After serving as Department Chair for five years, Jamie Stafford is taking a well-deserved Administrative Leave this year. As the Acting Chair and someone who was unfamiliar with the job, I am grateful to all the faculty and staff for helping me keep the department running smoothly.

I am pleased to report that since the publication of the last newsletter, there have been a number of exciting new developments and activities in the department. This year we welcome three outstanding faculty members: Lei Sun, Vicki Zhang and Nathan Taback. Lei was transferred from the School of Public Health; Vicki Zhang, a Fellow of the Society of Actuaries, brings a wealth of industrial experience to our actuarial science program and Nathan Taback comes to us from research at St. Michael’s Hospital and the Department of Biostatistics and Statistics at Harvard University. You can find their profiles in separate articles in this newsletter. Their presence greatly enhances the teaching and research of our department.

All of our faculty have continued to distinguish themselves in teaching and research, evidenced by the awards, course and program developments, and the publications listed in this newsletter as well as external grants. In addition to the NSERC individual discovery grants, many faculty members also received grants from different funding institutions including CANNSI (Radu Craiu), Google (Andrey Feuerverger and Russ Salakhutdinov), MITACS (Sebastian Jaimungal), CIHR (Lei Sun), SOA (Sheldon Lin), Sloan Foundation, Microsoft and Samsung (Russ Salakhutdinov), NSERC ACCELERATE (Fang Yao) and the Hospital for Sick Children Foundation (Lei Sun).

Our undergraduate programs in Statistical Science and Actuarial Science continue to attract a large number of students, as reported by the undergraduate chairs in this newsletter. We are fortunate to have many truly outstanding students who not only excelled in course work but also participate in many extra-curriculum activities.

Graduate students organized Student Research Day again in April, 2013. They hosted Yannet Interian (Google); Ji Zhu (University of Michigan, Ann Arbor) and David Hunter (Pennsylvania State University). Many thanks to the organizing committee of PhD students: Cody Severinski, Edwin Lei, Andriy Derkach and Jennifer Jinyoung Yang.

Throughout the year, the department participated in the celebration of the International Year of Statistics. We held six public lectures in statistics delivered by world renowned statisticians. The lectures were very well received with an audience of more than 200 people each. Several faculty members attended and presented at the 59th ISI World Statistics Congress in Hong Kong in August, a main event of the International Year of Statistics. Jamie will return this summer to serve another three year term as Department Chair. As my `acting’ career comes to the end, I would like to thank everyone for the support over the past year and I am looking forward to Jamie’s leadership for many years to come.
Jeffrey Rosenthal wins SSC Gold Medal

Professor Jeffrey Rosenthal received the 2013 Gold Medal of the Statistical Society of Canada. The award honours a person who has made outstanding contributions to statistics, or to probability, either to mathematical developments or in applied work.

Congratulations to Nancy Reid!

Professor Nancy Reid received the 2013 Distinguished Service Award of the Statistical Society of Canada. The award honours a person who contributed substantially and over a period of several years to the operation or welfare of the SSC.

RBC Next Great Innovator Challenge: Four undergrads and one MBA join forces for third-place finish

In a competition typically dominated by MBA candidates, a team of Arts & Science undergraduate students surprised everyone by winning third place.

This year, the first place went to a team of MBA students from U of T's Rotman School of Business, comprising Aneta Filičlak and Shehan De Silva of the evening MBA program, Leon Smith of the morning MBA program and Katie Wigmore of the full time MBA program. But the big surprise was the University of Toronto Enterprise Evolution team or UTEE.

Made up of four statistical sciences and one Rotman MBA student, the UTEE team prepared for the event with the help of the University of Toronto's Impact Centre. They were incredible, said Sergio Betancourt, a fourth-year statistics student. "They helped us formulate our solution, finalize our concept, and prepare for the final presentation. Without their mentorship, we wouldn't have made it."

This year, the teams were asked to suggest an innovative concept that would enable RBC to use big data to create a competitive advantage. "Our pitch involved analyzing RBC's customer segmentation structure and coming up with a new model to highlight important information," said Yiming Shao, also a fourth-year student and vice president of the U of T Statistical Sciences Association of Students. "Using data, we were able to identify clients with the greatest earning potential and likelihood of success." Shao learned of the contest at a campus recruiting event.

"I was very interested in this competition as it fit in perfectly with one of our statistics club's research projects. Most teams are formed in a class – and participation is mandatory – but we decided to enter on our own. We had the passion and the personal interest – and thanks to the Impact Centre, we got some great practice and advice."

