



# 2015 - 2016 Biostatistics and Computational Biology Annual Newsletter

## **A message from the Chair, Robert Strawderman, Sc.D.**

In our last newsletter, I commented on the many changes that have occurred in department personnel since I joined as department chair in July 2012. This trend has continued over the past year. As of September 2012, two new tenure track Assistant Professors joined the department: Andrew McDavid, who recently completed his Ph.D. at the University of Washington; and, Ashkan Ertefaie, who completed his Ph.D. at McGill University and subsequently held postdoctoral training positions at the University of Michigan and the University of Pennsylvania. Dr. Xin Tu left the department in November 2016 for the sunny skies of San Diego, taking a position in the Department of Family Medicine and Public Health at UC San Diego State University; Dr. Ollivier Hyrien left the department at the end of this year, shortly after being promoted to Full Professor, for a new position at the Fred Hutchinson Cancer Research Center. Sue DiVincenzo, one of our secretaries, moved over to the College as a result of a very well-deserved promotion; we were fortunate enough to hire an extremely able addition to our staff, Kathy Schulz, from another unit in the medical center to take over Sue's many responsibilities.

The Statistics Ph.D. program graduated its 100<sup>th</sup> degree recipient in August 2016: Kyra Singh, now working at Google in New York City. You may be surprised – or not! – to learn that advanced statistical training continues to grow in its importance across academia, business, government, and elsewhere. In fact, a career in “statistics” now tops the Bureau of Labor’s most recent projections for job growth among all of the sciences, with growth levels currently projected to rank 9th among all job categories over 2014-2024. A Ph.D. degree in Statistics or Biostatistics is ranked as being the best graduate degree for landing a job, the projected growth rate through 2022 being nearly 24% (Fortune Magazine, April 27, 2015). A Masters degree in biostatistics or statistics, considered to be the entry-level degree for professional employment, also tops the list of the top 10 Masters degrees for 2016 (Forbes Magazine, August 8, 2016). The growing recognition of the importance of the skills learned in the pursuit of such degrees is helping to drive the strongly increased demand for both doctoral and Masters degrees that the Statistics graduate programs have seen over the past 5 years. So is the new graduate student recruiting day (Biostatistics Open House) and the efforts of Dr. Sally Thurston in her roles as Director of Diversity Recruiting. Our latest pool of applicants for doctoral study not only includes a number of outstanding candidates (domestic and foreign), but also a record number of under-represented minority candidates, coming in at nearly 8% of this year’s applicant pool.

The department announced Donnie Hebert, now at the Emmes Corporation, as the second recipient of the William Jackson Hall Graduate Student Fellowship last spring. The endowment for this fellowship continues to grow through the ongoing generosity of private donors like you, and we are slowly approaching our initial endowment goal of \$250,000. The department remains deeply appreciative of the donations made in support of this important fellowship – we thank you for your donations to date and ask that you keep this fellowship in mind as you contemplate the many worthy opportunities for philanthropy (please see the fellowship page within for further details).

To close, I'd like to mention that the department faculty held a strategic planning retreat at the Strathallan Hotel on October 21, 2016, the first such retreat since I began my term as department chair. As part of our day-long conversation on the future directions of the department, we collectively defined our vision, which I now share with you: this department wants to be known as a national leader in advancing statistical methodology and practice in biostatistics, bioinformatics, and computational biology; to continue its tradition of intellectual leadership through promoting the proper use of rigorous quantitative methods as members of cross-disciplinary research teams; and, to continue its evolution as a leader in the education and training for graduate students in the statistical sciences. I believe the department is well situated to achieve this vision, and very much look forward to seeing what we will be able to accomplish over the next 5 years.

## Faculty News

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### New Faculty 2016.

Ashkan Ertefaie, Ph.D., joined the department in September 2016. This is a personal introduction.

Currently, I am an Assistant Professor in the Department of Biostatistics and Computational Biology at the University of Rochester Medical Center. My research interest is *developing new statistical methodologies for comparative effectiveness studies using electronic medical records* (EMRs). A major challenge is the presence of unmeasured confounders—unmeasured pretreatment variables that affect the outcome and differ in distribution between the group of patients who receive one treatment versus the group of patients who receive another treatment. Particularly, I am very interested in methodologies that lead to constructing the optimal sequence of treatments in chronic diseases where patients are monitored and treated throughout their life.

I completed my PhD dissertation under the co-supervision of Masoud Asgharian and David Stephens in the Department of Mathematics and Statistics at McGill University. My thesis explored current issues in causal inference, variable selection and biased sampling.

From 2014 to 2016, I was a postdoctoral fellow in the Statistics Department at the Wharton School of the University of Pennsylvania, where worked with Professor Dylan Small and Sean Hennessy on developing new statistical methodologies for comparative effectiveness studies using EMRs. I have also worked with Susan Murphy as a postdoctoral fellow in the Department of Statistics at University of Michigan from 2011 to 2014 where my main focus was on developing a new method in constructing optimal dynamic treatment regimes.

Over the course of my PhD and postdoctoral programs, I worked on different projects including dynamic treatment regimes, instrumental variable analyses, variable selection in causal inference, and length biased sampling, all of which have some aspects relevant to my main goal of constructing the optimal treatment regimes using EMRs.



## Faculty News

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### New Faculty 2016.

Andrew McDavid, Ph.D., joined the department in September 2016. This is a personal introduction.

I graduated from the University of Washington stats department in June. At the UW, I developed graphical models to quantify dependencies in single cell gene expression data, and am currently applying those to various data sets, especially immunological. I am consistently amazed by power and complexity of the adaptive immune system. I am interested more broadly in methodological development for single cell experiments, especially in figuring out ways to make Bayesian methods scale to these data. Help wanted.

Over the summer my wife and I hiked about 200 miles in Alberta, Washington and Oregon, discovered that Idaho is severely under-rated, ate pasties in Wisconsin and listened to loons in Minnesota. I just bought studded tires for my bike, and am excited to experience my first real winter.



