chair

Working with your Mitacs Business Development Director

Mitacs offers numerous funding opportunities to students and faculty in all academic disciplines, including mathematical disciplines like ours. These opportunities are a great resource for research supervisors looking to expand students' --and their own-- exposure to industrial research questions, and allow supervisors to extend their student funding potential. However, from my experience, few members of the statistics and actuarial science communities take advantage of these opportunities. Many researchers cite that finding an industry partner is the biggest challenge in engaging in this type of research (CANSSI IIC (2016). "Results from CANSSI Industrial Innovation Committee Survey on Mitacs Participation." Liaison, 30:4, pp37-39.).

Mitacs understands this, and has business development directors (BDs) across Canada that can assist with the matchmaking process. Part of the BD's job is to identify industrial projects and sponsors that can be developed into fruitful partnerships with academia. They serve as a focal point for organizations that are looking to tap into the intellectual resources at a university, and therefore BDs often accumulate a variety of projects whose sponsors seek academic expertise. As a result, a BD can be a terrific resource for a faculty member or a department looking to branch out or offer on-the-job training to students.

When a new **Mitacs BD, Allison Brennan**, arrived at SFU, I first met her through a mutual acquaintance at a coffee shop. We chatted briefly about my department's low uptake of Mitacs opportunities and she admitted that, with a PhD in Psychology, the difference wasn't always clear to her between a statistical research question and research requiring statistical analysis. Many of the companies with whom she had spoken were convinced they needed a statistical scientist, but Allison thought that the problems they described might also fit with other disciplines including mathematics, computing science, psychology, sociology, or education to name a few. We set up a meeting to discuss it further.

At that meeting, I described how statisticians view the continuum between statistical consulting and statistical research. We discussed the range from the application of simple tools to a data set, through novel applications of existing tools to complex data and development of new models, and into full-on methodological development. I explained that our internal and external evaluation systems tend to focus heavily on publications in the last category, and hence that kind of project might pique a statistician's interest more. However, we agreed that industrial partners may not be able to judge when this would happen --indeed, we cannot always know this until we are deep into a project ourselves! Finally, I explained the different research areas in our discipline, and that we are all specialists in some methods or application areas but may know little about others.

At the end of our conversation, Allison and I agreed that it would be helpful to share some potential industry project proposals, so we could discuss their merit as statistical sciences research and develop shared understandings. The first two proposals clearly fell under data science or predictive analytics and were not considered suitable statistical research. The projects also required more computing skill than statistics students typically have, but also more statistical skill than is typical of computer science students. (I note that some industry partners may not be fully aware of the skill sets that statistics students possess. They may ask for students from other disciplines like computer science when our students might serve them at least as well.)

I gave her my detailed perspectives on the proposals, differentiating between statistics work --analyzing the data to find answers-- and computing science work --extracting and preparing the data and building digital tools. In one case, I suggested that the partner might split their project in two so that students from different departments could be recruited to work together.

Although these specific projects were not suitable for statisticians, I considered the first discussions with Allison to be a success. A few months later, Allison sent another proposal for me to review. This project was more interesting and asked for an approach that lay somewhere between an advanced statistical application and applied statistics research. It definitely had the potential to be a research collaboration for a person with the right interests.

Following from these interactions, Allison tells me that she has a stronger sense of the continuum between statistical research and statistical consulting. In my department, she is now positioned as an asset to anyone interested in finding projects and developing collaborations outside academia. She is also better able to advise the companies and community organizations seeking academic research expertise when it could involve statistical research.

If you are interested in helping to improve your, or your department's, chances of finding non-academic research collaborations through Mitacs connections, I would suggest having a similar discussion with your local business development director about your specific needs and interests. One could offer to look at available project proposals and to pass them along to colleagues. Allison assures me that doing so could be a tremendous help to increase the chance that the projects she brings forth may be of interest to SFU statistical and actuarial scientists.

For me, the collaboration with Allison has been pleasant and reviewing the projects did not take too much time. As a bonus, I got to learn more about the potential collaborations that industry partners seek through Mitacs so I can position myself and my students accordingly should I start taking advantage of these opportunities.

Tom Loughin, Simon Fraser University

Coming Attractions of The Canadian Journal of Statistics: 2018 Issue 2

In the second issue of 2018, *The Canadian Journal of Statistics* presents nine papers covering a number of topics including the analysis of censored data, model robustness

and assessment, prediction, optimal designs, and the goodness-of-fit of stochastic processes.

