Awards: Faculty & Students

Congratulations to Don Fraser!

Congratulations to Don Fraser for his recent appointment by the Governor General as an Officer of the Order of Canada. This honour was bestowed upon Don for his contributions to the advancement of statistical sciences in Canada

Don's impact within Canada can hardly be overstated: he has schooled several generations of leaders in the statistical and actuarial sciences, has made deep and original contributions to the theory of statistics, and has been the foremost intellectual leader of the discipline in Canada for the past 60 years.

Alison Gibbs wins Dean's Outstanding Teaching Award

For her clear leadership and achievements in teaching and the widespread enthusiasm for her performance as an instructor. Dr. Gibbs is a leading innovator of statistics education and curriculum renewal in our Department and more broadly the Faculty of Arts and Science at the University of Toronto, Alison is also actively involved in research in statistics education. Examples of this include an invited talk at the annual meeting of the Statistical Society of Canada, *Developing graduate students' supervisory skills*, an invited lecture at the University of Chicago, *What is Statistics, Some thoughts on Education*, and the manuscript *Lessons from Medicine for the training of Statistical Consultants*. She chairs the Statistical Education Committee for the SSC and attends several conferences on statistics education on an annual basis. She was Guest editor for the Canadian Journal of Statistics, is an Associate Editor for the SSC newsletter Liaison and was a member of the Canadian committee of the International Statistical Literacy Competition. We are fortunate to include Alison in our faculty ranks and we are particularly grateful to the Statistical Society of Canada for their support through the nomination process.

Congratulations to Gun Ho Jang

Recent graduate Gun Ho Jang's Ph.D. dissertation has been selected by the ISBA Prize Committee, as a finalist for the prestigious Savage Award in Theory and Methods and he has been invited to present his work at the ISBA World Meeting in Kyoto, Japan June 25-29, 2012. He was also the winner of the Pierre Robillard award for his work in 2011. Currently Gun Ho is a postdoctoral fellow in the Department of Biostatistics and Epidemiology, University of Pennsylvannia.

Fang Yao earns Discovery Accelerator Supplement

For his research program entitled "Functional and High-dimensional Data Analysis: Regularization, Representation and Regression". Professor Yao was recruited to the University of Toronto from Colorado State University and we are fortunate to include him in our faculty ranks. He is one of our more prolific, and widely read, researchers. One of his published articles, which appeared in the Journal of the American Statistical Association, was rated as the most read paper for the year 2010 based on the number of times it was downloaded. While on research leave he spent one term at the Statistical and Applied Mathematical Sciences Institute as an esteemed Research Fellow. There he gave the opening address for a thematic program and subsequently led one of the working groups.

Congratulations to Jeff Rosenthal

For his election to the Royal Society of Canada; the citation reads:

For profound and deep contributions to probability and statistics, including highly original and influential results on the mathematical analysis of Markov chain Monte Carlo methods. For exceptional breadth, as evidenced in his many collaborations, his application of statistics and statistical computing to problems in several areas of science and social science, and his enthusiasm for encouraging students and junior researchers to reach their potential. For public service through his dedicated and skilled communication of probability and statistics to the broader public with his many popular writings, including his best-selling book, Struck by Lightning.

Finally, those of us wanting to unlock the secret of Caramilk can refer to Jeff's tutorial at **http://www.youtube.com/watch?v =6X8prNS0PDw**

Ruslan Salakhutdinov earns Early Researcher Award.

The ERA is the successor to the premier's research excellence award given to faculty within 10 years of the completion of their doctorate degree. Remarkably Russ has won this award after a mere six months into his faculty appointment here at the University of Toronto. However, Russ has an extraordinary publication record, mostly in the most prestigious conferences in Machine Learning, but also a highly cited article in Science. His PhD is in Computer Science and he has a strong background in Statistics. We are fortunate to include him in our faculty ranks.

2012

Andrews Academic Achievement Award (Master's)
Craig Burkett
Department of Statistics Doctoral Award
Lizhen Xu
Department of Statistics Teaching Assistant Awards
Craig Burkett, Uyen Hoang, Edwin Lei

2011

Andrews Academic Achievement Award (Master's)
Hanyue Wang
Department of Statistics Doctoral Award
Ximing Xu
Department of Statistics Teaching Assistant Award
Meng Du, Alex Shestopaloff, Shivon Sue-Chee, Ramya Thinniyam

Program News

Tenure & Promotion

Congratulations to Andrei Badescu who has been granted tenure and was promoted to the rank of Associate Professor on July 1, 2011. Professor Badescu is a Professor in Actuarial Science. He is an internationally renowned expert in ruin theory, particularly for his work connecting risk processes with stochastic fluid flows.

GRADUATE STUDIES REPORT

by Sebastian Jaimungal, Associate Chair for Graduate Studies, Associate Professor, Dept. Statistics, U. Toronto

First off, I would like to thank Prof. Knight, my predecessor, for handling the reigns as Graduate Chair so expertly, for his guidance and for his assistance in bringing me up to speed—thanks Keith! Second, I would like to thank the staff: Andrea, Angela, Annette and Carolyn who have made my transition into the role go all the more smoothly. Finally, but not least, I would like to thank the graduate committee (Profs. Badescu, Craiu, Feuverger, Yao, and Zhou) who were invaluable in helping me make admission decisions and for providing support with other administrative issues.