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### Faculty Promotions 2016

Dr. Xueya Cai was promoted to Research Associate Professor effective July 1, 2015. This is a recognition of her successful collaborations with researchers in health services researches, neurosciences and other biomedical areas as well as her methodological research.

Tanzy Love was promoted to Associate Professor effective June 1, 2016. Her contributions are in the areas of Bayesian latent variable models for clustering and effect modification. Her application area are environmental statistics, HIV genetics, and text analysis.

Ollivier Hyrien was promoted to Professor with tenure effective October 1, 2016. His contributions are in the areas of stochastic processes, pseudo-likelihood, finite mixtures, and flexible supervised and unsupervised learning techniques, applied to immunology and cancer research.

## Selected Faculty Publications

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### Tanzy Love, Ph.D.

Titled "Genetic variation in *FADS* genes is associated with maternal long-chain PUFA status but not with cognitive development of infants in a high fish eating observational study". The paper was accepted August 24, 2015 and appeared in *Prostaglandins Leukotrienes and Essential Fatty Acids*

Titled "Methods for Individualized Determination of Methylmercury Elimination Rate and De-Methylation Status in Humans Following Fish Consumption" has been published in Society of Toxicology on December 18, 2015

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### Matthew McCall, Ph.D., M.H.S.

Titled "A benchmark for microRNA quantification algorithms using the Open Array platform." The paper presents a benchmark data set and software to assess the performance of six expression estimation algorithms for quantification of microRNA expression from the Life Technologies Open Array platform. The paper was published in March 2016.

Titled "A microRNA biomarker of hepatocellular carcinoma recurrence following liver transplantation accounting for within-patient heterogeneity." The paper combines sample-level and patient-level information to discover five specific microRNAs as a biomarker of hepatocellular carcinoma recurrence after liver transplantation. It appears that there is a subset of patients who would benefit from microRNA profiling to determine transplantation. Department coauthors include Tony Almudevar and Q.Y. Xie. The paper was published in April 2016.

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### David Oakes, Ph.D.

Titled "On the Win-Ratio Statistic in Clinical Trials with Multiple Types of Event" has been published *Biometrika* (advanced access doi: 10.1093/biomet/asw026). The paper discusses an approach to combining information from analyses of fatal and non-fatal events in cardiovascular studies. The paper was submitted in March 2016, revised in May 2016 and published in July 2016.

Titled "Effect of Deutetrabenazine on Chorea Among Patients With Huntington Disease" has been published in *JAMA*. The study's objective was to evaluate efficacy and safety of deutetrabenazine treatment to control chorea associated with Huntington disease. Department co-authors include Chris Beck, Shirley Eberly and Arthur Watts. The paper was published in July 2016.

## Selected Faculty Publications

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### Robert Strawderman, Sc.D., Chair

Steingrimsson JA, Strawderman RL (2016). Estimation in the semiparametric accelerated failure time model with missing covariates: improving efficiency through augmentation. *Journal of the American Statistical Association*, in press.

New methods of estimation and inference with improved efficiency are developed for the accelerated failure time (AFT) model in settings where not all covariates are fully observed, either by design (e.g., two-stage cohort study) or by happenstance. It is the first paper to successfully apply the principal of “augmentation” to this problem for the AFT model, and also serves to correct several earlier works on handling missing covariates in Cox’s regression model.

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### Robert Strawderman, Sc.D., Chair

Steingrimsson JA, Diao L, Molinaro AM, Strawderman RL (2016). Doubly robust survival trees. *Statistics in Medicine*, 35, 3595-3612.

This paper develops a new approach to building regression trees for right-censored outcomes, developed by applying the semiparametric theory for missing data to problem of estimating the loss functions that underpin CART and other popular machine learning methods. Unlike existing methods (e.g., that due to Leblanc and Crowley, 1992 *Biometrics* now implemented in *rpart* as part of R), these new methods have the interesting feature that the loss functions used reduce to that which might be most naturally used in the absence of any censoring.

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## Department and Faculty News

### Faculty Awards



Dr. Sally W. Thurston was awarded the 2016 Outstanding Graduate Course Director Award at the URM School of Medicine and Dentistry Opening Convocation ceremony on September 8, 2016. The nomination process was initiated by Drs. Mike McDermott and Rob Strawderman based on feedback from Ph.D. student Joe Ciminelli, and supported by letters or written statements from all students in Dr. Thurston's spring 2016 course, BST512: Topics in Statistical Inference II - Advanced Bayesian Inference. In his student nomination letter, Joe Ciminelli noted that "without comparison, this course ranks as the top formal educational experience I have had in graduate school" and that Dr. Thurston "is a teacher at her core, dedicated to students and their learning." Another student said that "Dr. Thurston inspired me to take BST 512, when I thought I could not, and helped me successfully complete it." As noted in Joe's presentation of the award, "all the letters supporting Dr. Thurston's nomination demonstrated that she is an exemplary, conscientious and accessible teacher, which is especially impressive given her other wide ranging research responsibilities."

### Faculty Grants

Dr. Xueya Cai received \$20,000 from Sinyoo Information Technology (Shanghai) Co. Ltd. As the Principal Investigator, Dr. Cai helped develop the electronic medical record system of the Sinyoo cancer databases. In addition, Dr. Cai lead a study to evaluate trends and hospital variations in surgical outcomes for cholangiocarcinoma in New York State with Dr. Tao Suo, a surgeon in Shanghai Zhongshan Hospital, Fudan University, China. The project analyzed 2005-12 Statewide Inpatient Databases (SIDs) of New York State (NYS) from the Healthcare Cost and Utilization Project (HCUP) of the Agency for Healthcare Research and Quality (AHRQ), and found that Surgical patients with cholangiocarcinoma incur considerable mortality, postoperative complications, and hospital and post-acute care resource uses, especially among those undergoing hepatectomy and BEA for perihilar tumors. Risk-adjusted outcomes vary substantially over hospitals in New York State

Dr. Mathew McCall received two grants from the NIH. He is principal investigator of the NHGRI R00 grant titled "Statistical Methods for Estimation of Gene Regulatory Networks." The overall goals of the proposed research are to improve the estimation of gene regulatory networks from perturbation experiments by using methods that explicitly model and incorporate uncertainty in each step of the process, and to use these estimated networks to predict cellular response to intervention. He is co-investigator of the NCI R35 grant titled "Mediators of Cancer Cell Homeostasis: Intervention Targets Common to Diverse Types of Cancer." The goals of this research are to develop a rational path towards cancer interventions independent of the tumors' mutational status and with lower rates of associated disease recurrence that can be delivered to a large fraction of patients.