The students walked away from the contest with a lot more than the $3000 prize. "We gained a deeper understanding of financial innovation and business analysis and made new contacts in the banking industry," said Yuhao Zhao, a third-year statistics student. "But most of all, we proved that we – a team of mostly undergraduates – can compete with the best MBA students from across Canada."

Other members of the team included Hatsumi Hirono, a Rotman MBA candidate and fellow statistics student, Haseong Kim, Christine Elias is a writer with the Faculty of Arts & Science at the University of Toronto.

Congratulations to Radu Craiu

Congratulations to Radu Craiu who has been promoted to Full Professor. His research has developed around a number of central themes in modern statistics with particular focus on practical impact, such as the development of efficient Markov chain Monte Carlo algorithms, copula models for dynamic dependence structures, Bayesian inference for statistical genetics and model selection for clustered data.

The Statistical Society of Canada established the Canadian Statistical Sciences Institute (CANSII) in November 2012, with Professor Mary Thompson of the University of Waterloo as its first director. Nancy Reid is one of five Associate Directors. The national virtual institute offers leadership and infrastructure to increase and develop statistical science research in Canada. It is part of the national network of mathematical sciences institutes, and applied to NSERC in fall 2013, as part of the Institutes’ submissions for ongoing funding; the funding decisions are anxiously awaited. In the meantime, it has established three Collaborative Research Team projects, to start April 1 2014, and appointed a Steering Committee to prepare a proposal to the Fields Institute for a thematic program in Big Data. The proposal submitted to the Fields Institute outlines an exciting series of workshop and training activities proposed for January to June 2015, with allied activity at the Pacific Institute for Mathematical Sciences (PIMS) and the Centre de Recherche Mathématiques (CRM). Themes to be address include inference for machine learning, deep learning, optimization, visualization, health policy, social policy, and environmental science, networks and security. The program promises to be a great opportunity to introduce students, postdoctoral fellows, and researchers to the broad scope of statistical ideas important for making progress with “Big Data.”

2013

Andrews Academic Achievement Award (Master’s) Vu Thien Huong Le, Evgeny Levi Department of Statistical Sciences Doctoral Award Andryi Derkach Department of Statistical Sciences Teaching Assistant Award Cristina Anton, Shivon Sue-Chee

Canadian Statistical Sciences Institute
The year 2013 marked my second year as Associate Chair of Graduate studies and I would not be able to perform my duties without the continual support and expertise of our wonderful, hardworking and talented staff. Andrea, Angela, Annette and Cristina. Similarly, I would like to extend my thanks to the graduate committee (Profs. Badescu, Craiu, Evans, Yao, and Zhou) who were invaluable in the admissions process, in award selections and in numerous other supporting roles.

This past year the Department of Statistical Sciences continued its expansion of graduate course offerings by introducing another five short research focused courses (in addition to the six we added in 2012). This is also the second year of our new field in Actuarial Science and Mathematical Finance which continues to be highly popular among incoming students.

In case you missed our last report, the purpose of the short six-week courses is to provide students with an introduction to the tools, methods, and theory that arise in our faculty’s research problems, but make them accessible to non-experts. This year we have introduced: Extreme Value Theory and Applications, Insurance Risk Models I & II, Non-Stationary Time Series Analysis and Topics in Likelihood Inference. The series of short courses continues to be popular among students, and, not surprisingly, they are attracting student interest from other Departments and Faculty as well.

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 continuing and prospective students for course work and supervision in this fast past, dynamic and continually growing field. The new field has specialized courses and comprehensive examination requirements, but statistics and probability is still at its core. I am excited to see that this new field is already growing into a successful and integral part of the graduate program.

Over the last year or so, the Department has been developing a new professional Masters in Finance and Insurance, which we will coin as the MFI program. Although final approvals have not been granted for this proposed program, we anticipate that we will begin accepting applications in October 2014 for admissions in September 2015. The new professional program is designed to fill the current gap in graduate training at the interface of finance and insurance with courses ranging over statistical methods, financial and insurance modeling and computational techniques. As a professional program, there is a heavy emphasis on applications and real-world driven tools, techniques and problems and several of the courses will be taught by industry professionals. Stay tuned for more details on this new and exciting program that promises to push the DoSS into its next stage of growth.

I look forward to the coming year and wish you all a wonderful, productive and enjoyable summer.

Lei Sun

Lei Sun studied mathematics at Fudan University and obtained her PhD in statistics from University of Chicago in 2001. Since then, Dr. Sun has been a faculty member at the Division of Biostatistics at the Dalla Lana School of Public Health at the University of Toronto, and recently she joined the Department of Statistical Sciences.