There have been a number of exciting changes in the graduate program since I began in January 2012. Two of the most important ones are the creation of six new graduate courses (STA 45##) and the creation of the new PhD field in Mathematical Finance and Actuarial Science.

The new courses are the first installment of what will eventually be fourteen 4500 level courses. These are concentrated six-week courses focusing on faculty's areas of interest and research. They provide an introduction to the tools, methods, and theory that arise in our faculty's research problems, but are accessible to non-experts. This year we have introduced: Statistical Dependence: Copula Models and Beyond; Functional Data Analysis and Related Topics; Monte Carlo Estimation; Advanced Monte Carlo Methods and Applications; An Introduction to Bootstrap Methods; and Applied Stochastic Control: High Frequency and Algorithmic Trading.

The new PhD field in Mathematical Finance and Actuarial Science builds on the strength of the research faculty in this area and reflects (i) the historical fact that many of our graduates produced focused PhD thesis in this field; and more importantly (ii) to meet the demand from industry and incoming and prospective students for course work and supervision in this fast past, dynamic and continually growing field. The new field has specialized course and comprehensive examination requirements, but statistics and probability is still at its core. I look forward to seeing this new field grow into a successful and integral part of the graduate program.

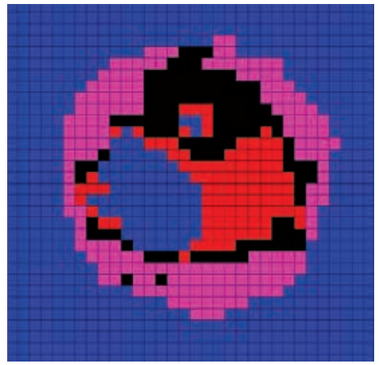
There are plans in the works for a number of other graduate program modifications and additions—so stay tuned!

New Applied Statistics Specialist Program

The program in applied statistics is designed to train students to meet that demand. This design has two fundamental features. One involves the acquisition of advanced expertise in statistical reasoning, methods and computation. The other is a clearly defined, and prescribed, concentration in another discipline that permits the student to become conversant in that discipline to the extent that they can effectively collaborate. The successful student will acquire enhanced skills in communication, consultation and collaboration. The program is e accessible to students in the sciences, social sciences, and other disciplines where specialized expertise in quantitative methods is an asset.

The applied statistics specialist program focuses on scientific problem solving and the collaborative nature of statistical practice. It aligns with new directions in statistical education that emphasize modern demands of the discipline through the application of statistical reasoning to important current problems in other areas.

As such it provides outstanding scientific training for work in collaborative research, and preparation for post-graduate work in statistics, biostatistics, or the concentration discipline where the students' quantitative expertise will prepare them to make potentially unique contributions. Professional accreditation of statisticians is gaining worldwide prominence with accreditation programs in Canada, Australia, the United Kingdom, the United States, and some European countries. Graduates from this program will be prepared for a professional career in statistical practice and will be eligible to apply for the Associate Statistician designation from the **Statistical Society of Canada**. This program meets a need for developing statistical scientists who are prepared for both careers in industry and collaborative research. Currently, through collaborations with other units within the Faculty of Arts and Science, concentrations have been defined for: Astronomy and Astrophysics, Cognitive Psychology, Ecology and Evolutionary Biology, Genes Genetics and Biotechnology, Global Health, Health Studies, Health and Disease, Human Biology, Social Psychology. Active collaborations to add further concentrations continue apace.



Sebastian Jaimungal, Associate Professor, Department of Statistical Sciences

New Faculty: Ruslan Salakhutdinov

Ruslan Salakhutdinov received his PhD in computer science from the University of Toronto in 2009. After spending two post-doctoral years at the Massachusetts Institute of Technology Artificial Intelligence Lab, he joined the University of Toronto as an Assistant Professor in the Department of Statistical Sciences.

Dr. Salakhutdinov's research field is Statistical Machine Learning.

Machine Learning, a broad subfield of Artificial Intelligence (AI), is the study of algorithms that allow computers to efficiently process and automatically discover structure from high-dimensional data using computational and statistical methods. Numerous applications include visual object recognition, language understanding, speech recognition, information retrieval, anomaly detection, and time series analysis.

In recent years, there has been a massive increase in both computational power and the amount of data available from web, video cameras, high-throughput genomic sequencing technologies, and various laboratory measurements. Building statistical models that can efficiently process and automatically discover meaningful representations from these data, should lead to many new scientific discoveries. New advances in machine learning will have a far-reaching impact on many research areas. For example, they can help neuroscientists analyze high-dimensional fMRI brain imaging data, or improve product recommendation systems of companies like Amazon.

Dr. Salakhutdinov's main scientific interest is to understand the computational and statistical principles required for discovering structure in large amounts of data. His research focuses on developing large-scale hierarchical models that support inferences at multiple levels. This class of models provides a powerful tool for defining flexible probability distributions over high-dimensional data, and allows us to build rich probabilistic models that can automatically discover semantic regularities, structured relations, or invariances from large volumes of high-dimensional data.

Many existing machine learning systems today are fundamentally limited in their ability to learn complex structural relations from high-dimensional input. Dr. Salakhutdinov's research aims to develop rich probabilistic models that are multi-functional, contain multiple levels of abstraction, capable of extracting higher-order knowledge from high-dimensional data, and successfully transfer acquired knowledge to learning new tasks. These models hold great promise for making a big impact on many research areas, including computational biology, neuroscience, medical diagnosis, computer vision, data mining, and robotics.

