Creation of a Data Science and Analytics Section

Creation of a Data Science and Analytics Section/ Groupe science des données et analyses (DSAS/GSDA)

At the October board meeting, **Shirley Mills** (Carleton University) brought forward a proposal signed by 27 SSC members for the creation of a new SSC section on Data Science and Analytics (DSAS). Borrowing from Donoho's "50 Years of Data Science" (2017) data science can be defined as the "coupling of scientific discovery and practice [involving] the collection, management, processing, analysis, visualization, and interpretation of vast amounts of heterogeneous data associated with a diverse array of scientific, translational, and interdisciplinary applications." Naturally in the board meeting, representatives from other sections wondered about overlap—after all, data sciences and analytics are represented in the Biostatistics, Business and Industrial Statistics, and most other sections. In the past, there was even discussion about whether or not the SSC should change its name to something involving data science. In the board meeting, the feeling was that DSAS should indeed be a stand-alone section to highlight its wider utility. In passing the motion, the SSC expects that the DSAS will diversify and grow the interests of the Society while engaging a wider community. Specific section objectives from the passed motion are quoted at the end of this article.

To celebrate the creation of the section, DSAS will be hosting its inaugural workshop on analysis of unstructured text data at SSC 2020 meeting in which **Dave Campbell** (Carleton University) and **Nathan Taback** (University of Toronto) will be introducing participants to tools for collecting, managing, processing, analyzing, visualizing, and interpreting vast unstructured text data from a variety of sources.

Watch for more information about the DSAS section as it develops. Meanwhile when you are renewing your membership for 2020, join the SSC's newest section!

Specific section objectives

Quoting the proposal passed by the board at the October meeting, the DSAS objectives are to

- serve as the Society's focal point for data science and analytics;
- encourage the use of statistical science methods in all stages from data acquisition, storage, and cleaning, to finding value in acquired data, enabling evidence-based decisions, producing inference and predictions, and communicating and disseminating domain informed results;
- create forums for presentation and discussion of research in these fields;
- address emerging topics that will impact the long-term success of data science and analytics as a profession;
- build cooperative relationships on behalf of the Society with other organizations that have interests in these fields.

The section will perform functions that serve the objectives listed. These include, but are not limited to

- planning, in cooperation with the program committee of the Society, invited and contributed paper sessions on data science and analytics at the annual meetings of the Society as well as short courses and workshops for a broad range of attendees;
- promoting good practice in data science and analytics;
- promoting the statistical aspects of data science and analytics / re-enforcing the statistical framework;
- supporting the pipeline and career development of data scientists and statisticians by elevating skill sets;
- supporting the data science and analytics community throughout Canada;
- fostering multidisciplinary connections and the exchange of ideas;
- supporting topics such as ethics, privacy, reproducibility, algorithmic responsibility and personalization;
- sponsorship, including joint sponsorship with other organizations, of meetings, seminars and courses in the fields of data science and analytics;
- promotion of publications on data science and analytics.

Donoho, D. (2017). 50 years of data science. *Journal of Computational and Graphical Statistics*, *26*(4), 745–766, DOI: 10.1080/10618600.2017.1384734

Report to Donors: What Your Contributions Have Made Possible

Société statistique du Canada
Statistical Society of Canada

In the SSC's First Annual Fundraising Drive, which took place in 2016, the past presidents were invited to make substantial gifts in support of the broad educational mission of the SSC, and they did so with great generosity, to a total of $31,305. With successive annual membership renewal drives, the total collected has increased. At the end of 2018, the total stood at $66,237, of which $20,000 had been used to start an endowment. This article showcases what donations have made possible in the shorter term.

Student Travel Awards

The fundraising committee has established a practice of recommending each year that $2,000 be made available for awards for student travel to the SSC annual meeting, to supplement contributions from the SSC sections. The students have been very grateful for these awards. Some of the winners in 2019 are shown here.