The first two articles consider censored data from different perspectives. For multiple samples with censored observations, **CAI and CHEN** develop a semiparametric approach for the estimation of population quantiles and distribution functions. By pooling information across multiple censored samples through a semiparametric density ratio model, they develop an empirical likelihood approach to achieve high efficiency without making restrictive model assumptions.

Focusing on the modelling of censored data, **WANG and WANG** examine a transformation regression model where both the transformation function and the error distribution function are left unspecified. Such a model is more flexible than traditional semiparametric models, which require one of these to be specified. The authors estimate the transformation function using the kernel estimation method and estimate the regression parameters using weighted estimation equations.

To generalize classical quantile linear regression models,**GIJBELS, IBRAHIM and VERHASSELT** consider quantile varying coefficient models (VCMs), which allow the coefficients to depend on other variables. To allow for heteroscedasticity, they explore various variance structures for the VCM errors. In addition to presenting estimation procedures, they develop likelihood-ratio-based tests for choosing between two variability functions with heteroscedastic error structure.

The fourth paper concerns the precision matrix that is often used to describe the association information for multiple variables. Since the performance of such a matrix is quite sensitive to the presence of outliers, **CHUN, LEE, KIM and OH** propose a robust precision-matrix estimation method via weighted median regression with regularization. The approach is shown to be consistent under various distributional assumptions, including multivariate t distributions and contaminated Gaussian distributions. The development focuses on the situation where either the dimension p of the variables is fixed or p >> n where n is the sample size.

Frequentist model averaging has often been used to incorporate model uncertainty. In particular, the model averaged tail area (MATA) confidence interval is useful. With a large number of linear regression models **KABAILA** constructs MATA confidence intervals and provides an easily computed upper bound on the minimum coverage

probability of these intervals. This bound provides evidence against the use of a model weight based on the Bayesian information criterion.

Typically, diagnostic tests are assessed over multiple studies. Receiver operating characteristic (ROC) curves can be used to evaluate the properties of a diagnostic test based on the distribution of a variable in the healthy and diseased populations. Using the minimum averaged mean squared error weights, **PLANTE and DÉBORDÈS** infer the ROC curve of a diagnostic test based on raw data obtained from multiple studies. The estimates are consistent, and Monte Carlo simulations show good finite-sample performance.

In some applications, the covariate values in the prediction model are different from those in the model for the observed data. Referring to this as *covariate shift,* **KAWAKUBO, SUGASAWA and KUBOKAWA** discuss a criterion for selecting the explanatory variables for the fixed effects in linear mixed models. To demonstrate the usefulness of the criterion, they explore covariate shift in small-area estimation based on conditional Akaike information.

In the eighth article, **ZHAI and FANG** explore locally optimal designs for nonlinear dose-response models with binary outcomes. Applying the theory of Tchebycheff Systems, the authors show that the locally D-, A- and c-optimal designs for three binary dose-response models are minimally supported in finite, closed design intervals. Construction methods and examples are provided for these locally optimal designs.

In the final paper, **ABDELRAZEQ, IVANOFF and KULIK** propose goodness-of-fit tests for Levy-driven Ornstein–Uhlenbeck (or CAR(1)) processes that have been used to model stochastic volatility. The authors develop a general formula to recover the unobserved driving process from a continuously observed CAR(1). When the CAR(1) process is observed at discrete times, the driving process is approximated, and approximated increments are used to test the hypothesis that the CAR(1) belongs to a specified class of Levy processes.

Enjoy the new issue!

Grace Y. Yi, *CJS* Editor

News from Western

Following an extensive international search, Matt Davison has been appointed to a five-year term as the next Dean of the Faculty of Science, beginning July 1, 2018. Matt has been a faculty member at Western since July 1999 and has held several leadership roles in the Faculty of Science since 2014, including Acting Associate Dean and Chair of the Department of Statistical & Actuarial Sciences. Currently, he serves as the founding director of the School of Mathematical & Statistical Sciences — an entity that combines the three departments of Applied Mathematics, Mathematics, and Statistical & Actuarial Sciences. He held a Tier 2 Canada Research Chair in Quantitative Finance between 2006 and 2016 and is a Lifetime Fellow of the Fields Institute.

Matt holds a Bachelor of Applied Science (Engineering) from the University of Toronto and an MSc and PhD in Applied Math from Western. His research interests include risk management and financial mathematics with a particular focus on using these ideas to better finance and operate renewable and other energy infrastructures. He has had continuous NSERC Discovery grant support since the beginning of his academic career and he has graduated 53 Master's and 18 PhD students.