## Other Department News and Events

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Rob Strawderman became Chair-Elect of the Caucus of Academic Representatives for 2016-2017. The Caucus is convened by the American Statistical Association, and consists mainly of department and division heads. It is charged with promoting the statistics discipline within the academic community, Along with: providing a venue for discussion of issues affecting departments and programs in statistics and biostatistics; facilitating interaction between faculty at different institutions, especially between those at research departments and undergraduate institutions; identifying and collecting data that are helpful for heads/chairs in dealing with their administrations; and, arranging a yearly meeting and workshop for Caucus members (the latter being the Chair-Elect's major responsibility for this coming August).

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The BST Wednesday Social was started by Matt McCall in 2015.  
Comments from Matt about the social:

The BST Wednesday Social was started by Matt McCall in Fall 2015. We attracted between 1 and 35 people with a median attendance of 7. Attendance declined throughout the fall, briefly recovered in Jan, and then stayed in the single digits Feb-May. There are two more socials scheduled for this month. Then we will adjourn for the summer. Two socials were for Brewga at Rohrbach Brewing taught by Amy LaLonde. One of these was covered in Men's Journal:

<http://www.mensjournal.com/health-fitness/collections/13-yoga-classes-you-can-take-at-a-brewery-w199947/brewga-at-rohrbach-brewing-w199969>

Amy's husband is in the front of the photo, and you can just make out two Biostat faculty in the back.

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The Up-State Conference was held at Canisius College, Buffalo on April 22-23. The conference had distinguished speaker Dick De Veaux from Williams College, a full day of sessions Saturday, tutorials and a conference dinner Friday, and a student data competition with the final awards given on Saturday.

Since the meeting was in Buffalo this year, there were statisticians from Ontario as well as the Rochester and Buffalo regions. It's was a nice opportunity to meet local statisticians who are working in this region.

## Other Department News and Events

### 2016 Fall Welcome Back Get Together

An enjoyable evening was had by all at the end of the Red Wing's season game. At Frontier Field on September 2, 2016



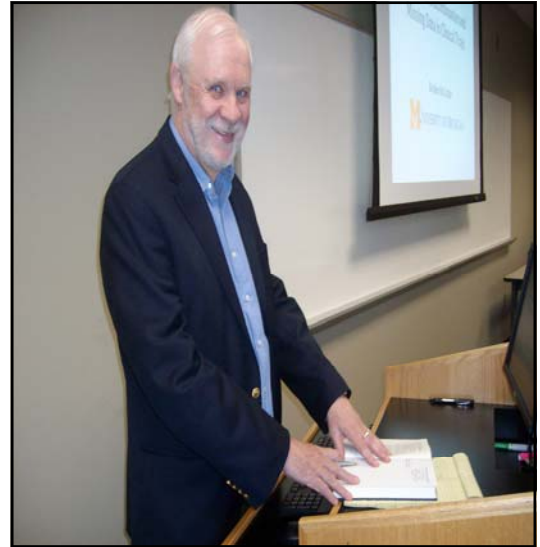


## 28th Charles L. Odoroff Memorial Lecture

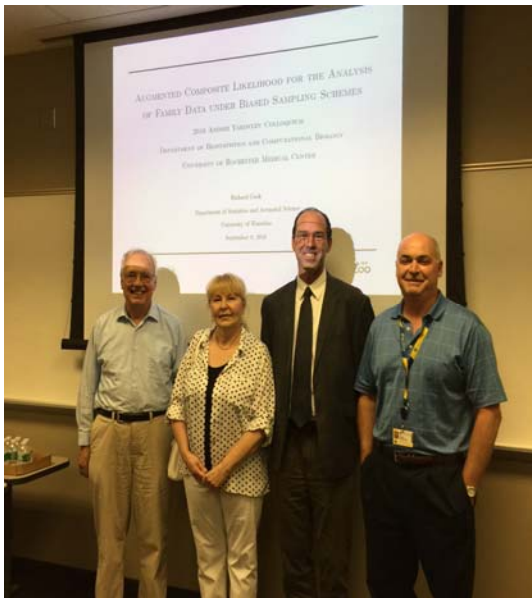


Left to Right: Rob Strawderman, Sc.D., David Oakes, Ph.D. Setta Odoroff and Roderick J. Little, Ph.D.

**Roderick J. Little, Ph.D.**, Richard D. Remington Distinguished University Professor in the Department of Biostatistics from the University of Michigan, spoke on May 5, 2016 at the 2016 Charles L. Odoroff Memorial Lecture about “Treatment Discontinuation and Missing .”



Rod Little, Ph.D. signs a copy of his book, “Statistical Analysis with Missing Data” for the Odoroff Library.



## 2016 Yakovlev Fall Colloquium

The ninth Yakovlev Fall Colloquium was held on September 8, 2016. Richard J. Cook Ph. D., Professor of Statistics, Department of Statistics and Actuarial Science, Canada Research Chair in Statistical Methods for Health Research, Director of the Oncology Research and Methods Training Program at the University of Waterloo spoke on “Augmented composite likelihood for the analysis of family data under biased sampling schemes”.