Fazaeh Yazdi, SFU; Michela Panarella and Thai-Song Tan (with Amy Liu), U. of Toronto; Amirhossein Alvandi, MUN; Anthony Coache, UQAM

Education and Outreach Projects

Otherwise, most of the funds have been directed toward the following projects proposed by SSC committees and the general membership, with awards ranging from $1,750 to $5,000.

- **Telling Canada's Story in Numbers**, a Statistics Canada-SSC project for Canada's 150th anniversary. See the results at https://www.statcan.gc.ca/eng/blog/stories/winnerscan150
- For the statistics education branches of the SSC, a **Census at School Canada Shiny App** and development of a website for the **International Statistical Literacy Project Poster Competition** within Canada.
- **Commenting/rating functionality for StatSpace**, an open on-line repository of modular material to support instruction in introductory statistics developed at UBC. This is an important step in expanding the reach of StatSpace nationally and internationally. Closer to home, StatSpace resources have been introduced to BC high school teachers via professional development day workshops to prepare them for teaching the new BC Statistics 12 high school course. The material from these workshops is posted on StatSpace. https://statspace.elearning.ubc.ca
- The first phase of the **International Data Science in Schools Project (IDSSP)**, a cross-disciplinary venture involving an international team of computer scientists and statisticians from the leading professional associations for both disciplines, including the SSC. The purpose of the project is to promote and support the teaching of Introductory Data Science, particularly in the final years of secondary school. An international curriculum team with a supporting advisory group was recruited in 2017. Canadian members of the curriculum team include **Wesley Burr** (Statistics, Trent University), **Alison Gibbs** (Statistics, University of Toronto), and **Raymond Ng** (Computer Science, University of British Columbia), left to right below:

Wesely Burr, Alison Gibbs, Raymond Ng

The Canadian members of the curriculum team attended three working meetings of the curriculum team (March 2018 in Los Angeles, July 2018 in Vancouver, and June 2019 in Alexandria, VA). A session at the SSC 2019 Annual Meeting in Calgary introduced the project to the SSC membership, with speakers **Rob**

Gould (UCLA), **Alison Gibbs,** and **Wesley Burr.** SSC fundraising supported travel for Gould to attend the SSC meeting and Gibbs and Ng to attend the curriculum team meeting in Alexandria. Phase 1, development of curriculum frameworks for students and teacher trainees in Introductory Data Science, was completed in August 2019, and the report is hosted at idssp.org.

Members of the IDSSP development team, June 2019, L-R: Neil Sheldon (UK), Nick Fisher (Australia), Chris Wild (New Zealand), Tim Hesterberg (USA), Rob Gould (USA), John Bailer (USA), Alan Fekete (Australia), Ajay Anand (USA), Raymond Ng (Canada), Alison Gibbs (Canada).

- A **Data Science Bootcamp**, held June 10–21, 2019 at the University of Saskatchewan. The objective was to introduce core topics in machine learning, analysis of high-dimensional data, and data visualization (including training in use of software such as Jupyter, Paraview and R), leading to hands-on knowledge in data science, and giving particular emphasis to applications to signature research areas at the University of Saskatchewan. The event attracted 50 participants.

- **For Today's Graduate, Just One Word: Statistics**, to be held at the University of Toronto, February 21, 2020. This event, which we are co-funding with SAS, will bring together female secondary school students with a high aptitude for mathematics, and their teachers, to interact with women who work in the fields of statistics and data science, especially those in leadership roles. Teachers will also receive instruction on effective teaching methods in statistics. The goals of this event are consistent with the goals of the SSC of promoting probability and statistics to students and educators, and to help students develop careers in the statistical sciences.

SSC 2020—Student Research Presentation Awards

Société statistique du Canada / Statistical Society of Canada

Student Research Presentation Awards will be given at the 2020 SSC Annual Meeting at Carleton University in Ottawa for research presentations made by students. Awards will be given for oral and poster presentations. Entries will be judged on the quality of both the presentation and the underlying research. The awards consist of a certificate and a cash prize.

To be eligible for this award, a student must not have defended her/his thesis nor completed her/his final degree requirements by December 31, 2019.