The next generation of storytellers and statisticians

In 2017 Statistics Canada joined the chorus of federal government institutions and the millions of Canadians from across the country who came together for Canada's 150th anniversary of Confederation. To celebrate, the agency organized an ambitious year-long program of activities and events. The theme—**Telling Canada's Story in Numbers**—celebrates the role that Statistics Canada has played in chronicling the lives of Canadians throughout the country's history.

In September, Statistics Canada approached the Statistical Society of Canada (SSC) requesting its partnership to make this event a success. The SSC Fundraising Committee found this activity to be consistent with the SSC mission of promoting statistics and statistical education to Canadians. The SSC decided to contribute $1,750.00 through our fund from the fundraising efforts. Working together with the SSC, Statistics Canada set out to close this epic year on a high note by engaging the next generation of storytellers and statisticians in the Contest — My Story in Numbers. From November to December 2017 nearly 150 youth between the ages of 8 and 18 participated in this nation-wide contest that challenged them to submit a story, in the artistic format of their choice, using at least one statistic from a variety of inspirational resources.

In mid-December a panel of senior members from Statistics Canada and **Edward Chen,** representing the Statistical Society of Canada, came together to choose the three winning submissions based on two criteria: the creativity and presentation of ideas, and the overall usage of statistics to tell a story in numbers. And, just before the holiday break, the three winners received the exciting news that they placed first, second and third, earning cash prizes courtesy of the Statistical Society of Canada and a prize package of Canada 150 items from Canadian Heritage.

Here are the three winners of the **Contest – My Story in Numbers!**

1st place winner
Alexander Morgado-Drysdale
from Mississauga, Ontario, 10 years old, with his video: Alex's Life Story in Numbers

2nd place winner
Jordan Kozma
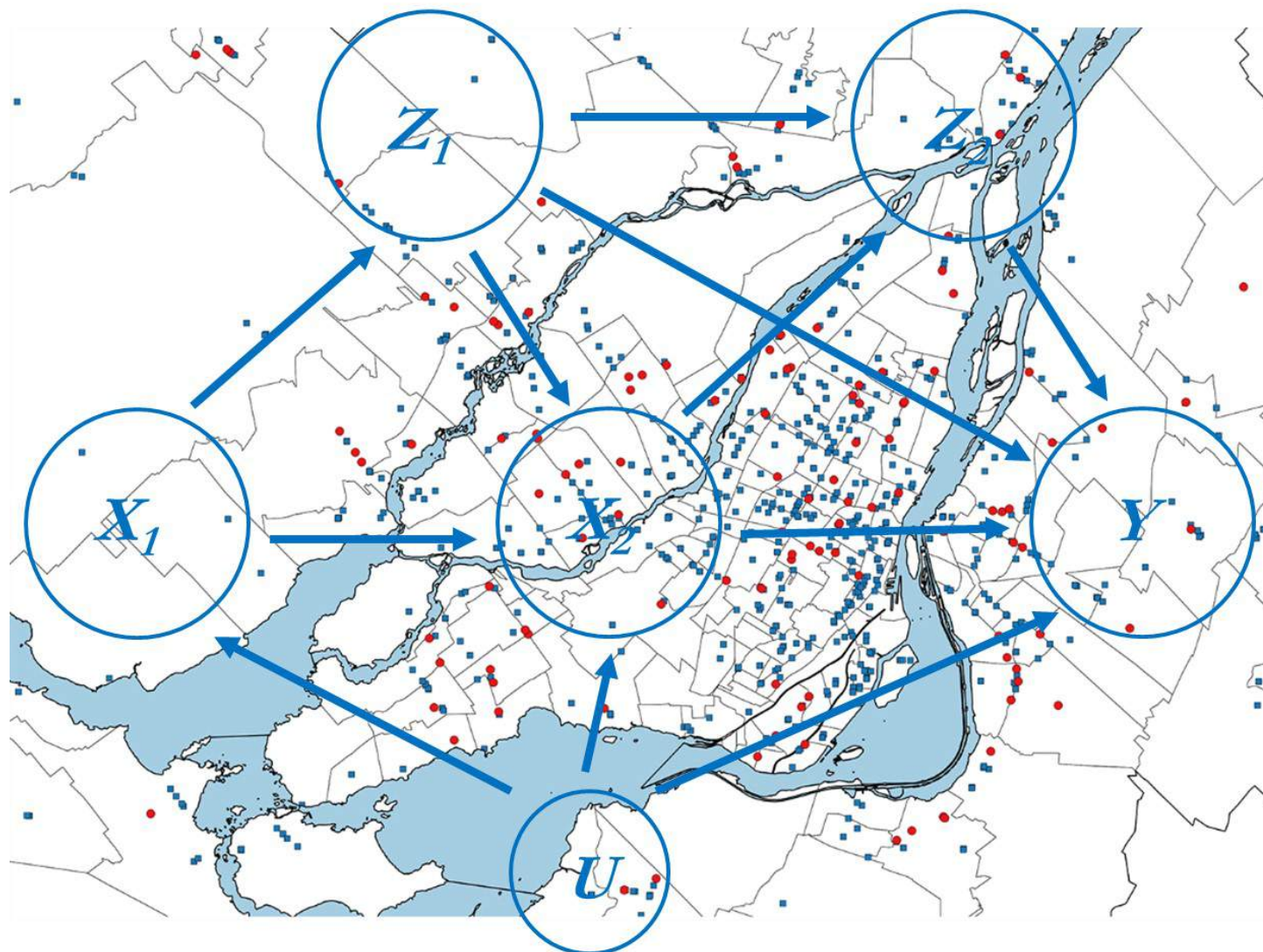from Markham, Ontario, 13 years old, with her
drawing: Aboriginal Man