Pictured from left to right: David Oakes, Ph.D., Nina Yakovlev, Richard Cook, Ph.D., and Robert Strawderman, Sc.D.

## 2015 and 2016 Colloquia

In addition to the Yakovlev Fall Colloquium and the Charles L. Odoroff Memorial Lecture, the department has hosted the following invited speakers:

- ◆ On October 1, 2015, **Julie McIntyre, Ph.D.**, from the Department of Mathematics and Statistics at the University of Alaska Fairbanks, spoke on “Nonparametric Estimation of Spatial Functions on Regions with irregular Boundaries”.
- ◆ On October 15, 2015, **Kimberly Glass Ph.D.**, from Channing Division of Network Medicine, the Department of Medicine, Brigham and Women’s Hospital, spoke on “Using Integrative Networks to Identify Disease Mechanisms”.
- ◆ On October 29, 2015, **Steven Piantadosi, M.D., Ph.D.**, from Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, spoke on “How Small Clinical Trials Can Have Big Vision: Beyond Sample Size”.
- ◆ On November 12, 2015, **Steven Piantadosi, Ph.D.**, from Department of Brain and Cognitive Sciences, University of Rochester, spoke on “Statistics over Computations: Inference, Structure, and Human Thought”.
- ◆ On December 3 2015, **Michael Rosenblum, Ph.D.**, from Department of Biostatistics, John Hopkins Bloomberg School of Public Health, spoke on “Optimal Tests of Treatment Effects for the Overall Population and Two Subpopulations in Randomized Trials, using Sparse Linear Programming”.
- ◆ On December 16, 2015, **Tongtong Wu, Ph.D.**, from Department of Biostatistics and Computational Biology at the University of Rochester, spoke on “Matrix Completion Discriminant Analysis”.
- ◆ On January 14 2016, **Ollivier Hyrien, Ph.D.**, from Department of Biostatistics and Computational Biology at the University of Rochester, spoke on “Nonparametric Functional Divergence-Based Flow Cytometric Classifiers”.
- ◆ On February 11, 2016, **Jason Fine, Sc.D.**, from Department of Biostatistics, Department of Statistics, University of North Carolina—Chapel Hill, spoke on “Competing Risks Predictions on Two Time Scales”.
- ◆ On March 17, 2016, **W. Evan Johnson, Ph.D.**, from Boston University School of Medicine, spoke on “Statistical Methods for Profiling the Functional Evolution of Tumor Cell Subpopulations in Response to Chemotherapy”.
- ◆ On April 7, 2016, **Anand N. Vidyashankar, Ph.D.**, from George Mason University, spoke on “Finite Sample Post-Model Selection Inference”.
- ◆ On April 21, 2016, **Daniel P. Gaile, Ph.D.**, from State University of New York at Buffalo, spoke on “Matrix Completion discriminant Analysis The Parametric t-test’s Latent Weakness”.
- ◆ On September 29, 2016, **Jennifer F. Bobb, Ph.D.**, from Group Health Research Institute, spoke on “Bayesian Kernel Machine Regression for Estimating the Health Effects of Multi-Pollutant Mixtures”.
- ◆ On October 13, 2016, **John Muschelli, PhD.**, from Johns Hopkins Biostatistics, spoke on “Computational Methods for Neuroimaging in R, an Example in Hemorrhagic Stroke Hemorrhage”.
- ◆ On October 27, 2016, **Kristin Linn, PhD.**, from Perelman School of Medicine, University of Pennsylvania spoke on “Confounding in Imaging-based Predictive Modeling”.
- ◆ On November 3, 2016, **Sumanta Basu, PhD.**, from Shayegani Bruno Family Faculty Fellow, spoke on “penalized Maximum Likelihood Estimation of Multi-layered Gaussian Graphical Models”.
- ◆ On November 17, 2016, **Michael Elliott, PhD.**, from Department of Biostatistics University of Michigan, spoke on “Multiple Imputation Using the Weighted Finite Population Bayesian Bootstrap”.
- ◆ On December 1, 2016, **Martin Morgan, PhD.**, from Department of Biostatistics & Bioinformatics Roswell Park Cancer Institute, Buffalo NY, spoke on “Bioconductor for Analysis & Comprehension of Genomic Data”

## Other Department News and Events

University IT staff Hillary Lincourt teamed up with Andy Straw and Anthony Corbett from the Department of Biostatistics & Computational Biology to win one of three challenges in the first annual [RocHackHealth](http://tech.rochester.edu/news-item/three-staff-win-rochackhealth-competition/). The hackathon, which was held on April 8-10, 2016, is dedicated to solving data problems to improve the safety, efficiency, transparency, equality, and delivery of healthcare.

<http://tech.rochester.edu/news-item/three-staff-win-rochackhealth-competition/>

Martin Zand, M.D., Ph.D., Director of the Rochester Center for Health Informatics (far left), and Henry Kautz, Ph.D., Director of the Goergen Institute for Data Science (far right), present the first place prize to Andy Straw, Hillary Lincourt, and Anthony Corbett (center, from left to right).