Dr. Sun’s research area is in Statistical Genetics. The overall aim of her research program is to develop statistical methods and computational tools to solve problems arising from genetic studies of complex human traits.

Largely funded by NSERC and CIHR, Dr. Sun’s recent methodological work has focused on problems arising from data generated from high-throughput technologies. One of her major research interests is developing improved large-scale multiple hypothesis testing strategies such as the stratified false discovery rate (sFDR) control approach. Another broad topic of interest is developing robust association methods in various settings, including strategies for reducing model selection bias (also known as the winner’s curse), and generalized Kruskal-Wallis tests that incorporate group uncertainty when comparing k samples. Her more recent research interests include developing novel multivariate methods for joint analyses of multiple genetic variants and multiple trait phenotypes.

An important research component of Statistical Genetics is the implementation of developed and tested methodology as user-friendly and open-source software. Dr. Sun’s research program has developed multiple frequently used programs including PREST and sFDR. Another integral part of research in Statistical Genetics is cross-disciplinary collaborative work. Through collaboration with geneticists, clinicians as well as other statistical geneticists, Dr. Sun’s work has provided important insights into the mechanisms of cystic fibrosis and type 1 diabetes. Such collaboration in turn generates new analytical questions for the research program.

Dr. Sun has given numerous invited lectures at international conferences and research seminars, she has been a referee for over 15 international journals in multiple disciplines, and she is a member of the Editorial Board of Genetic Epidemiology.
Since the Great Depression, Ms. Zhang believes that public-minded actuaries, especially those who are able to see the big picture and understand the new regulations, will be in high demand. She successfully applied for a large course design grant from the Faculty of Arts and Science and will offer a capstone seminar course in insurance regulation from the 2014-2015 academic year. The course will focus on the key insurance regulatory responses following the most recent crisis, but will also include the larger historical background of the regulations since 1970s. Ms. Zhang understands that the modern insurance products and regulations can no longer be analyzed using pen and paper. She has acquired a teaching license for the leading actuarial software AXIS and will incorporate it in her teaching. Her teaching philosophy has an equally strong interest in the ‘early’ financial ethics education. She is hard at work writing materials for a first-year seminar that will explore difficult questions such as the role and philosophical underpinnings of the insurance sector, product-driven vs. principle-based regulations, and the future of insurance regulations. She hopes to employ dialogical approaches to stimulate intellectual debates and discussions among students, to cultivate their critical thinking skills and widen their horizon in their upcoming seminars.

“I need $2,000 to escape the mob by tonight, otherwise you’ll be killed. You have $1,000. Let’s you decide to play red at Roulette at the casino to get the money. What’s the best option?”

Statistics professor Jeffrey Rosenthal posed this scenario to his class of about 80 students in a classroom on the second floor of the Old Vic building. What are the best odds for making another $1,000! Bet it all or bet by small increments?

“You bet the entire $1,000 on the first spin,” he said, to laughter and sighs. “You have to be bold and get it all over with. The more bets you make, the more chances do you have of losing. Don’t drag it out. I still don’t recommend this, but it’s smarter than the other options.”

Rosenthal teaches a new statistics course on quantitative reasoning called Why Numbers Matter. It’s designed especially for humanities students who think they have no talent for mathematics or haven’t taken it since high school. Some take it to fulfill a breadth requirement, others because they know quantitative reasoning is a handy skill. Rosenthal uses examples from all over, including music, poetry, lottery, politics, sports and gambling. He’ll use a scene from Casablanca to discuss gambling or ask “who here owns music by the rapper Drake” when discussing representations in sample statistics.

“These topics are related to things students care about, but here they will think about the topics in a different way,” says Rosenthal. “And we’ll go through the topics and spend as long as it takes to make them clear and develop a series of different quantitative themes and perspectives.”

Rosenthal, who wrote the book Struck by Lightning: The Curious World of Probabilities, is frequently quoted on statistics and was even featured in a commercial this year on the odds of finding a golden key in a Caramilk bar. His Why Numbers Matter course was created through the Faculty of Arts & Science’s Curriculum Renewal Initiatives Fund which supports the development of new and innovative courses using hands-on learning approaches.

“This course is one of many new initiatives in the Faculty of Arts & Science designed to ensure that all students graduate with a set of key transferable skills that they can apply to every situation and that will ensure their success no matter what careers or roles they take on over a lifetime. These include the ability to critically evaluate information, as well as adaptability, strong communications skills, problem-solving and the ability to work alone or in groups,” says Rosenthal, dean of the Faculty of Arts & Science.