3rd place winner
Alysha Selvarajah
from Vaughan, Ontario, 12 years old, with her video: Story of
Millions: The Everyday Life of Toronto

Thematic program on causal inference in Montreal

The CRM will be hosting a month-long thematic program on *Causal inference in the presence of dependence and network structure* this June. As part of this program, we will be hosting three short workshops:

- **June 11-13, 2018 - Causal adjustment in the presence of spatial dependence** (Main contact: Alexandra Schmidt)
- **June 20-22, 2018 –Causal inference for complex graphical structures** (Main contact: David Stephens)
- **June 25-27, 2018 – Discovery of causal structure in high dimensions** (Main contact: Erica Moodie)

These workshops will feature scholars in residence **Jim Zidek, Thomas Richardson** and **Nicolai Meinshausen,** in addition to a full schedule of invited speakers. There will be opportunities for poster contributions and student travel awards are also available. **Registration is now open!**

NSERC/SANOFI IRC POSTDOCTORAL FELLOWSHIPS

York University is inviting applications for NSERC/Sanofi IRC Postdoctoral Fellowships. The fellowship will provide financial support to high-caliber scholars doing postdoctoral research that is aligned with the **NSERC/Sanofi IRC program**.

The NSERC-Sanofi Industrial Research Chair (IRC) Program Vaccine Mathematics, Modelling and Manufacturing is a collaborative research program funded by the NSERC Industrial Research Chair Program, in collaboration with York University and *Sanofi Pasteur*. The IRC program team, chaired by Jianhong Wu, includes scientists (Ayman Chit, Jason Lee, Dion Neame, Bruce Seet, MiggiTomovici, and Edward Thommes) from Sanofi Pasteurand faculty members (Michael Chen, Xin Gao, Jane Heffernan, Huaxiong Huang, Neal Madras, and Helene Massam) from York University's Department of Mathematics and Statistics. The program team covers a wide range of expertise including *vaccine characteristics, development and production; systematic reviews and meta-analyses; optimization; statistical computing; modeling transmission dynamics, within-host dynamic, waning immunity*

*and vaccine hesitancy; numerical analysis; Markov chains and Monte Carlo methods; Bayesian inference.*The IRC program will enhance the research and training capacity at York University in disease modeling, provide Sanofi Pasteur with reliable inputs for long-term strategic planning, and contribute to a new Canadian vaccine industry R&D platform.

The IRC program is currently focusing on 1). developing and applying mathematical technologies to evaluate the effectiveness for prevention of serious events in the population of high-dose inactivated influenza vaccines; and 2). modelling the transmission of disease involving mass gatherings and travel.

The candidate must have a doctorate in an area that falls within the IRC mandate. The applicant must be supported by an IRC York team member and the program Chair as the cosupervisors. The postdoctoral fellows will be expected to interact with the IRC team.

The positions can start anytime, initially for one year but can be renewed for up to a total of 3 years. The salary is approximately $48,500 including $8,250 for a course instructorship. The salary will be adjusted for those candidates preferring no course instructorship. The salary could be complemented by other funds including those from the IRC York team members, and those from external sources awarded to the applicants.

Applicants should submit

1. One-page summary of proposed research in the two currently focused research areas;
2. Curriculum vitae;
3. some representative research;
4. two letters of recommendation.

Applications should be submitted to **Professor Jianhong Wu** at **wujh@yorku.ca**.