Dr. Salakhutdinov's published over two dozen research papers, including a highly cited paper in Science. He is the recipient of the Early Researcher Award, Connaught New Researcher Award, and a Scholar of the Canadian Institute for Advanced Research.

Reports

Actuarial Science Program Update

By: Professor Sam Broverman

There have been a couple of notable events that have occurred in the actuarial science program in the past academic year. One is the introduction of an important new course in the program, and the other is the Canadian Institute of Actuaries accreditation of the program.

The Faculty of Arts and Science awarded the Department of Statistical Sciences a CRIF (Curriculum Renewal Initiave Fund) grant to fund the new course "Issues In Actuarial Proactice" for 2011-12 and the 2012-12 academic years. This course has designed to be taught by practising actuaries has two main objectives. One of the objectives is to introduce students to issues that are of current importance to practising actuaries via a case study approach. The other objective is to provide students with the opportunity to hone their communication skills. Actuaries on the actuarial program's Industry Advisory Board have, in recent years, identified competence in communication as the single most important skill in need of improvement in entry level actuaries. The evaluations given by both students and faculty at the conclusion of the course have indicated that the course has been very successful in meeting those objectives. The course will be offered again in 2012-13 and it is planned that the course will become a required course for all students in the actuarial specialist program starting in 2013-14

A couple of years ago the Canadian Institute of Actuaries (CIA) began planning a process by which actuarial science programs at Canadian universities could become "accredited programs". One of the main objectives of this process was to provide students in accredited programs an alterante way in which to meet professional requirements needed to attain the professional actuarial credential. Traditionally, students in North America would take professional actuarial exams as part of the path to the actuarial credential. Students in CIA accredited programs will be given equivalent credit for certain exams if they attain certain minimum grades in associated courses. University programs wanting to be considered for accreditation had to high standards set by the CIA in areas such as the number, experience and quality of faculty members in the program, the and the content of courses. As one of the leading programs both in education and research, the U of T actuarial program qualified for accreditation from the CIA. There will be an ongoing review of programs to ensure that they continue to meet the requirements set by the CIA. There is a bit ofcontroversy regarding accreditaton in wider actuarial community. The umbrella organization representing actuaries in North America is the Society of Actuaries (SOA), which administers the professional examination system. For the time being, the SOA will not be recognizing the "credits" obtained by students under the CIA accreditation program. This difference between the CIA and SOA will likely be resolved over the next few years.

The actuarial program continues to be veryhealthy and strong in terms of the number and quality of students. There is a continuing demand from students for graduate level education in actuarial science, and there is a need for additional tenure stream faculty to allow for the teaching of graduate level courses.

The student actuarial club has been very active over the past several years. Some of the club's activities have included organizing courses in EXCEL, inviting occasional speakers to talk about various areas of actuarial practice, the development of a mentorship program which matches recent grads who are now working as actuaries with current students, as well as various social activities.

In the photo L-R:
Maria Zou
Fiona Feng
Han Zhao
Mody Wang
Lydia Sui
Peter Qiang

LONG RANGE PLANNING IN MATHEMATICS AND STATISTICAL SCIENCES REPORT

By: Professor Nancy Reid

In June 2010 NSERC requested that the mathematical and statistical sciences community prepare a long range plan (LRP) for a five- to ten-year horizon. A steering committee for the LRP was established, chaired by Nancy Reid. The committee has been working hard since then, consulting with the mathematical and statistical sciences research communities, holding regular weekend meetings, and monthly teleconference calls. In May 2012 a consultation draft of the plan was released, and the committee is now working on the final version, to be published in fall, 2012.

This is the first such research planning document prepared for the mathematical and statistical sciences jointly. The plan discusses issues around Discovery Grant funding and support of graduate students and postdoctoral fellows, the Canadian Mathematical Sciences Institutes, and the Banff International Research Station. It includes discussion of proposals for a Canadian Statistical Institute and for the Mprime network in support of research partnerships between the mathematical and statistical sciences and government and industry.

Committee members at a weekend meeting in Montreal in January, 2012. *In the photo L-R:* **Ed Bierstone,** Director, Fields Institute for Research in the Mathematical Sciences. **Niky Kamran**, James McGill Professor, McGill **Nancy Reid**, U of Toronto, **Alejandro Adem**, Director, Pacific Institute for the Mathematical Sciences, **Charmaine Dean**, Dean of Science, Western University, **Mark Lewis**, Canada Research Chair, U Alberta, **Christian Genest**, Canada Research Chair, McGill. *Not present:* **Eddy Campbell**, President, U New Brunswick; **Gail Ivanoff,** NSERC Group Chair (ex-officio); **Rachel Kuske,** Canada Research Chair, UBC; **Anne-Marie Thompson**, Director of Physical and Mathematical Sciences, NSERC (ex-officio).