“Students have already told me it’s interesting and understandable,” Rosenthal says. “I hope that even if these students don’t take any more statistics or math classes in the future, they will have a little more of an open or curious mind. You can be a more informed citizen and understand things that come up in the newspaper and even make better daily life decisions by understanding statistics.”

In April 2013, Alison Gibbs and Jeffrey Rosenthal launched the university’s first statistics MOOC (Massive Open Online Course), offering a free introductory statistics class 60,000 students around the world via videos on the internet. The course is still available for viewing in archived form at www.coursera.org/course/introstats.

The course was taken by students from such diverse countries as Pakistan, Bangladesh, Australia, Delhi, Indonesia, Spain, Ecuador, Palestine, United States, Venezuela, Mexico, Chile, Tanzania, India, Puerto Rico, Dominican Republic, Ukraine, Germany, Korea, Arab, Hungary, Australia, Philippines, Israel, Jamaica, Canada, Scotland, England, Kazakhstan, Norway, Portugal, Malaysia, Belgium, and Slovenia. The students posted loads of positive comments in the online discussion forums, from “I’m impressed at how much work the professors and the TAs have put in” to “I learned sooo much from this class” to “I am TOTALLY LOVING THIS CLASS and the PROFESSIONALS! I am actually learning the subject matter, and I am impressed!”

For more student feedback, see www.probability.ca/ mooc-feedback.html.

The video lectures from the MOOC were then re-used by Alison in the fall 2013 semester, to turn two sections of STA 220 into “inverted classroom” rooms—in which the students first watched statistics lectures online at home, and then participated in interactive group activities during class time. Other novel teaching innovations are sure to follow.

Why Numbers Matter

By Jessica Lewis

Why Numbers Matter was designed to help students learn the power of statistics and how to use them in their daily lives.

Massive Open Online Course (MOOC)
Alumni Profile: Jennifer Umlauf, MSc (2008) and Chunyi Wang, PhD (2012)

Jennifer Umlauf grew up in Mississauga, and completed BSc and MSc degrees in statistics at the University of Toronto. We remember Jennifer well as an enthusiastic and involved student, who was not afraid to take on any challenge. Since completing her MSc she has worked in decision support for Halton Health Care Services, overseeing the management and analysis of hospital information including everything from human resources and budgets to bed planning. She has currently continuing her education, working part time on an MBA at McMaster University.

We asked Jennifer to tell us more about what she’s doing now and her time at the University of Toronto. Here is what she had to say.

Tell us more about what you’re doing now?

Jennifer said, “I started my career as a life-long student wanting to become a healthcare professional. As I ventured down this path, it became clear to me that I really enjoyed analytical work and the joy that comes with providing such expertise to various stakeholders. It was not long until I had my Associate Statistician (AStat) designation from the Statistical Society of Canada, and programming expertise, to support me on my journey.

What do you do for fun?

Quality management, and business administration in general, has recently become a passion of mine. When I am not working, you would probably find me focused on my MBA, which I am also very grateful for. I am a keen reader of various literature, and when I am not reading up on new and exciting data management processes, I am reading anything and everything from Marketing 101 to ‘the rules of management’ to ‘Eat that Frog!’.

What do you do for fun?

I play tennis 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.

What advice would you give our current students?

Enjoy being a student. Also, I found that getting direct consulting experience with clients, to support effective statistical communication in an easy to understand manner, to be helpful – may be you will too.

Chunyi Wang

Chunyi Wang was born in Qianan in Northeast China. He earned three degrees from the University of Toronto statistics department: BSc (2007), MSc (2008), and PhD (2012). During his time as a student in the department, he won several academic awards, helped organize the Statistics Student Research Day, and developed a reputation as an excellent teacher. Before he became a student at U of T, he worked as a computer software engineer in Beijing for 5 years. He has been working as a Data Scientist at Zillow in Seattle since October, 2012.

Here’s how Chunyi responded to our questions.

Why did you decide to study statistics?

I started my career as a Life-long student wanting, initially, like many, to become a healthcare professional. As I ventured down this path, it became clear to me that I really enjoyed analytical work and the joy that comes with providing such expertise to various stakeholders. It was not long until I had my Associate Statistician (AStat) designation from the Statistical Society of Canada, and programming expertise, to support me on my journey.

What do you do for fun?

Machine learning methodologies could be leveraged more here, I think, from my own experience, as well as simulation, to identify bottlenecks and capacity optimization, as well as continued use of risk adjustment models.

What is one of your fondest memories of your time at U of T?