In 2020, entrants will choose to enter one of four separate competitions:

• **The Probability Section Student Research Presentation Award** competition will judge presentations on the probabilistic aspects of the work as well as the general criteria. The cash prize is $500.

• **The Business and Industrial Statistics Student Research Presentation Award** competition will judge business and industrial aspects of the work as well as the general criteria. The cash prize is $500.

• **The Actuarial Science Student Research Presentation Award** competition will judge presentations on theory and applications in actuarial science as well as the general criteria. The cash prize is $250.

• **The General Student Research Presentation Award** competition will judge presentations on the general criteria. The cash prize is $500.

To enter, the student must

• submit the abstract of the contributed paper or poster through the meeting website;

• indicate at time of submission of the abstract in the space provided on the meeting website which competition is being entered;

• have her/his supervisor or department confirm student status as of December 31, 2019, by email to student-award-submissions@ssc.ca no later than February 15, 2020; and

• submit a short summary of the research, no longer than four pages (including references), by email to student-award-submissions@ssc.ca no later than March 15, 2020.

Presentations based on joint work with a senior colleague such as a supervisor are eligible, as long as the student presents the work. Joint presentations between two or more students are eligible. Past winners in each competition are not eligible for the same competition, but may enter the other ones. All presenters are required to register for the meeting at the time of abstract submission. The presenters are also responsible for their travel expenses to attend the meeting.

Only for the General Student Research Presentation Award competition: Summaries submitted by the students for the oral presentation will be assessed by experts. The assessment of summaries will be based upon the following criteria: Relevance/Importance of research/application (30%); rigor, assessment, and novelty of proposed solution (40%); and quality of presentation (30%). A maximum of 18 presentations will be selected for the competition at the SSC Annual Meeting. Presenters whose summaries have not been selected will be invited to make standard contributed presentations. The presenters will be notified by April 15, 2020 whether their summaries have been selected or not.

Other Award: Award for Survey Methods for Students

This award will be given by the Survey Methods Section of the Statistical Society of Canada. The award will consist of a plaque and a $300 prize. It will be given for the best paper in survey methods presented at the 2020 Annual Meeting of the Statistical Society of Canada. Details about this award are available on

https://ssc.ca/en/about/sections-regions/survey-methods/awardsgrants.

SARGC Wants to Hear from Students and Recent Graduates

The student and recent graduate committee of the SSC is dedicated to supporting students and recent graduates with workshops, accreditation, scholarships, employment, social activities, and more. We want to connect with statisticians across Canada with our 2019–2020 inaugural survey to better understand our community's engagement

with the committee, and the experiences and needs of recent or soon-to-be graduates.

The survey below incorporates questions that will help us in tailoring this year's activities to your interests! As our way of saying thanks, your participation will give you the opportunity to **enter a draw for a $25 Amazon gift card**. Please fill out the survey **before January 20, 2020** to be eligible.

Link to the survey (English):

https://docs.google.com/forms/d/e/1FAIpQLScusU_32o82kKYXp9YGZqrje0Bcfg5u1yCbal4snby1jg6WBQ/viewform

Lien vers le sondage (Français) :

https://docs.google.com/forms/d/e/1FAIpQLSc2mZL-zrwafkaZynNZp8QEFLRt-hnTjRKLv-k79F8EbcBzRw/viewform

You know how data are important! If you are a student or a recent graduate, or if you know one, please forward this information to them, to ensure that we may collect as much data as possible. All information submitted is confidential.

This survey is also a way for students and recent graduates to get involved! As mentioned in the survey, the SARGC is currently looking for

• candidates (students, recent graduates, and working professionals) interested in being interviewed on their transitions as students to working professionals; and

• representatives of the SARGC in each Canadian University, who will help us in communicating any important information about the SARGC activities.

Please note that the links in the survey open independent pop-up windows to allow you to register for different activities while keeping your answers to the survey anonymous.

The members of the SARGC are looking forward to hearing from you!