## Other Department News and Events



### Rochester at JSM 2016 in Chicago

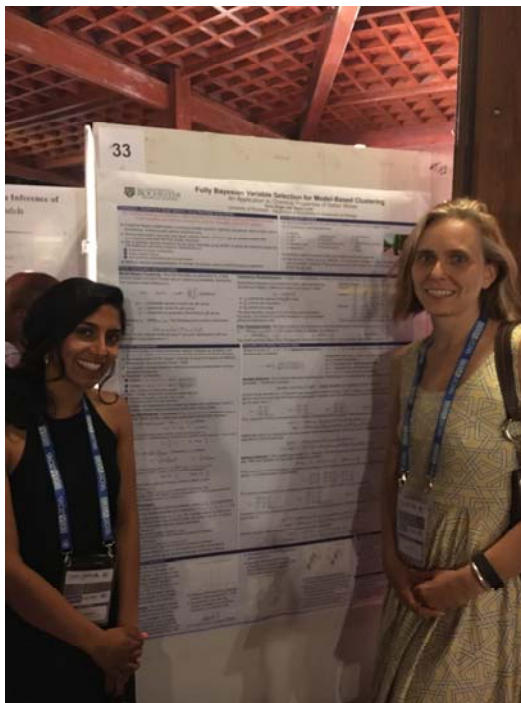
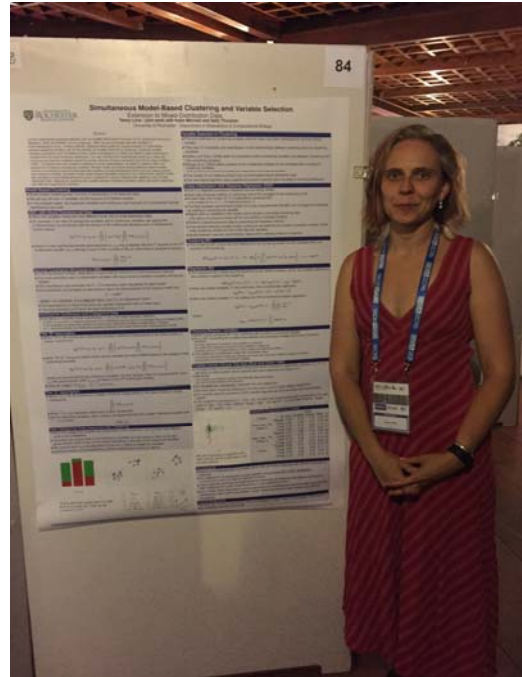
Faculty, students, and alumni attended the JSM in Chicago Illinois.

One morning there was a Rochester ASA breakfast organized by Dr. Tanzy Love including student Kathy Grzesik and alumna Katie (Evans) Mitchell (PhD '13).

There was also an alumni dinner organized by alumna Kelly Zou.

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## Other Department News and Events



Dr. Tanzy Love and students Kyra Singh and Amy LaLonde attended the biannual meeting of the International Society for Bayesian Analysis in June 2016. They traveled to Sardinia, Italy for a week to present posters, meet fellow international Bayesians, and performed an Acro-Yoga routine in the Cabaret after the conference dinner.



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# STUDENT NEWS



## William Jackson Hall Student Fellowship Award



In January 2016, graduate student **Donnie Hebert** was announced as the second recipient of the William Jackson Hall Graduate Student Fellowship Award. A short ceremony to present the award followed by a reception took place on May 13, 2016.

After receiving the award, Donnie spoke saying, "I am honored to have received the William Jackson Hall Graduate Student Fellowship Award and really wanted to extend my thanks to the award committee for granting me this honor. I also wanted to thank my advisor Professor McDermott for his support during my thesis research, as I certainly wouldn't have received this award without him".



"My first real interaction with Dr. Hall was in 2012 when I took his large sample theory course. Though you could say I was influenced by Dr. Hall well before that by using his renowned Inference Lecture Notes. I was always impressed by how well Dr. Hall was able to communicate this higher-level material so effectively, whether it was through writing or during class. It was also inspiring on a personal and professional level how invested Dr. Hall was to this department with him teaching so late in life. He always seemed very young at heart as I remember that he would often bike to the department or class, which was particularly impressive to me because I can get winded just walking up the stairs in our building."



Top Picture: David Oakes, PhD (l) and Donnie Hebert (r)

Middle Picture from left to right: Nancy Hall's son-in-law, Gordon Britton, Donnie Hebert, Nancy Hall, and Nancy's daughter, Barbara Hufsmith.

## William Jackson Hall Graduate Student Fellowship

The Department of Biostatistics and Computational Biology at the University of Rochester Medical Center has endowed the creation of the William Jackson Hall Graduate Student Fellowship in honor of Jack's lifetime achievements. Jack joined the University of Rochester faculty as professor and chair of the Department of Statistics in the College of Arts and Sciences in 1969. During his nearly 40 years here, he made highly significant contributions to several areas of mathematical statistics, recognized in part through honorary fellowship in the American Association for the Advancement of Science, the Institute of Mathematical Statistics and the American Statistical Association. Jack was also a major force behind the formation of the Division of Biostatistics in the School of Medicine and Dentistry, the forerunner of the present department, and he played an especially instrumental role in developing Rochester's doctoral program in Statistics.

Jack's dedication to the graduate program and its students, commitment to teaching, and collaboration in translational research is a testament to the significance of this legacy. His depth of care for his students and unparalleled effort to teaching has produced a loyal and grateful group of alumni from the program. Many of his students have gone on to prominent roles in academia and industry. Jack's impact on the program was formally recognized in his receipt of the first Lifetime Achievement in Graduate Teaching Award, bestowed upon him by the University of Rochester at the 2004 Commencement Ceremony. Common themes of the letters in support of his nomination for this award included Jack's commitment to teaching, the sheer breadth of his knowledge in the theory and applications of statistics, and the individual attention, hospitality and friendship that he freely gave to his students and their families. Siddartha Dalal, Jack's first Ph.D. student at Rochester and Chief Technology Officer at RAND Corporation, writes "He was a great teacher, his lectures were always thoughtful, and he challenged students to think about basic issues. He took great pride in their accomplishments and spoke highly about those to others. Jack's interests in his students also did not end with the completion of their thesis, but have continued to the extent that many students count him as part of their extended family." Jack has been involved in many clinical trials and other collaborative projects at the Medical Center, where the department sits at the core of all research and plays a pivotal role in planning for future research initiatives. Arthur J. Moss, Professor of Medicine (Cardiology) and Jack's collaborator for nearly 30 years, remarks that "Jack has been intimately involved in our longstanding research related to the Long QT Syndrome and more recently in our Multicenter Automatic Defibrillator Implantation Trial. His unique insights into statistical issues have been at the heart of the design of our programs. It is through these interactions that I myself became one of his students in the sense that I learned from each and every interaction with him."