It was June 2006 during the FIFA World Cup. I watched the first half of Italy vs Australia at home then went to school, watched the second half and the added time in Sidney Smith, then rushed to my final exam. It was the happiest exam ever for me since my team (Italy) won!

What advice would you give our current students?

Be prepared, and be proactive. The statistics profession has evolved tremendously. If you want to be a big data machine learning scientist, learn Python, parallel computing (perhaps Hadoop, etc). Getting an internship at a company like Amazon or Google also helps a lot.

What do you do for fun?

Travel. My wife and I will hop on a plane to fly somewhere else whenever we have a few days to spare. It becomes harder when you start a job as you get less time off, but we still try to travel as much as we can.

Chunyi Wang

Chunyi Wang received his BSc degree in mathematics and computing at the University of Science and Technology of China. He completed his MSc and PhD in statistics at the University of Toronto. His research interests include predictive modeling, data mining, and stochastic processes. He has been a data scientist at Zillow since 2012, and has contributed to various projects in the field of real estate data analysis.
By Joanne Lu (U of T SSAS Informations Director

Brianna Goldberg at Tim Hortons, Moxies, more

Applied graduate statistics class project looked at Tim Hortons, Moxies, more

Maybe it’s time to start brown-bagging it: one in four major Canadian chain restaurants has experienced a health violation according to new research from the University of Toronto showcased in an unsettling inves-
tigation by CBC Marketplace.

The study will be featured in “Canadian Restaurant Secrets” which aired Friday 11 April at 8pm ET on CBC Television.

It’s the largest analysis of its kind, said CBC Marketplace Associate Producer Nelisha Vellani – examining nearly 5,000 health inspection re-
ports from 13 popular restaurants including Swiss Chalet, Starbucks and The Keg in major cities across the country.

“At two million Canadians become ill after eating out every year, yet health inspection records can be hard to access and understand,” said Vellani. “Statisticians Michael Guertzhey and Nathan Taback at the University of Toronto were key to the success of this ground breaking in-
vestigation, which spanned many months. Their data analysis allowed us to crunch the numbers to find out how these restaurants rank when it comes to cleanliness and safety.”

Guertzhey pursued the work as part of a project in an applied statistics course led by Taback, which pairs students and their number-crunching
skills with real-world clients and practical applications.

“When the help of U of T, Canada’s Restaurant Secrets gave Canadians a new tool to make more informed choices when deciding where to eat out,” said Vellani. “The project has already spurred reaction, with one province making inspection records available for the first time and some restaurant chains promising to improve their records.”

Writer Brianna Goldberg spoke with statistical sciences lecturer Taback about the troubling restaurant data, the impact of statistics and what it’s like to have student work featured on a platform such as the CBC.

Tell us about the course that inspired this student project

The title of the course is “Statistical Consulting,” a graduate level course offered by the Department of Statistical Sciences. My primary aim is to mentor students during the academic year who are interested in applying statistical methodologies to problems encountered in areas such as med-
icine, public health, business and environmental sciences. One of my major goals is to foster students’ ability to communicate statistics to non-
statisticians.

Students usually come into the course with a theoretical knowledge
of statistics, with no experience applying that knowledge to tackle real
problems. During the course they meet with clients that have statistical
questions and problems, give many oral presentations to the class and
their lives?

What do you wish people knew about statistics’ role in public health, and their lives?

I wish people knew more about the role statistics plays in public health, including its limitations. A lot of public health policy is based on statistical evidence. Statistics is a powerful tool for developing arguments based on identifying trends such as the dirtiest restaurant chain in Canada. But all arguments, including ones based on statistics, have strengths and weak-
nesses. It seems that people have a more difficult time evaluating the
limitations of arguments based on statistical evidence compared to non-statistical arguments.

Originally published on U of T News http://news.utoronto.ca/cbc-show-exposing-health-abuses-major-chain-

Student Reports

Actuarial Science Club

Student Reports

Actuarial Science Club

As the year comes to an end, the Actuarial Science Club continued its tradition of pub nights and professional seminars in conjunc-
tion with Sun Life Financial. In addition to these events, two office visits to
Manulife Financial and Sun Life Financial were added to the clubs list of annual events. Students were able to network with actuaries in the field while seeing the actual work environ-
ment of an actuary. To conclude the successful semester, the club hosted its annual semi-formal at the One King West hotel on March 21st, 2014. The night of festivities was very well re-
ceived amongst students and faculty alike and was a fitting conclusion to a successful year. The Actuarial Science Club has continued to stand the test of time and will remain a symbol of community in the program for many years to come.