Thank you for your help,

The SARGC

For more information on the SARGC, please visit our website:

https://ssc.ca/en/committees/student-and-recent-graduate-committee

CANSSI News and Deadlines

CANSSI INCASS

Canadian Statistical Sciences Institute
Institut canadien des sciences statistiques

Data • Discoveries • Decisions
Données • Découvertes • Décisions

CANSSI National Case Study Competition

The CANSSI National Case Study Competition (NCSC) took place this fall. This national competition offered Canadian students the chance to work with a real-life dataset and put their statistical knowledge to the test to make predictions. The dataset consisted of 61,880 BC Ferries sailings occurring between August 2016 and March 2018. The dataset was split into a training dataset including 80% of the sailings (49,504 sailings between August 2016 and November 2017) and a testing dataset including 20% of the sailings (12,376 sailings between November 2017 and March 2018). The task was to predict whether or not each sailing described in the testing dataset was delayed. A variety of covariates were provided for each sailing (date, time of departure, departure terminal, arrival terminal, the name of the vessel, and so on). In addition to these covariates, some weather data and traffic data was also provided. Students prepared posters and presentations detailing their work, predictions, and insights.

Five regional competitions took place across the country:

- Carleton University, Ottawa, ON
- Concordia University, Montréal, QC
- MacEwan University, Edmonton, AB
- Simon Fraser University, Burnaby, BC
- University of New Brunswick, NB

Students who were unable to travel to one of these locations for the regional competitions had the opportunity to participate remotely at either the Concordia or the UNB competitions.

The top two teams from each regional competition were invited to participate at the national final at Simon Fraser University on November 2.

The winners were as follows:

- 1st place: Overfit the Leaderboard (**Matthew Tourond**), Simon Fraser University
- 2nd place: The Carleton Kaggle Club (**Andrea Pagotto**, **Alex Trostanovsky**, and **Christopher Wang**), Carleton University
- 3rd place: The Statsketeers (**Kimberly Kroetch**, **Cassie Lisitza**, and **Nirudika Velupillai**), MacEwan University

See pictures and learn more about the competition here.

New Faces at CANSSI

We're pleased to announce two new faces at CANSSI. **Nancy Heckman** of the University of British Columbia is our new associate scientific director. She'll be helping develop some new initiatives. So stay tuned to hear more about that in the near future!

Lisa Strug of the University of Toronto is the new interim regional director for CANSSI Ontario. CANSSI Ontario is our newest regional centre whose goal is the promotion of statistical and data science research and training in the Ontario region. CANSSI Ontario is described more fully below.

Learn more about Nancy and Lisa on our website.

CANSSI Quebec

The official inauguration of CANSSI Quebec took place at Concordia University on November 21. Regional director **Yogen Chaubey** welcomed guests from universities around Quebec. **Justin Powlowski**, associate vice president (research), and **Philippe Caignon**, associate dean, Faculty of Arts and Science, affirmed Concordia University's support of CANSSI. After the coffee and refreshments, talks were given by **Nancy Reid**, **Don Estep**, **Christian Genest**, and **John Braun**.

CANSSI Quebec's goal is to work hand in hand with CANSSI in promoting statistical and data science research and training, concentrated in the Quebec region. It aims at strengthening and increasing connections with other disciplines that use statistical methodologies and highlights CANSSI as a hub for statistical and data science activities across Canada.

Learn more about CANSSI Quebec online.

CANSSI Ontario

We are pleased to announce the official launch of the Canadian Statistical Sciences Institute (CANSSI) Ontario Regional Centre at the University of Toronto.

CANSSI Ontario will support several initiatives that facilitate collaborative research in data science such as data access grants, new investigator awards, and training programs. One such CANSSI Ontario-supported training program, the Strategic Training for Advanced Genetic Epidemiology (STAGE), is a long-standing, successful, multidisciplinary research, and training program in statistical genetics and genetic epidemiology. CANSSI Ontario STAGE will be a collaboration between the Dalla Lana School of Public Health and the Department of Statistical Sciences in the Faculty of Arts & Science—both at the University of Toronto—with representation and participation from several other Ontario University investigators.