This merit-based fellowship intends to recognize one or more Statistics doctoral students in their last semester or year of study whose academic record reflects the major cornerstones of Jack's distinguished career. Recipients will have distinguished themselves through combination of outstanding performance in coursework and qualifying exams; excellence in their service as a graduate student teaching assistant; and timely completion of a dissertation containing work judged to be of particular significance in both its methodological contribution and potential impact in one or more application areas.

The department specifically intends for this fellowship to be an enduring tribute to Jack's legacy and enormous influence on the Statistics doctoral degree program and its students through his many outstanding contributions to research, graduate teaching, and doctoral student mentorship. Your generosity affords us the ability to continue to attract the best and brightest students, to train outstanding scientists of tomorrow, and to further elevate the department to new levels of prominence in education and research. To make a gift please contact Carmen Aiezza, Director of Advancement, 585-275-0808, [carmen.aiezza@rochester.edu](mailto:carmen.aiezza@rochester.edu). Alternatively, you may also use the secure website [www.rochester.edu/advancement](http://www.rochester.edu/advancement) by selecting 'Make an Online Gift'.

**Important:** If you wish to make a gift and choose to do so online, please be sure to select **School of Medicine and Dentistry** as the gift designation and in the comment box add: **Hall Graduate Student Fellowship (A09765)**.



## **Kyra Singh, Ph.D. accepts the 100th Ph.D. student award from Professor Mike McDermott**

**On Friday, August 26, 2016, Kyra Singh successfully defended her thesis “Variable Selection Methods for Model-Based Clustering: Procedures for functional Data and Bayesian Inference” advised by Professor Tanzy Love”**

Five years ago, I interviewed at the University of Rochester for the Statistics doctoral program in the Department of Biostatistics and Computational Biology. My interview was slightly different from the standard process. Due to personal obligations, I was unable to visit on the designated interview weekend with the other prospective students. As the University of Rochester’s respected doctoral program was already at the top of my list, I contacted the PhD program director and requested an interview for an alternate date in which he gladly accommodated me. Through this experience, I caught my first glimpse of the accommodative and supportive mentality of the faculty and staff within the Department of Biostatistics and Computational Biology at the University of Rochester.

Throughout the day of my interview, there were countless occasions where the members of the department went out of their way to make sure I was comfortable and that I was gaining a thorough understanding of both the university and the city of Rochester. For example, during one of my interviews, a professor graciously compared and contrasted the differences between Rochester and where I completed my undergraduate education. As transitions can be difficult, I especially appreciated her candid take on both cities. This professor, Tanzy Love, would later become my thesis advisor and continue to serve as an invaluable source of advice and encouragement. After my interviews ended, the graduate program administrator, Cheryl Bliss-Clark, allowed me to take over her office so that I could change out of my suit into something more appropriate to brave the Rochester cold. Afterwards, the graduate program director, Mike McDermott, took me on a driving tour of the medical center campus, river campus, and a few of the housing options before dropping me off at the airport. I joke with him now that by the end of the day, I felt comfortable enough to take a nap in his car on the way to the airport! In each interaction, the staff and faculty went above and beyond my expectations to ensure I had the necessary information to make an informed decision in choosing a graduate school.

After that weekend, I knew without a doubt that I wanted to work on my PhD at the University of Rochester. The faculty, staff, and students work in a collaborative and supportive environment that truly helps facilitate the growth and professional development of its graduate students. For instance, the courses I took in theoretical and applied statistics led me to my research interests in variable selection methods for model-based clustering. The student professional travel stipend provided by our department allowed me to share and present the research I am passionate about at national and international conferences in Washington, Texas, and most recently, Italy. I am extremely fortunate to have had the opportunity to discuss my thesis research with prominent statisticians across the world. I cannot emphasize enough how well supported the students are within our department. As a result of this support, in my five years at the University of Rochester, I have seen my peers accept positions with top pharmaceutical companies like Novartis and Abbvie, federal agencies like the FDA and National Institutes of Health, and faculty positions at various prestigious universities. I am proud to graduate from such a strong department where our training prepares us for positions in so many different fields.

I am honored to be the 100th PhD student of the Department of Biostatistics and Computational Biology at the University of Rochester. My academic and personal experiences during my doctoral program helped me to develop exceptional scientific communication skills, and I feel more than prepared to enter and excel in the workforce. Although I am sad to leave the University of Rochester, I am excited to begin a full-time position on the Advanced Measurement Technologies team with Google in New York City this fall. As I move forward in my career and life, I will always treasure my time at the University of Rochester, and I will think back on it with the deepest gratitude.



## Student News - Continued

### 7th Annual Student Workshop - Friday, May 13, 2016



From left to right: Professor Mike McDermott, graduate program director, Madhurima Majumder, Professor Matt McCall, Valeriia Sherina, Professor Tanzy Love, Joe Ciminelli, Professor Changyong Feng, and Xiang Lu  
Not pictured: Professor Ollivier Hyrien, faculty advisor.

Our annual Statistics Ph.D. Student Workshop was held on Friday, May 13, 2016. The workshop included presentations by Ph.D. students who had passed the Advanced Examination but had not yet taken their proposal examination. Each student presented on his/her dissertation topic, providing some background and an update on the progress of his/her research. For students who had not yet identified a dissertation topic, the presentation was on material covered in a recent reading course (ideally, a potential dissertation topic).

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### OPEN HOUSE

On October 1, 2016, the department held an open house for prospective graduate students. This event provides students potentially interested in graduate study in biostatistics and statistics with an opportunity to learn about our programs, to meet with current students, faculty, and program alumni, and to gain some perspective on the many career opportunities this exciting field has to offer. Thank you to all faculty, students and staff who contribute to the success of this event!