For more information please visit www.uofactsciclub.com
Facebook group: www.facebook.com/groups/utstatsclub/

Panel Discussion

During the 2013-2014 academic year, the University of Toronto Actuarial Science Club continued to host a vari-
ty of social and industry events for actuarial science students. The club
continued its tradition of pub nights and professional seminars in conjunc-
tion with Sun Life Financial. In addition to these events, two office visits to
Manulife Financial and Sun Life Financial were added to the clubs list of annual events. Students were able to network with actuaries in the field while seeing the actual work environ-
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Facebook group: www.facebook.com/groups/utstatsclub/
Statistics Graduate Student Research Day is an annual student-led event in the Department of Statistics, University of Toronto. The purpose of the event is to provide students with an opportunity to present their research work and share ideas with their fellow students, faculty, guests, and international stars. It is a chance for the entire department to collaborate and discuss the current methods and future directions of the field. The day includes keynote addresses, graduate student presentations, and a panel discussion.

Graduate Student Research Day 2013 was hosted by the Statistics Graduate Student Union and the Department of Statistics on April 18, 2013 at the Fields Institute. The theme was Statistics in Networks. The theme was selected as it ties statistics to many other fields, including computer science (social networks), biology (disease spread), and several others, supporting the goal of International Year of Statistics.

The invited keynote speakers were international leaders in the field: David Hunter: Professor, Department of Statistics, Pennsylvania State University
Ji Zhu: Professor, Department of Statistics, University of Michigan
Yannet Interian: Quantitative Analyst, Google Plus

Presentations were made by students and postdoctoral fellows both internal and external to the department:
- Raoul Normand: Postdoctoral Fellow, Department of Mathematics, University of Toronto
- Alex Shestopaloff: PhD Candidate, Department of Statistics, University of Toronto
- Shivon Sue-Chee: PhD Candidate, Department of Statistics, University of Toronto

There were about 50 attendees, ranging from students, faculty, and alumni from the University of Toronto and other North American universities.

The morning started with a keynote talk by Professor David Hunter discussing the current methods and future directions of the field. He introduced a continuous-time regression model that can encompass both time-varying and static models for large, time-varying networks. He discussed the current methods and future directions of the field. The day included a keynote address from Raoul Normand on Migration under constrained by the need to find new resources. The morning continued with a second keynote talk by Professor Ji Zhu who discussed on consistency of community detection in networks. He presented his current work on community detection under the degree-corrected block model. He closed the morning with a second student presentation by Alex Shestopaloff on inference for non-linear, non-Gaussian state space models with ensemble MCMC methods. A new Markov Chain Monte Carlo (MCMC) method for nonlinear state space models were introduced and applied to the Ricker model of population dynamics.

The afternoon began with a third student presentation by Shivon Sue-Chee on Semiparametric Functional Quantile Regression with high-dimensional covariates. She proposed functional quantile regression model that seeks alternative solution to least squares type procedures. Doctor Yannet Interian followed with her talk on Practical open problems on large scale social networks. She discussed practical issues facing companies in building a social network. She talked about ARB testing on a network, ranking of news feeds and friend suggestions.

The event closed with a panel discussion involving the three keynote speakers and two professors from the Department of Statistics, University of Toronto:
- Radu Craiu: Associate Professor, Department of Statistics, University of Toronto
- Radford Neal: Professor, Department of Statistics, University of Toronto

The panel focused on three main topics:
- Anonymity and Privacy
- The Impact of Big Data
- Computational Toolkits.

Panelists discussed the importance of protecting private information collected explicitly and implicitly through social networks and the responsibility of statisticians who frequently end up handling private information. They also talked about what Big Data means and its implications for statisticians. All panelists had much to say in regards to the importance of computing and they believed that computing training in Statistics degree program should not be a step behind in terms of interdisciplinary training. The panel discussion promoted interaction between the panelists as well as the audience and stimulated thought and the sharing of new ideas. It was an enjoyable way to end the day and left everyone with new perspectives to contemplate.

Overall, the Research Day 2013 was a huge success and an important academic and social event for all those who participated. 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.

Statistics Graduate Student Research Day 2013 was supported and funded by:
• The Statistics Graduate Student Union,
• The Department of Statistics at the University of Toronto,
• The Fields Institute
The academic year 2013-2014 was the transition year for the student club in Statistical Sciences Department. During the year, U of T SSAS (Statistical Sciences Association of Students) has established its foundation through renaming the club, getting recognized by both UTSU and ASSU, creating club’s logo and reconstructing its constitution, motto and infrastructure. U of T SSAS has expanded its role by launching 16 academic and practical programs, projects, competitions, seminars and annual events with great success. Through these, it promoted the participation and involvement of students that has benefited them academically, socially and practically. As a result, the general members of the club was increased by approximately 400% during the year.