Employment Ads and Postdoc Ads

CANSSI maintains a list of employment opportunities at our member institutions. The list has quite a few exciting positions. Check it out here.

We also have a list of graduate and postdoctoral opportunities. You can see that list here.

To have your ad added to this list, please send the link to your ad to info@canssi.ca.

Advocating for Statistics

CANSSI aims to take a lead role in advocating for statistics research and statistician participation in multidisciplinary research. Check out our new page on white papers on these topics. If you know of a white paper that we should be linking to, please let us know at info@canssi.ca.

Deadlines

SAMSI Undergraduate Workshop Applications—December 20, 2019

RSVP for Collaborative Research Team Information Session—January 10, 2020

Collaborative Research Team Information Session—January 22, 2020

Call for CANSSI postdoctoral fellows—January 31, 2020

Call for StatLab-CANSSI-CRM postdoctoral fellows—January 31, 2020

Call for Workshop and Conference Proposals—February 15, 2020

Call for Distinguished Visitor Program—March 31, 2020

Call for Collaborative Research Team LOIs—April 30, 2020

Newsletters

Haven't seen our newsletter lately? Make sure you don't miss the next one. Write to info@canssi.ca to subscribe.

A Warm Welcome to Four New Colleagues

Statistical Sciences
UNIVERSITY OF TOR

By Radu Craiu

The Department of Statistical Sciences at the University of Toronto continues to recruit exceptional talent at an accelerated pace. This year, we'd like to give a warm welcome to four fantastic new colleagues.

Elizabeth (Liza) Bolton

Liza Bolton will be joining the University of Toronto's Department of Statistical Sciences as an assistant professor, teaching stream, in January. Over the last few years, alongside teaching a large introductory statistics course at the University of Auckland in New Zealand, Liza has run a statistical consulting business, working with clients in education, not-for-profits, transport consulting, and a range of other industry sectors. After living half her life in New Zealand, she looks forward to bringing her experience in research, business, and teaching back to the country in which she was born. Liza is passionate about making the world a more statistically literate place in general and helping her students become better statistical communicators in particular. She is in the process of completing her PhD at the University of Auckland in health and official statistics.

Liza speaks publicly about her work and statistical sciences on a regular basis. You can find some of her more recent media interviews here:

- RNZ: The Cambridge Analytica fallout
- Storyo: Everything you need to fall in love with Statistics
- StatsChat: Lotto… you're doing it wrong!

Gwendolyn (Gwen) Eadie

Gwen Eadie is an assistant professor jointly appointed between the University of Toronto's Department of Statistical Sciences and the Department of Astronomy & Astrophysics. Her research is in the interdisciplinary field of astrostatistics; she is interested in using and developing modern statistical methods for astronomy applications in order to answer fundamental questions about the universe. Dr. Eadie serves on astrostatistics committees in both the American Statistical Association and the American Astronomical Society. She holds a PhD in Physics and Astronomy from McMaster University, and her PhD was awarded the national J. S. Plaskett Medal. Learn more about her research.

Christopher (Chris) Maddison

Chris Maddison will be joining the University of Toronto's Departments of Computer Science and Statistical Sciences and the Vector Institute as an assistant professor in July 2020. He works on methods for machine learning, with an emphasis on those that work at scale in deep learning applications. He is particularly interested in methods for numerical integration and optimization, and has worked on gradient estimation, variational inference, Monte Carlo methods, and first-order methods for optimization.

Chris is a member at the Institute for Advanced Study in Princeton in the Special Year on Theoretical Machine Learning, as well as an Open Philanthropy AI Fellow. He received a NeurIPS Best Paper Award in 2014, and was one of the founding members of the AlphaGo project.