Actuarial Science Industry Advisory Board

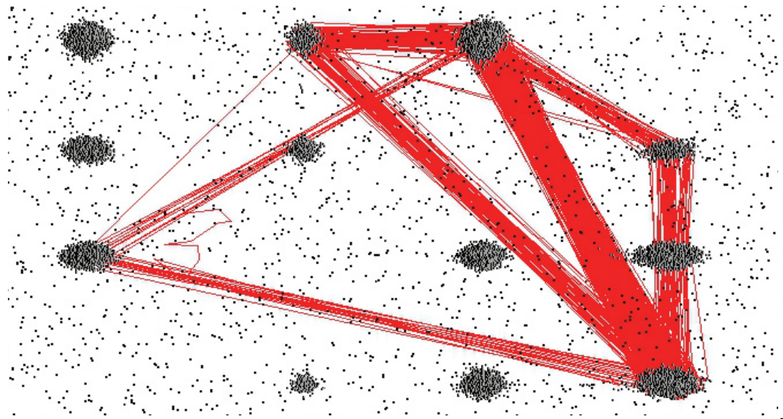
The U of T actuarial science program has a an Industry Advisory Board for almost 20 years.

The Board consists of the department chair, the faculty members in the actuarial program and anywhere from eight to ten practising actuaries from Toronto area companies. Most of the industry members are U of T alumni.

The Board meets once or twice per year to discuss issues of importance to the program. These issues include course content, and more gneerally preparation for students to enter in the actuarial profession.
The meetings have provided a forum for lively discussion and some excellent suggestions regarding enhancements to the program. Several of the courses offered in the program have been developed and implemented as a result of a need that becam apparent throughmeeting discussions. This is true for at least three of the courses in the current actuarial program. The most recent of these courses, "Issues In Actuarial Practice" is discussed in another article in this newsletter.

The Industry Advisory Board has played a very important and useful part of the ongoing maintenance and development for the program. The Department of Statistical Sciences is very grateful to the board members for their willingness to take the time and effort to participate in the Board meetings.

Radu Craiu
Associate Professor
Department of Statistical Sciences



Graduate Student Research Day 2012

Models for Dependent Data

Report by: Cody Severinski, President, Statistics Graduate Student Union, Co-Chair, Research Day 2012 PhD Student, University of Toronto

BACKGROUND

Statistics Graduate Student Research Day is an annual event hosted by the Department of Statistical Sciences and the Statistics Graduate Student Union. The event was created to provide a venue for students and faulty to present their research to department members, members of the university community, research figures in Canada, and international figures. The day included keynote addresses, graduate student presentations, and a panel discussion.

Graduate Student Research Day 2012 was hosted by the Statistics Graduate Student Union and the Department of Statistical Sciences on April 19, 2012 by the Fields Institute. The theme was Models for Dependent Data. In parallel to the increase in data collection, technological progress in the last 20 years have allowed inference to be performed on increasingly complicated models. Assumptions that used to be common in statistics, such as independence, are becoming less common as technology allows for inference in models that better capture dependence in the data. Research Day 2012 explored some of these models, and how they are applied to several fields.

The invited keynote speakers were well recognized international speakers:

- Michael Jordan: Professor, Department of Electrical Engineering and Computer Sciences & Department of Statistics, University of California, Berkeley
- David Dunson: Professor, Department of Statistics, Duke University
- Marina Meila: Associate Professor, Department of Statistical Sciences, University of Washington

Presentations were made by students and postdoctoral fellows both internal and external to the department:

- Andriy Derkach: PhD Candidate, Department of Statistical Sciences, University of Toronto
- Nitish Srivastava: MSc Student, Department of Computer Science, University of Toronto
- Paul Nguyen: Postdoctoral Fellow, Dalla Lana School of Public Health, University of Toronto and Cancer Care Ontario

There were approximately 50 individuals attending. The cross-disciplinary nature of Statistics was reflected by a strong participation from the Department of Computer Science.

DAY OVERVIEW

Morning - Fields Institute, 222 College Street

The morning started with a keynote address by Professor Michael Jordan with a talk which focused on two connected themes:

- The "bag of little bootstraps", a new computationally scalable boot strap procedure;
- Divide-and-conquer strategies for matrix completion, related to a recent NIPS paper.

The talk was a good opening to the day. He began by explicitly highlighting the crucial need for statistical methods to meet real-world demands through his personal experiences: statisticians may have a "great new method", but can it run efficiently on a petabyte of data? He then moved to a more theoretical focus, discussing the two themes above.

This speech was followed by a student presentation by Andriy Derkach on Robust Association Tests for Rare Genetic Variants. He presented his current work on hybrid test statistics for rare variants that borrow strength from two classes of tests using Fisher's method and the minimal p-value approach of combining p-values from the complementary linear and quadratic tests.

The morning continued with a second keynote address by Professor Marina Meila, who discussed statistical models for user preferences. While her talk involved estimation of a general parametric model, her presentation was well grounded in several real examples of modeling ranked preferences, including voter preferences and boosting of search engines.

We closed the morning with a second student presentation by Nitish Srivastava on a deep belief network for learning joint features over multimodal data. Easily interpretable experimental results were presented using the MIR Flickr dataset, where the "joint features" were tagged images (image features and tags). It should be noted that this talk built on a similar talk he gave in the Machine Learning seminar series on March 15, allowing him to present new results following feedback in that seminar.

Afternoon - Bahen Centre, Room 1170

The afternoon began with a presentation by Paul Nguyen on mapping cancer risk in portions of Ontario. He presented the background of his statistical model and inference methods, placing it in the context of the Lambton and Middlesex counties in Ontario.