U of T SSAS has attempted and successfully created professional relationships with several external organizations and departments. U of T SSAS co-hosted and organized various events with these parties for more networking and learning opportunities for associated students. We also have two programs for students: the Peer Mentorship Program and the Industrial Mentorship Program. In the Peer Mentorship Program, upper year Statistics students a.a. demically help the lower year students by giving the real-life advice and tips to maximize the learning at U of T. In the Industrial Mentorship Program, SSAS and the Alumni Office at U of T pairs student mentees with the industrial professional mentors who are alumni of U of T Statistical Science department. Mentors give the advice about career paths, share their experience, and make networks with students. U of T SSAS will continue to fulfill its mission to assist students and be the platform of the academics and professionals.

Role of the Student Club in Statistical Sciences Department.
- **SSAS Activities 2013-2014**

**Sep. 4 & 10** Clubs Fair & St. George Street Festival Event was held with the purpose of promoting the club to the incoming students for 2013-2014 year by giving them information about our club and the upcoming events of the year. We accepted new members at the booth.

**Sep. 27** SSAS Welcome Orientation The orientation was open to all students at U of T including club members. We started off by introducing our club and executive team, followed by an overview of the events planned for the year. Through this, students got an opportunity to learn about research opportunities and challenges held in our club and participate in the jeopardy game in a team.

**Sep. 30** Statistical Research Information Seminar To help both undergrad and graduate level students pursue research opportunities in the field of statistical sciences, UofT SSAS held a research seminar. We presented information about SAS Statistical Research Group at U of T which aims to connect students to the faculty of statistics in a variety of ways: by providing networking opportunities with professors and by offering opportunities for students to work on interdisciplinary research projects supervised directly by faculty members.

**Oct. 4** Robin Crash Course I (for Beginners) The purpose of this workshop was to provide students with a basic introduction to programming in R. The workshop was conducted by Dr. Lopoo, a lecturer at UT as well as the executives of UofT SSAS.

**Nov. 15- Dec. 6** SAS Professional Workshops An instructor from SAS program training firm taught the sessions. Students were provided the full SAS installed environment for each session. The materials being covered in the workshops are designed based on one of the official courses provided by SAS. Workshops included: Introduction to SAS, SAS Datasets, Variables and Data, Data Step, Procedures and Commonly Used SAS, Data Manipulation Techniques and Reporting

**Nov 29** STATA Exam Review for Charity An opportunity to do some good by supporting the research opportunities and challenges held in the SSAS. Students also had time to mingle with fellow students and participated in the jeopardy game in a team.

**Sep. 30** Statistical Research Information Seminar To help both undergrad and graduate level students pursue research opportunities in the field of statistical sciences, UofT SSAS held a research seminar. We presented information about SAS Statistical Research Group at U of T which aims to connect students to the faculty of statistics in a variety of ways: by providing networking opportunities with professors and by offering opportunities for students to work on interdisciplinary research projects supervised directly by faculty members.

**Oct. 4** Robin Crash Course I (for Beginners) The purpose of this workshop was to provide students with a basic introduction to programming in R. The workshop was conducted by Dr. Lopoo, a lecturer at UT as well as the executives of UofT SSAS.

**Nov. 15- Dec. 6** SAS Professional Workshops An instructor from SAS program training firm taught the sessions. Students were provided the full SAS installed environment for each session. The materials being covered in the workshops are designed based on one of the official courses provided by SAS. Workshops included: Introduction to SAS, SAS Datasets, Variables and Data, Data Step, Procedures and Commonly Used SAS, Data Manipulation Techniques and Reporting

**Nov 29** STATA Exam Review for Charity An opportunity to do some good by supporting the research opportunities and challenges held in the SSAS. Students also had time to mingle with fellow students and participated in the jeopardy game in a team.


