Message from our Chair

Shumei S. Sun, PhD
W. Hans Carter Professor and Chair

Wither Bioinformatics? Recently, I listened to a recorded message to the attendees of the 2015 Joint Statistical Meetings by Dr. D J Patil, the US Chief Data Scientist at the White House Office of Science and Technology Policy. His message got me thinking about how quickly technical terminology changes and transforms itself…and not always for the better. Our department is still called the Department of Biostatistics, but last year at this time we were debating whether or not to change our name to the Department of Biostatistics and Bioinformatics. Wisely, I think, we delayed making a quick decision to lengthen our Department’s name to include Bioinformatics.

Dr. Patil spoke about the three professional communities that are “foundational to data science.” Can you guess what professional communities he was thinking of that constitute the three-legged stool of data science? Dr. Patil fingered these three: (1) Database Management; (2) Statistics and (2a) Machine Learning; and (3) Distributed and Parallel Systems. With the inclusion of 2a, Machine Learning, it looks more like a four-legged stool. I doubt that many of you identified these three (or four) foundational legs. To my surprise, and, perhaps yours, too, the professional community of Bioinformaticians was not among the three (or four) legs.

Given these twists and turns of nomenclature at the highest levels of American statistics, it could be argued that the recent efforts to define and carve out the field of bioinformatics may not have been as helpful as we may have thought last year. Is the field of bioinformatics another example of the emperor’s new clothes? I am reminded of the story of the Bourgeois Gentilhomme who late in life, with some skilled tutoring, came to realize that he had been speaking prose all of his life. Maybe, biostatisticians have been performing bioinformatics all of our professional lives, but just not calling it by that newly minted terminology.

It turns out that I am not the only nor the first to question the creation of the field of bioinformatics as differentiated from biostatistics. In one of her last editorials, Helen Joyce, erstwhile editor-in-chief of Significance, the journal of the ASA, reminded biostatisticians that our field encompasses what is now variously called big data, data science, and bioinformatics, and that we should not relinquish this renamed portion of biostatistics to others who call themselves bioinformaticians. Her point was that bioinformatics is really just biostatistics writ large, a name for biostatistics when applied to large datasets. Dr. Irving Wladawsky-Berger, another doubter about the profusion of neologisms, wrote in the CIO Journal in May last year, “But analyzing data is something people have been doing with statistics for centuries? The fact that we now have huge amounts of data should not in and of itself justify the need for a new term.”

There are new terms aplenty in the three (or four) stool legs mentioned by Dr. Patil that many have adopted without thinking just what the words really mean, but the complete absence of the word bioinformatics in Dr. Patil’s diction is telling. It is telling us not to rush to add the term bioinformatics to our Department’s name. However, there is another consideration that we cannot afford to ignore, and that is that the widespread use of the term bioinformatics in common university parlance leads people to expect that we should teach courses in bioinformatics and, perhaps, that we should have a department that includes that name, even if the term may have outlived its usefulness.

Renaming our department is not a settled issue, but I wanted to keep all of our options open, and have written these words to keep the dialogue going. It should be noted that Dr. Wladawsky-Berger concluded his article by noting that the term data science is useful and all encompassing. It is a term that urges and encourages collaboration and cooperation between specialties that include computer science, molecular biology, particle physics, genetics, medicine, imaging, economics, population science, and commercial endeavors.
Featured Faculty

**Wen Wan,** Assistant Professor

Dr. Wen Wan has made significant progress in her career and teaching since joining the Department in the spring of 2010. She has published more than 30 papers including five first-author papers. Dr. Wan has been involved in more than 25 research grant applications (8 that have been funded) as a co-investigator or biostatistician. Her research focuses on the application and development of statistical and computational methods to biomedical and health sciences. Her recent methodological research, evolved from a collaborative project, has involved identifying the *dose regions of three-drug combination* with synergistic effects. She applied a model robust regression method, a semiparametric method, to model interaction indices and then constructed the synergistic regions that consisted of feasible points identified by using a hybrid genetic algorithm, a global optimization algorithm. In addition, she is working with one PhD student (Paul Hargarten) on evaluating methods of sample size and power calculation for a randomized repeated measure study. Future direction for her research includes continuing work on the three-drug combination study and developing an adaptive design for a phase I study of combination therapy.

Featured Student

**Lauren Grant,** Graduate Student

Lauren is originally from Chesterfield, VA. She received her BS in Mathematics and Statistics from Virginia Commonwealth University. She is currently working on her dissertation “Selecting Spatial Scale of Area-Level Covariates in Regression Models” with Dr. David Wheeler and Dr. Chris Gennings and plans to defend in spring 2016.