## Student News - Continued



Amit Chowdhry, Ph.D. (r) with his advisor  
Professor Mike McDermott

On Monday, January 11, 2016, Amit Chowdhry successfully defended his thesis "Missing Data in Meta-Analysis"



Ziji Yu, Ph.D. (l) with her advisor Professor  
Govind S. Mudholkar

On Wednesday, April 20, 2016, Ziji Yu successfully defended her thesis, "Theory and Application of the Mode Centric M-Gaussian Distribution."



Donald Hebert, Ph.D. (with his advisor  
Professor Mike McDermott)

"On Friday, September 9, 2016, Donald Hebert successfully defended his thesis "Global Tests for Multiple Outcomes in Randomized Trials" "

## Student News - continued

In the spring the students were asked, "What was your favorite thing from this past year in Biostatistics and Computational Biology?"

**Donnie Hebert** — For me I really enjoyed presenting my research (and attending) at ENAR, my first major conference.



**Yun Zhang**—The most exciting thing is that I've met our department friend, Prof. Terry M. Therneau (UofR faculty from 1983-84??). We met on the Cinco de Mayo celebration during my internship in Mayo Clinic. It is wonderful that our department has newly formed the bioinformatics concentration in the PhD program, which opens more opportunities for us, the students, in the future job market. This is indeed how I earned this intern opportunity in the Biomedical Statistics and Informatics Department in Mayo Clinic.

**Kyra Singh**—My favorite part of this year so far has been attending conferences and presenting my research. In March, I attended the ENAR Meeting in Austin, TX. It was a great opportunity to reconnect with alumni and spend quality one-on-one time with my fellow classmate, Donnie Hebert. I am also looking forward to attending the International Society for Bayesian Analysis (ISBA) World Meeting in Sardinia, Italy this June. I am looking forward to present my research and network with Bayesians from across the world!

**Joe Ciminelli**—Over the past year, I've gained great experience with teaching opportunities. Participating as a Teaching-As-Research fellow, I've been working to "flip" an undergraduate statistics course so that video lectures are assigned as homework and class time is dedicated to real-data workshops, giving students an active learning environment for developing their statistical toolkit. The project received support through a STEM Initiative grant, and our goal is to take a step forward in making statistics more accessible to all students, regardless of what their primary discipline is! This has been a fantastic experience for me in preparing for a career as a college professor.

**Amy LaLonde**—My favorite parts of my fourth year was preparing my proposal and presenting and attending ISBA 2016 in Sardinia, Italy. It was incredibly gratifying to put together all of my work in my proposal and to really begin to comprehend all that I've learned so far. I was also fortunate to spend a week with my colleague, Kyra, and my advisor, Tanzy, in Sardinia surrounded by such talented Bayesian statisticians.

**Shiyang Ma**—With two years preparation, I work on two consulting projects during this summer: Vestibular Effects on Balance in Cervical Dystonia, and a project of Huntington's disease for Roche Pharmaceuticals. This is great experience, it helps me to improve methodology in clinical trials, software skill as well as communication skill.

**Valeriia Sherina**—My internship application experience. After updating and formatting my resume, tailoring cover letters, applying to all the places I was interested in from the ASA "internship list", searching local ads, going to career fairs on campus, and waiting to hear back, I finally got my first interview! Receiving an offer felt fulfilling, it meant that I, as a professional, have a value, and all the hard work along the way paid off. The Biostatistics department prepared me well!

## Student News - continued

**Katherine Grzesik**—I really enjoyed attending UP-STAT and seeing the local statistics community come together to share their knowledge. I have also enjoyed getting to know the faculty and classmates outside the classroom during the happy hours implemented this year.

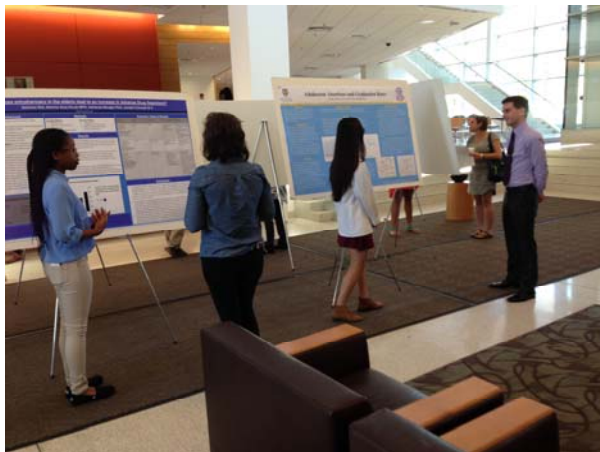
**Chang Liu**—My favorite thing this year is attending ENAR for the first time. It was nerve-racking to give a talk there in a room full of people, but it was fun to go to other people's talks and learn new things. And the sightseeing in Austin was great!

For three weeks in August 2016, Joe Ciminelli taught, alongside Martina Anto-Ocrah from Epidemiology, a course for seven high school students who are interested in medical research. This course is part of the NYS Science and Technology Entry Program (STEP), which supports underrepresented minorities and financially disadvantaged students who show exceptional potential for careers in medicine. In particular, the students in the course focused on medical research methodology.



As a capstone project for the class, students investigated and explored health-related topics that were of interest to them. Since the most important aspect of research is perhaps the ability to present what you have discovered to others, they held a poster session on August 26 .

Pictured left: Joe Ciminelli, Martina Anto-Ocrah and STEP III students



## Student News - continued

### Defenses for Medical Statistics

Two students successfully defended their theses for the MS in Medical Statistics program. Hongyi Kang defended "The Change in Neuronal Dendritic Volume from Wakefulness to Sleep" on June 8, 2016, advised by Professor Xing Qui. Lam C Tran defended "Structured Deep Learning on Medical Image Segmentation" on June 10, 2016, advised by Professor Changyong Feng.