Professor David Dunson followed with his talk on Nonparametric Bayesian Learning from Big Data. He outlined the problems of the "large p, small n paradigm", and reviewed current work on nonparametric Bayesian models that favour low-dimensional representations.

The event closed with a panel discussion involving the three keynote speakers and two professors from the University of Toronto Department of Statistical Sciences:

- Jeffrey Rosenthal: Professor, Department of Statistical Sciences, University of Toronto
- Alison Gibbs: Teaching-Stream Faculty, Department of Statistical Sciences, University of Toronto

I would like to note that Professor Gibbs was solicited for involvement as she is actively involved in both teaching and consulting, contrasting well with the research of the other panelists. In particular, her consulting work compensated for the lack of an industry panelist this year.

The panel focused on three main topics:

- Adapting the graduate curriculum to meet current demands in industry and academia;
- The apparent advantage of a PhD from a well known / "top" school;
- The distinction between Machine Learning and Statistics.

These three topics sparked active involvement from both panelists and the audience. Professor Gibbs had much input on the the topic of graduate curriculum, emphasizing the importance of breadth and being involved in more than just research. All panelists had much to say in regards to the importance of a school's "name" / "reputation" for future career options, placing it in the context of all other factors (advisor letters, CV, journal publications, industry experience, etc). Professor Jordan brought us full circle by fleshing out his earlier comment on large data inference problems, suggesting that graduate students acquire training and experience with parallel computing tools such as MapReduce. Apparently this is part of the "divide" between Statistics and Computer Science in the information age: many computer science students were in the room and most (perhaps all) knew about MapReduce; only one from Statistics knew it existed.

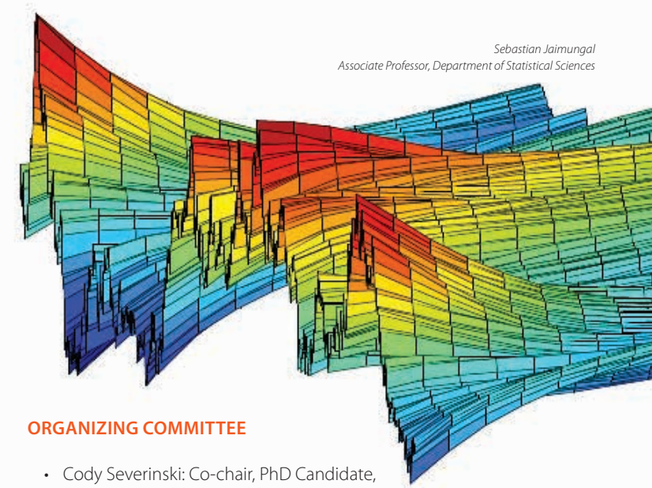
Probably the most active topic was the final one, which focused on the distinction between Machine Learning and Statistics. For this topic, it was invaluable to have panelists from a diverse background (engineering, statistics, consulting, etc) who would naturally have different perspectives. It was the general consensus that the distinction, if any, was sociological, and not in methods or techniques. A quote from Professor Jordan, paraphrased below, illustrated this with good humour: *The optimist is the Computer Science student: try things. The Statistician is the pessimist... H_0: do nothing... be careful.*

CONCLUSION

Overall, the event was a huge success and an important academic and social event for all those who participated. It had heavy participation from neighbouring disciplines (public health, computer science) and attracted visitors from neighbouring universities (ex: University of Waterloo). In particular, students benefited greatly as they were able to exchange ideas and have direct interaction with top researchers in the field and establish connections for future collaborations. I personally encouraged the three keynote speakers to consider collaborative ventures with department members in a "thank you" email sent after the event.

Statistics Graduate Student Research Day 2012 was supported and funded by:

- The Statistics Graduate Student Union,
- The Department of Statistical Sciences at the University of Toronto,
- The Fields Institute



Sebastian Jaimungal
Associate Professor, Department of Statistical Sciences

ORGANIZING COMMITTEE

- Cody Severinski: Co-chair, PhD Candidate, Department of Statistical Sciences
- Ramya Thinniyam: Co-chair, PhD Candidate, Department of Statistical Sciences
- Avideh Sabeti: PhD Candidate, Department of Statistical Sciences
- Ximing Xu: PhD Candidate, Department of Statistical Sciences
- Andriy Derkach: PhD Candidate, Department of Statistical Sciences
- Chunyi Wang: PhD Candidate, Department of Statistical Sciences
- Ruslan Salakhutdinov: Assistant Professor, Department of Statistical Sciences
- Zhou Zhou: Assistant Professor, Department of Statistical Sciences

"Students benefited greatly as they were able to exchange ideas and have direct interaction with top researchers in the field."

Participants in Graduate Student Research day

WITH ADDITIONAL THANKS TO:

- Professor James Stafford: Chair, Department of Statistical Sciences
- Christine Bulguryemez: Assistant to the Chair, Department of Statistical Sciences
- Edwin Lei: Secretary, Statistics Graduate Student Union, Department of Statistics
- Alison Conway: Manager of Scientific Programs, Fields Institute
- Claire Dunlop: General Scientific Program Coordinator, Fields Institute
- Andrea Yeomans: Communications Officer, Fields Institute

Alumni Profile: Dr. Samuel Hikspoors, PhD (2008)

Sam began his academic studies as an undergraduate in Mathematics & Physics at the Université de Montréal and then obtained an MSc in Mathematics at the University of British Columbia. He then made a career change and completed our MSc program in Statistics with distinction and moved on to our PhD program. For his dissertation, Sam focused on Mathematical Finance where he developed financial models and extended singular perturbation methods for application to commodity futures and derivatives. Prior to graduation, Sam worked as a Financial Engineer intern at TD Securities, had two major publications under his belt and completed the PhD program within 3 years of starting. He was presented with the Department's PhD award for his innovative work, his dedication to research and his share intellectual prowess. On top of all of this, Sam was a pleasure to have around and added much to camaraderie within the Department – both within the student body and between the student body and faculty.