Silvana Pesenti

Silvana Pesenti recently joined the University of Toronto's Department of Statistical Sciences as an assistant professor in insurance risk management. Her research interests include quantification of risk and uncertainty and developing sensitivity analysis methodologies for models used in insurance and financial risk management. She holds a PhD in Actuarial Science and Insurance from Cass Business School, London, for which she was awarded the Dimitris N. Chorafas Prize by the Weizmann Institute of Science, and a MSc in Mathematics from ETH Zurich. In fall 2019, Silvana received the Dorothy Shoichet Women Faculty Award of Excellence.

Carleton University Welcomes Professor Dave Campbell

This fall Dave Campbell joined the School of Mathematics and Statistics at Carleton University as a full professor. Before that, Dave was a statistics faculty member at Simon Fraser University. Much of his research relates to model relaxations, Bayesian sampling algorithms, and parameter estimation for models with complex likelihood features. Dave brings to the Carleton University a research program in statistical and computational methodology inspired by collaborations in archeology, forensic science, psychology, ecology, and toxicology. In Ottawa, Dave is expanding his ties to federal labs and strengthening his ties to environmental and social-good applications while further distancing himself from his 2016–2017 era where his work with industrial partners focused on ways to get you to buy more things (he says, “sorry about that”). Dave also serves as public relations officer of the Statistical Society of Canada.

Job Announcement: Tenure-Track Position—Data Science

UNIVERSITY OF PRINCE EDWARD ISLAND
FACULTY OF SCIENCE
SCHOOL OF MATHEMATICAL AND COMPUTATIONAL SCIENCES
TENURE-TRACK POSITION—DATA SCIENCE
COMPETITION #36A19

The School of Mathematical and Computational Sciences at the University of Prince Edward Island invites applications for a tenure-track position in the field of data science at the rank of Associate or Assistant Professor.

We are looking for someone to contribute to UPEI’s School of Mathematical and Computational Sciences by teaching broadly across all years in our analytics programs, and by providing leadership in developing and promoting these programs.

Applicants should have

☐ a PhD in Analytics, Statistics, Computer Science, Mathematics, or equivalent;
☐ a research record of demonstrated excellence in some area of data science;
☐ demonstrated teaching ability and a commitment to providing quality undergraduate teaching;
☐ engagement and connections in the data science/analytics community;
☐ an ability and willingness to provide leadership in developing and shaping programs in analytics.

Rank and salary will be commensurate with qualifications. Full-time, permanent faculty receive a comprehensive fringe benefits package including group life, accidental death and dismemberment, supplemental health, travel insurance, pension, and long-term disability insurance.

About UPEI

The School of Mathematical and Computational Sciences at UPEI consists of 18 professors and two instructors, and offers programs in mathematics, statistics, computer science, actuarial science, financial mathematics, data analytics, business analytics, video game programming, and mathematics with engineering. The school is currently in a period of growth, with the addition of new faculty, the development of graduate programs, and increased collaboration with local industry.

The University of Prince Edward Island is located in the provincial capital of Charlottetown, a bustling tourist destination that boasts the amenities of a much larger city, including excellent theatre, galleries, music, and dining possibilities. A province-wide hiking and biking trail runs right along the UPEI campus, and the national park beaches and world-famous golf courses are a short drive away. Charlottetown and its surrounding communities offer charming and affordable housing options, a low crime rate, and a semi-rural lifestyle that is second to none.

Application Procedures

Applications should include a cover letter, curriculum vitae, a statement of research interests and experience, and a teaching dossier. Electronic submissions should be in the form of a single pdf file. In addition, applicants should arrange for three letters of reference to be sent directly to the address below.

While all qualified applicants are strongly encouraged to apply, please include a statement of Canadian status (citizen, permanent resident, or other) in your cover letter for processing purposes.

Applications should be submitted to:
Dr. Shannon Fitzpatrick, Associate Dean
School of Mathematical and Computational Sciences
University of Prince Edward Island
550 University Avenue
Charlottetown PE
Canada C1A 4P3
Email: smcs@upei.ca

In accordance with Canadian immigration requirements, all qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be given priority. UPEI is committed to the principle of equity in employment.

Review of applications will begin on January 2, 2020 and continue until a suitable applicant is identified.