**7. Are flexible premium variable annuities under-priced?**


**44. Chi, Y. and Lin, X.S. (2012). Are flexible premium variable annuities under-priced?**


NANCY REID

JEFFREY ROSENTHAL
Department of Statistical Sciences Seminars 2013-14

September 19, 2013
Speaker: Hongyuan Cao, University of Chicago
Topic: Analysis of Sparse Asynchronous Longitudinal Data
Host: ZZ

September 26, 2013
Speaker: Hua Liang, George Washington University
Topic: Generalized Additive Partial Linear Models With High-dimensional Covariates
Host: NR

October 3, 2013
Speaker: Tze Lu, Iowa State University
Topic: Functional Principal Component Analysis of Spatial-Temporal Plant Processes With Applications in Disease Surveillance
Host: FY

October 17, 2013
Speaker: Anne-Sophie Charest, Laval University
Topic: Statistical Disclosure Control and the Contributions of Differential Privacy
Host: JR

October 24, 2013
Speaker: Joel Dubin, University of Waterloo
Topic: Challenges in modeling longitudinal smoking cessation studies
Host: JR

November 7, 2013
Speaker: Josip Ciesielski, Carnegie Mellon University
Topic: Mapping the Intergalactic Medium using Lyman-alpha data
Host: JR

November 14, 2013
Speaker: Xiao-Li Meng, Harvard
Host: Field Institute

November 15, 2013
Speaker: Xiao-Li Meng, Harvard
Topic: Who’s crazier: Bayes or Fisher?
Host: Field Institute

November 28, 2013
Speaker: Graduate Student Seminars
Topic: Limit Order Books and Machine Learning
Host: Field Institute

January 16, 2014
Speaker: Rebecca Nugent, Carnegie-Mellon University
Topic: Solving the Identity Crisis: Large-Scale Clustering with Distributions of Distances with Applications in Record Linkage
Host: NR

January 22, 2014
Speaker: Ivo Van Horssen
Topic: Stochastic Processes
Host: FY

January 30, 2014
Speaker: Dr. Arash Amini, University of Auckland
Topic: Self-Exciting Event Data in Finance
Host: RC

February 11, 2014
Speaker: Dr. Arash Amini, University of Michigan
Topic: Predictive Likelihood Methods For Community Detection In Large Sparse Networks
Host: RC

February 13, 2014
Speaker: Dr. Daisuke Roy, University of Cambridge
Topic: Computational Foundations of Bayesian Inference and Probabilistic Programming
Host: RC

February 25, 2014
Speaker: Dr. Lizhen Lin, Duke University
Topic: Shape Constrained Regression Using Gaussian Process Projections
Host: PS

February 27, 2014
Speaker: Dr. Tamara Broderick, UC Berkeley
Topic: Feature Allocations, Paintboxes, and Probability Functions
Host: PS

March 13, 2014
Speaker: Veronika Rockova, Wharton School, University of Pennsylvania
Topic: The EM Approach to Bayesian Variable Selection
Host: NR

March 20, 2014
Speaker: Graduate Student Seminars
Topic: Structural Change Detection for Regression Quantile with Non-Stationary Errors
Host: FY

March 27, 2014
Speaker: Jingchen Liu, Columbia University
Topic: Statistical Inference for Diagnostic Classification Models
Host: RC

April 3, 2014
Speaker: Ben Taylor, University of Lancaster
Topic: Bayesian Interference and Data Augmentation Schemes For Spatial, Spatio-temporal and Multivariate Log-Gaussian Cox Processes in R
Host: RC

April 10, 2014
Speaker: Jon Forster, University of Guelph
Topic: Bayesian personalized learning of treatments and thus provide the means to use data to directly inform treatment development
Host: Field Institute

April 23, 2014
Speaker: Dr. Austin Teh, University of Toronto
Topic: The Bootstrap: The Elements of Statistical Learning
Host: PS

May 8, 2014
Speaker: Dr. John Schafer, University of Toronto
Topic: Meta-Analysis of Genomic Studies
Host: PS

May 13, 2014
Speaker: Dr. Max Levitin, University of Toronto
Topic: Functional Data Analysis: Some Recent Results and Open Problems
Host: PS

May 20, 2014
Speaker: Dr. Rachel Wang, University of Toronto
Topic: Boosting With Functional Data
Host: PS

May 27, 2014
Speaker: Dr. Lijie Liu, University of Toronto
Topic: Regularized Partially Functional Linear Model
Host: PS

June 11, 2014
Speaker: Dr. Michael Gareau, University of Toronto
Topic: Power loss caused by using non-optimal weights in breast cancer data
Host: PS

June 13, 2014
Speaker: Dr. Robert Gentleman, University of Auckland
Topic: Computationally Intensive Biology Problems
Host: PS

June 19, 2014
Speaker: Dr. Robert Tibshirani, Stanford University
Topic: Statistical Learning from the world's leading statistical societies, the COPSS Presidents’ Award 1996.
Host: PS

For more information about this lecture series visit our website: www.utsatstats.utoronto.ca
Annual Meeting of the Statistical Society of Canada

Congrès annuel de la Société Statistique du Canada

University of Toronto
May 25–28 mai 2014
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