After graduation, Sam decided to take the industrial route (for now!) and from 2008-2010 worked as a Quant Researcher at CPPIB in Toronto on algorithmic trading and low frequency trading strategies. He then moved to Austin, Texas in 2010 and took up a position as Quant Researcher at RGM Advisors (one of the top hedge funds in the world) where he now develops High Frequency Trading strategies.

The department is extremely proud of Sam and we look forward to seeing his career continue to blossom. We had a chance to (virutally) chat with Sam for a short Q & A. Here's the correspondence...

What motivated you to excel at graduate work?

I felt it was a great opportunity to dig into deep quantitative topics and develop original research ideas; grad school offers boundless opportunity to do creative intellectual work. Also, I've always been motivated by intellectual challenges in general, so aiming at doing good academic work felt like a natural ambition for me.

How has your PhD research equipped you for work in the real world?

Developing a pragmatic sense for which research problems are worth your time is crucial (in academia or anywhere else); I very much improved those practical skills during my graduate studies and it served me well since then.

What advice would you give our current graduate MSc and PhD students?

Be proactive - research is an entrepreneurial activity; it typically requires a lot of exploration, readings and excursions off the beaten roads.

What is one of your fondest memory of your time at U. Toronto?

Collaboration with my supervisor! Hanging out with other grad students... I used to organize a lot of "social pub evenings" back then, a good opportunity to relax, talk with other grads and share a few drinks; good times!

What do you do for fun?

I play, train and compete at tennis; I used to do the same at 9-ball, table tennis and other sports as well... but I do not have enough time to train at more than one activity these days. I like to read when time allows. I always appreciate a good pint with friends.

Statistical Collaborations

Initiatives in Curriculum Renewal

by Jamie Stafford

Several faculty have been successful in creating new innovative courses in the Department through successful applications to the Arts and Science Curriculum Renewal Initiatives Fund (CRIF). Ensuring the best possible quality of academic experience for our students is the highest single priority in the Faculty of Arts & Science. To this end, the Faculty of Arts & Science created CRIF as an opportunity for academic units to pilot, begin, or improve and solidify curricular innovations to enhance the learning experience of our undergraduate students. The Department has had three successful CRIF applications.

Statistical Consultation, Collaboration and Communication This fourth year capstone course aligns with new directions in both statistics education and the discipline. By its nature, statistics is collaborative, motivated by the need to develop new methods in the context of pressing scientific problems, including problems arising as a result of the proliferation of data generated by new technologies. Recent research in statistics education emphasizes the need to immerse students in the process of statistical reasoning and engage them in real, collaborative projects.

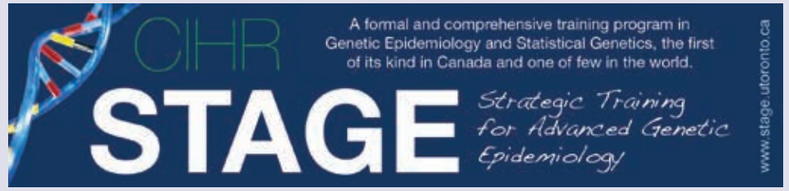
Issues in Actuarial Practice Effective communication skills are a critical part of professional Actuarial life. Actuaries must often prepare written reports and deliver presentations, on highly technical material, to co-workers and clients in an easy to digest manner. U of T's Actuarial Science Industry Advisory Board, which consists of eight senior practicing Actuaries, has identified this skill set as a weakness in university graduates. They are not aware of any university program that explicitly addresses these essential skills in a targeted manner as this course does.

Why Numbers Matter This new second-year Statistics course is designed to teach non-science students about the importance of Quantitative Reasoning to so many different areas (poetry, gambling, politics, music, medicine, cryptography, finance, sports, demographics, and more).

Quantitative Reasoning (QR) has never been more important for multidisciplinary research, handling modern technology, following news reports, and being a productive and responsible citizen. The Faculty of Arts & Science has recognized this fact by making QR a core competency to be addressed in all undergraduate programs. It is our hope that students taking this new course will gain new technical knowledge and understanding, and also fundamentally change their attitudes about numerical matters – becoming better-rounded and more productive citizens throughout their lives.

STAGE

The Department partners with a CIHR program for Strategic Training in Advanced Genetic Epidemiology. STAGE is designed to train individuals at the interface of genetics and population health sciences in genetic epidemiology and statistical genetics—two disciplines currently facing a massive shortage of qualified individuals in Canada and elsewhere.