Besides her coursework and dissertation, Lauren has a diverse history of research experiences. She has worked as a teaching assistant and also as a research assistant for the Department of Healthcare Policy and Research at VCU. Currently, she is a trainee on the NIEHS T32 training grant and submitted a manuscript this past year featuring some of her dissertation work.

When Lauren is not working on her dissertation, she is often found playing volleyball, practicing violin, or going antiquing. She likes to travel but is a homebody at heart and is happiest when hanging out with family and friends.

New Hire

**Dipankar Bandyopadhyay,** Associate Professor

Dipankar Bandyopadhyay, PhD, is the newest addition to our faculty. He joined the Dept. of Biostatistics in the rank of Associate Professor from the School of Public Health at the University of Minnesota. His primary research interests are in Bayesian biostatistics, spatial data analysis, robust regression, clustered/correlated data, longitudinal data, nonparametric methods, and also their applications to problems in epidemiology and behavioral studies. His major clinical interest is in dental epidemiology, in particular, investigating periodontal health and risk assessment through a number of studies funded by the NIH/NIDCR [National Institute of Dental and Craniofacial Research], the dental wing of the NIH. For example, his newly funded NIDCR R01 will focus on developing precision medicine in dentistry, where he plans to develop a sound stochastic framework to assess periodontal recall intervals. Some of his other clinical interests are in substance abuse and alcohol addiction, diabetes and hypertension, sex offender recidivism, etc.
Tea Time with Faculty

This semester we started a new monthly tradition called Tea Time! Designed to give students an opportunity to get to know each other and a handful of professors in a relaxed atmosphere, each meeting features a different activity or icebreaker. We kicked off the semester with Dr. McClish, Dr. Wheeler, and Dr. Bandyopadhyay and an icebreaker called “Ask Me” where everyone created a name tag with a question they wanted others to ask them. Our second meeting featured an exciting game of Apples to Apples with Dr. Kang and Dr. Wegelin. At our final meeting of the semester, students mingled with Dr. Archer and Dr. Kim, learning about the genomics track while making paper turkeys (some of which made an appearance at the department’s Thanksgiving meal!). Tea Time has been a great opportunity to welcome our new students to the department and for everyone to better get to know some of our newest as well as most experienced faculty, all while enjoying tea and cookies! We look forward to continuing the tradition in the spring.

Graduate Students Present

**Lauren Grant**
Presented her research “Selecting Spatial Scale of Covariates in Regression Models of Environmental Exposures” at the Joint Statistical Meetings 2015, Seattle (August 2015). Co-authored with Dr. Chris Gennings and Dr. David Wheeler.

**Aobo Wang**
Presented her research “Simulating Clustered and Dependent Binary Variables” at the Virginia Academy of Science 93rd Annual Meeting, May 2015. Co-authored with Dr. Roy Sabo.

**Yu Cao**

**Camille Hochheimer**
Presented her research “Respondent Attrition in a Patient-Centered Cancer Screening Survey” at the Daniel T. Watts 2015 Research Poster Presentation in the VCU School of Medicine (October 2015).

**Paul Hargarten**

**Brian DiPace**

**Alicia Johns**
Honors

Le Kang, PhD, was awarded a Teaching Excellence Award at VCU’s School of Medicine’s 17th Annual Faculty Excellence Award Program.

Dipankar Bandyopadhyay, PhD, received the Best Associate Editor Award for the Journal of Agricultural, Biological and Environmental Statistics.

Rebecca Lehman, PhD student, received the 2015 Biopharmaceutical Applied Statistics Scholarship.

Rebecca Lehman, PhD student, received the Phi Kappa Phi Love of Learning Award.

Qing Zhou, PhD student, was the recipient of the 2014 Karl E. Peace Biostatistics Award for Excellence and Scholarship with the Department of Biostatistics.

Lauren Grant, PhD student, was awarded 1st place for her presentation at the Biostatistics Student Research Symposium.

Anny-Claude Joseph, Amanda Gentry, & Keith Zirkle, PhD students, were awarded 2nd place for their presentations at the Biostatistics Student Research Symposium.

Camille Hochheimer, PhD student, was awarded 3rd place for her presentation at the Biostatistics Student Research Symposium.

Aobo Wang, PhD student, was awarded Best Student Presentation Reward of Statistics Section at Virginia Academy of Science 93rd Annual Meeting.

Promotion

Miao-Shan Yen, Senior MS Biostatistician

Congratulations to Miao-Shan, she recently was promoted to a faculty position in the Biostatistics Department.
Newly awarded grants & contracts, *July 2015—October 2015*

**Kellie Archer, PhD**
Co-Investigator on NIH's award entitled **The Utilization of Photonics Technology to Rapidly Detect Bioactive Lipids Associated with Placental Function**” with Dr. Charles Chalfant of Biochemistry as PI.