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### Summer 2016 Internships

Ms. Yun Zhang—Mayo Clinic (Rochester, Minnesota) and then Ernst and Young (New York City)

Ms. Madhurima Majumder—Bayer Healthcare (Whippany, New Jersey)

Ms. Valeriia Sherina—Excellus Blue Cross Blue Shield (Rochester, New York)

Ms. Amy LaLonde—Bank of America (Charlotte, North Carolina)

Ms. Tong Lei (from the Master's program) - Brightech International (Somerset, New Jersey)

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### **PhD Program for Fall 2016**

The department welcomes the following students:

#### **Entering the PhD Program:**

- ◆ William "Willi" Artman—finished his Bachelors at UR in May 2016
- ◆ Matthew Corsetti—UR graduate who earned a Master's degree from RIT last year
- ◆ Jiatong Sui—transferring from the department's MA in Statistics program
- ◆ Luoying "Fifi" Yang—finished her Bachelors at UR in May 2016
- ◆ Alexis Zavez—Swarthmore College graduate who worked full-time in Boston before spending the summer at UR

#### **Entering the MA in Statistics Program:**

- ◆ Ruyue Zhang—recently graduated from Dalian University of Technology
- ◆ Ting Yin—recently graduated from China Agricultural University

#### **Entering the MS in Medical Statistics Program:**

- ◆ Charles Lee—UR graduate who has been working full-time in the Neurosurgery department

## Student News - continued

### Commencement Ceremonies for PhD and Master's degree recipients

#### 8 Master's Awardees:

Yu Gu

Madhurima Majumder

Valeriia Sherina

Bokai Wang

Shiyang Ma

Hao sun

Guangqing Chen

Benjamin Chapman

#### PhD Awardees:

Changming "Sherman" Xia

Van Tran

Tian Chen

Amit Chowdhry

Pictures of students at the Master's Commencement from May 2016 – Valeriia Sherina, Yu Gu, Hao Sun, Bokai Wang, Guangqing Chen.





### The Students of Biostatistics and Computational Biology



**Katherine Grzesik**  
6th year Ph.D. student



**Chang Liu**  
6th year Ph.D. student



**Chongshu Chen**  
5th year Ph.D. student



**Amy LaLonde**  
5th year Ph.D. student



**Joe Ciminelli**  
4th year Ph.D. student



**Xiang Lu**  
4th year Ph.D. student



**Yun Zhang**  
4th year Ph.D. student



**Yu Gu**  
3rd year Ph.D. student



**Madhurima Majumder**  
3rd year Ph.D. student



**Valeriia Sherina**  
3rd year Ph.D. student



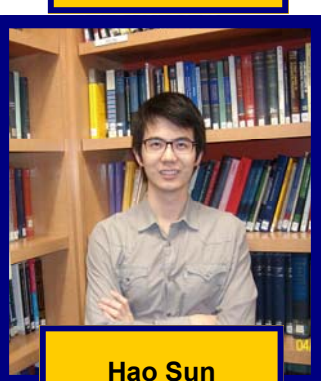
**Bokai Wang**  
3rd year Ph.D. student



**Shiyang Ma**  
2nd year Ph.D. student



**Jiatong Sui**  
2nd year MA student



**Hao Sun**  
2nd year Ph.D. student

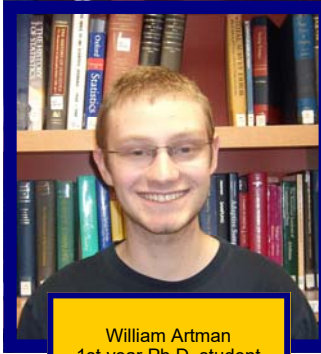


**Erika Wilson**  
2nd year Ph.D. student



**Hongnan Wang**

### The Students of Biostatistics and Computational Biology



William Artman  
1st year Ph.D. student



Matthew Corsetti  
1st year Ph.D. student



Charles Lee  
1st year Ph.D. student



Lucying (fifi) Yang  
1st year Ph.D. student



Ting Yin  
1st year Ph.D. Student



Alexis Zavez  
1st year Ph.D. student



Ruyue Zhang  
1st year Ph.D. Student

## Alumni News

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**Jong H. Jeong, Ph.D.** Professor and Vice Chair in the Department of Biostatistics and Professor of Clinical and Translational Science in the Graduate School of Public Health at the University of Pittsburgh has taken the responsibility as Interim Chair of his department as of May 1, 2016..Jong received his Ph.D. from the Department of Biostatistics and Computational Biology in 1996 through the advisement of David Oakes, Ph.D. Best Wishes, Jong!  
[www.pitt.edu/~jjeong](http://www.pitt.edu/~jjeong)



Alumni Zhen Chen, Antai Wang, and Kelly H. Zou, PhD get together at the NJIT

## Baby News

**Congratulations to the new parents!**



Alicia Tyrell gave birth to Neil Alexander Edmunds on July 17, 2016



Andrea Baran gave birth to Lydia Mary Baran on September 12, 2016



## Just for Fun...

### 2016 JP Morgan Corporate Challenge



On Tuesday, May 24, 2016 at 7:00 p.m., a crowd of 10,236 runners and walkers represented the 6th largest Corporate Challenge in Rochester, from 402 companies started the 26th Annual JP Morgan Corporate Challenge on the RIT Campus. Three members from the Department of Biostatistics and Computational Biology participated in the event. In total, the University of Rochester had 490 participants. The girls all posted better times than last year. Good Job Team!

Pictured from left to right are department members:  
Christine Brower, Joanne Janciuras and Sue DiVincenzo.



## UR Service

Employment Anniversary  
Congratulations to the following employees:

Malora Zavaglia—30 years  
Arthur Watts—30 years  
Joanne Janciuras—30 years

The Rochester Lilac Festival was an enjoyable event this year.

Pictured Left: Arthur Watts was “convicted” of having too much fun at the Rochester Lilac Festival

Pictured Below: Kim Kaukeinen, Christine Brower, Arthur Watts, Shan Gao



# **BIostatISTICS AND COMPUTATIONAL BIOLOGY**

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