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ANDREI BADESCU

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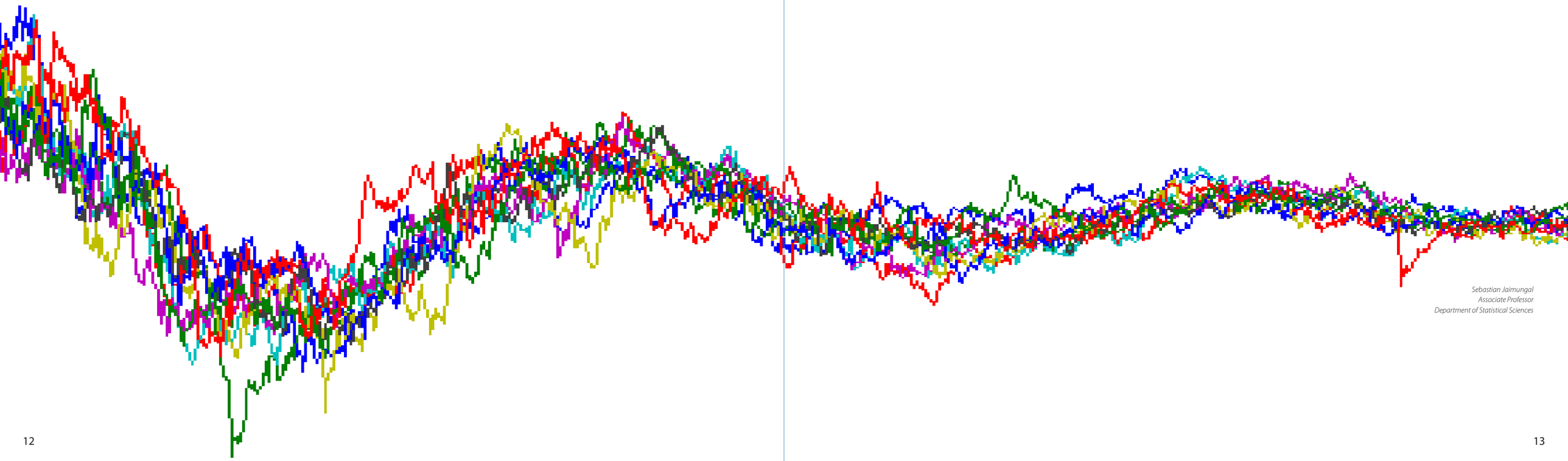

Staff News *by Angela Fleury*

The staff at the Department of Statistical Sciences have seen a few changes over the past year. We welcomed our new Office Assistant Annette Courtemanche in June 2012. Annette has come to us from OISE/UT and the Munk School of Global Affairs and is the tireless, problem solver extrordinaire whose smiling face greets everyone who comes to the front office.

Christine Bulguryemez, Assistant to the Chair and Financial office assistant, went on leave in July 2011 and had a baby girl on August 7 named Lauren Bulguryemez. Congratulations to Christine and her family!

We welcomed Carolyn Brioux this summer to fill in for Christine and she had to hit the ground running for September and hasn't stopped since! She has been tireless with her organizational abilities, which are always in demand. Carolyn has come to us from the Dean's office at Arts and Science and OISE/UT.

Andrea Carter continues to shine in her role as Undergraduate and Graduate Administrator. Students, staff and faculty all rely on her vast knowledge of things well beyond her position and her willingness to jump in and help anyone who needs it.

Laurel Duquette continues to engage with all kinds of interesting projects as the staff member of the Statistical Consulting Service. Most notably this year were a project on the probability of Falling Glass panels and a project to quantify damages from a large warehouse fire.

Dermot Whelan continues to keep us all connected and bring new ideas to technological and server issues for staff and faculty. No one at Statistical Sciences could manage the work they do without him!

In the photo L-R: **Christine Bulguryemez, Andrea Carter, Angela Fleury, Annette Courtemanche, Dermot Whelan**
Missing: **Carolyn Brioux and Laurel Duquette**

Sebastian Jaimungal
Associate Professor
Department of Statistical Sciences

Department of Statistical Sciences Seminars 2011-12

September 22, 2011
Speaker: Gareth Roberts University of Warwick
Retrospective simulation
Host: JR

September 29, 2011
Speaker: Rob Deardon University of Guelph
Efficient forms of individual-level models for large-scale spatial infectious disease systems
Host: RC

October 13, 2011
Speaker: Wenguang Sun University of Southern California
Large-Scale Multiple Testing Under Dependence and Beyond
Host: ZZ

October 20, 2011
New TA Training

October 27, 2011
Speaker: Jiahua Chen University of British Columbia
Properties of the Adjusted Empirical Likelihood
Host: SL

November 3, 2011
Speaker: Paul McNicholas University of Guelph
Non-Gaussian model-based clustering and classification
Host: NR

November 10, 2011
Speaker: Zhibiao Zhao Penn State University
Efficient Regressions via Optimally Combining Quantile Information
Host: ZZ

November 17, 2011
Speaker: Jan Hannig UNC Chapel Hill
On Generalized Fiducial Inference
Host: NR

November 24, 2011
Speaker: Graduate Student Seminar
Detecting Pleiotropic Effect via Bayesian Latent Variable ModelingA general statistical framework for analyzing rare variantsSurvey Design and Data Analysis with Embedded Experiments
Host: KK

December 8, 2011
Speaker: Chris Wild University of Auckland
Visualising randomisation and the bootstrap
Host: AG

January 19, 2012
Speaker: Xiao-Li Meng Harvard University
Statistical Education and Educating Statisticians: Producing wine connoisseurs and master winemakers
Host: AG