**Dipankar Bandyopadhyay, PhD**
PI on NIH's award entitled **Spatiotemporal Models for Periodontal Disease Monitoring and Recall Frequencies**

**Mikhail Dozmorov, PhD**
- PI on PeRQ's award entitled **Diagnostic and Therapeutic Strategies of Triple-Negative Breast Cancer Guided by the Patient-Specific ‘Omic’ Data**.
- Co-Investigator on an Alex's Lemonade Stand Foundation grant entitled **Pharmacogenomics and Drug Screening Lead to a Novel Targeted Therapy with Potent and Specific Activity Against MYCN Amplified Neuroblastoma** with Dr. Faber in Dentistry as PI.
- Co-Investigator on an American Lung Association grant entitled **EMT-mediated Resistance to EGFR Inhibitors via BIM Suppression** with Dr. Faber in Dentistry as PI.

**Yongyun Shin, PhD**
- Co-Investigator on NIH’s grant entitled **A Post-Visit Patient Portal Tool to Promote Colorectal Cancer Screening** with Dr. Elston-Lafata in the Department of Social and Behavioral Health.
- PI on a WT Grant entitled **Learning from Variation in Program Effects: Methods, Tools, and Insights from Recent Multisite Trials**

**Adam Sima PhD**
A Co-Investigator on an NIH grant entitled **Vitamin C, Sepsis and Coagulaopathy: An Ancillary Study of the CITRIS-ALI Trail,** with Dr. Brophy in Pharmacy as PI.

**Wen Wan, PhD**
A Co-Investigator on an NIH grant entitled **Weel and HDAC Inhibition in Relapsed/Refractory AML,** with Steve Grant in Internal Medicine as PI.

**David Wheeler, PhD**
PI on NCI's award entitled **Statistical Modeling of Well Depth and Drinking Water Exposures and Cancer Risk.**
Alumni Spotlight

Caroline and Bob Carrico, PhD Alumni

For this issue of Statistically Significant News, our Alumni Spotlight falls on two recent graduates – Caroline Carr Carrico and Bob Carrico. *Not the first married couple to come from our program but the first to be highlighted in our newsletter.*

Caroline graduated from Winona State University (home of many bald eagles) and started in our PhD program in 2008. Bob graduated from Mary Washington University (home of the Eagles) then started his PhD studies in 2007. Somewhere along the way, these two met and discovered many things in common, including cycling (more on this later) and ice hockey. They were married in 2012. Both were strong advocates of the 5-year PhD model:

Caroline graduated under the direction of Dr. Chris Gennings in 2013, Bob in 2012 under Dr. Yongyun Shin.

Caroline continued the “Winona Connection” of our graduate program, following Teri Crofts (PhD, 2001) and Jeanette Eckel (PhD, 2003). Caroline was a Trainee under the NIEHS Training Grant, one of 15 PhD graduates of this training grant since 2002. Bob was one of only two students (we think) who spanned three separate buildings as homes for the Department of Biostatistics. He had his “official visit” as a prospective student in Sanger Hall (remember Sanger Hall?), moved with us to Theater Row then finished his degree in our current home in One Capitol Square (all within that 5-year period).

‘Back to cycling. Both are avid cyclists and, in Caroline’s words, “the proud parents of 9 bikes”. Both were members of the VCU Cycling Club during their years in our program, and both continue to ride recreationally and competitively.

Upon graduation, Caroline took a position as Senior Population Health Analyst at Health Diagnostic Laboratory in Richmond. She then moved to her current academic position as Assistant Professor, Research Administration, with the School of Dentistry here at VCU. Bob is in his 4th year as Senior Biostatistician, United Network for Organ Sharing (UNOS) in Richmond. Bob was very instrumental in creating a Research Analyst Intern position for our current PhD student at UNOS. Both Caroline and Bob will be serving as Affiliate Assistant Professors in our department.

We are very proud of Caroline and Bob, as they represent the strength of our graduate program in diverse professional settings.

Another Request for Updates

Regarding our alumni database, we would like to know where you are, as accurate contact information would benefit our graduate program. So, if you have not done so lately, please take a minute to send us the name of your employer, professional title, professional mailing address and professional email address. Please send to Russ Boyle, boyle@vcu.edu. Thanks in advance for your help.

ENAR 2016

We are planning another VCU Biostatistics get-together at the 2016 ENAR Spring Meeting, to be held at the JW Marriott Austin, in Austin, Texas, March 6-9, 2016. Several current Biostatistics students along with a few of our Biostatistics faculty members will be attending and would be happy to meet any of our alumni or friends for dinner on Monday, March 9. If you are attending ENAR 2016 and are interested in getting together, please email Russ Boyle at boyle@vcu.edu, and he will coordinate.

Alumni Spotted:

Leanna Stork was featured in Amstat news on how to be a collaborator and team leader. Click on link to read more.