January 20, 2012
(2:30-4:00 p.m. SS1073)
Speaker: Xiao-Li Meng Harvard University
The kick is in the residual (augmentation)!
Host: AG

January 26, 2012
Speaker: Mu Zhu University of Waterloo
Ensemble Learning: Classification and Variable Selection
Host: RC

February 9, 2012
Speaker: Xiaoping Shi, Department of Statistical Sciences
A novel and fast methodology for simultaneous multiple structural break estimation and variable selection for nonstationary time series models
Location: SS1069
Host: NR

February 16, 2012
Speaker: Alex Bloemendal
Location: SS1069
Host: BV

March 1, 2012
Speaker: Hanna Jankovski York University
Asymptotics of the discrete log-concave maximum likelihood estimator
Host: RC

March 15, 2012
Speaker: Yongtao Guan, University of Miami
Optimal intensity estimation of the intensity function of an inhomogeneous spatial point process
Host: ZZ

March 22, 2012
Seminars will begin at 3:10pm sharp!
Graduate Student Seminars
Speakers:
Edwin Lei, PhD candidate, year 2
Jason Ricci, PhD candidate, year 2
Zeynep Baskurt, PhD candidate, year 4
Alex Shestopalo
ff, PhD candidate, year 4
Avideh Sabeti, PhD candidate, year 4
Ramya Thinniyam, PhD candidate, year 4
Chunyi Wang, PhD candidate, year 4
Ximing Xu, PhD candidate, year 4
Host: SJ

March 29, 2012
Speaker: Pengfei Li University of Waterloo
Hypothesis testing in finite mixture models: from the likelihood ratio test to EM-Test
Host: FY

April 5, 2012
Speaker: Zhibiao Zhao Penn State
Host: ZZ

The University of Toronto Statistics Club

The club aims to broaden students' understanding and importance of statistics in our everyday lives, while, at the same ...time, helping statistics to grow in popularity at firstly at this institution. Statistics tends to be an assistant to a vast majority of fields of study, with most taking the courses because of other program requirements. We will provide students with opportunities to meet with fellow colleagues that share common interest, and to learn from each other and communicate different ideas. PHD Students will also be available at certain times to hold discussions with numerous students. Interactive seminars given by PHD students, professors, and career specialists on different topics, ranging from career possibilities to intriguing topics such as "Do cars with bigger engines really use more gas?" will be given in an attempt to build a community-like environment for affiliated members. The club will always strive to build and maintain a professional relationship with departments both inside and outside of the University."

Executives for 2012-2013 Academic Year:
Di Wang: *President*
Shiva Ashta: *VP Membership*
JiYeon Seok: *Marketing Director*
Faizan Mohsin: *VP Public Relations*
Dennis Luo: *Executive Assistant*
Haseong Kim: *Executive Assistant*
Xuefei Hou: *Executive Assistant*
Kateryna Bryukhanova: *Executive Assistant*
Nadia Muhe: *Treasurer*
Jinhyung Lee: *Webmaster*

In the photo L-R: Haseong Kim, Xuefei Hou, Kateryna Bryukhanova, Di Wang, Shiva Ashta, JiYeon Seok, Dennis Luo

On October 20, 2010 the Department of Statistical Sciences at the University of Toronto marked World Statistics Day with the Public Lecture "Statistics in the Headlines" by Professor Jeffrey Rosenthal. World Statistics Day is a U.N. sponsored event to "acknowledge and celebrate the role of statistics in the social and economic development of our societies" – *Ban Ki-Moon, Secretary General.*

PUBLIC LECTURES

On the Causes of Effects

STEPHEN E. FIENBERG PROFESSOR

DEPARTMENT OF STATISTICS, MACHINE LEARNING DEPARTMENT, HEINZ COLLEGE, AND CYLAB, CARNEGIE MELLON UNIVERSITY

JANUARY 21 @ 4:00pm

Uncertain Weather, Uncertain Climate

DOUG NYCHKA DIRECTOR

INSTITUTE FOR MATHEMATICS APPLIED TO GEOSCIENCES NATIONAL CENTER FOR ATMOSPHERIC RESEARCH UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH

MARCH 7 @ 12:00pm

Hot Enough for You? Uncertainty Quantification for Regional Climate Projections in North America

NOEL A. CRESSIE PROFESSOR

DEPARTMENT OF STATISTICS THE OHIO STATE UNIVERSITY

APRIL 1 @ 4:00pm

Statistics: the new sexy?

ROB TIBSHIRANI PROFESSOR

DEPARTMENTS OF STATISTICS AND HEALTH RESEARCH AND POLICY STANFORD UNIVERSITY

SEPTEMBER 12 @ TBA

Computationally Intensive Biology Problems

ROBERT GENTLEMAN SENIOR DIRECTOR

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY GENENTECH, INC.

October 10 @ TBA

Smart Use of Smartphones and other Mobile Devices to Improve Health

SUSAN MURPHY PROFESSOR

H.E. ROBBINS PROFESSOR OF STATISTICS AND PROFESSOR OF PSYCHIATRY, RESEARCH PROFESSOR, INSTITUTE FOR SOCIAL RESEARCH, UNIVERSITY OF MICHIGAN

NOVEMBER 21 @ TBA

For more information about this lecture series visit our website **www.utstat.utoronto.ca**

Statistical Sciences
UNIVERSITY OF TORONTO

International year of 2013 Statistics