Curriculum Vitæ

Sahir Rai Bhatnagar

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1 Identification

Name:	Sahir Rai Bhatnagar
Designations:	Associate of the Society of Actuaries (ASA)
Address:	Lady Davis Institute for Medical Research Jewish General Hospital H483, Clinical Epidemiology 3755 Côte Ste. Catherine Montréal, Québec H3T 1E2
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Citizenship:	Canadian
Languages:	English, French, Hindi

2 Education

2013–present	Ph.D. (Biostatistics) McGill University, Montreal QC, Canada *Advisors:* Dr. Celia Greenwood and Dr. Mathieu Blanchette *Committee Member:* Dr. Yi Yang PhD thesis title: High Dimensional Interactions with an Environment Variable Queen Elizabeth Scholar
2012–2013	Master of Science (Biostatistics) Queen's University, Kingston ON, Canada *Advisors:* Dr. Paul Peng and Dr. Devon Lin *Committee Members:* Dr. Dongsheng Tu and Dr. Wenyu Jiang MSc project title: Absolute risk estimation in a case cohort study of prostate cancer (GPA 3.94/4.3)
2005–2008	Bachelor of Science (Actuarial Mathematics) Concordia University, Montreal QC, Canada

3 Awards

2017	UK Genetics Society Training Grant £1,000
2016	McGill University and Genome Quebec Innovation Centre (MUGQIC) Travel Award $1,000
2016	Graduate Research Enhancement and Travel (GREAT) Award $1,000
2016	Quantitative Biology and Medical Genetics for the World Queen Elizabeth II Scholarship $6,000
2016	Best Student Oral Presentation - 28th International Biometric Society Meeting
2016	SSC Biostatistics Section Travel Award $250
2015	Best Poster Presentation - 4th Annual Canadian Human and Statistical Genetics Meeting $1,000
2014	Genetic Analysis Workshop 19 Travel Award $1,000
2013	McGill Graduate Excellence Award $18,000
2012	MSc Queen's Graduate Studies Award $20,000

4 Professional Examinations

2011	Associate of the Society of Actuaries (ASA)

5 Experience

2016 –	Data Science Blogger at Plotly
2016 –	Queen Elizabeth Scholar - Wellcome Trust Sanger Institute, UK.
2015 –	Statistical Consultant, iMD Research
2012 – 2013	Research Assistant, McGill University Working with Dr. Andrea Benedetti in the Respiratory Epidemiology and Clinical Research Unit at McGill, where our research is focused on methods for correlated data, as well as developing an R package for the clustering of DNA fingerprint data
2008 – 2012	Actuarial Analyst, Aon Hewitt Preparation and verification of annual reports, financial reports, annual statements, valuation reports, budget projections, and pension costs for clients balance sheets. Responsible for translation of pension plan status to clients

6 Teaching

6.1 Teaching Assistant

2014	Teaching Assistant, McGill University Inferential Statistics (EPIB 607)
2012–2013	Teaching Assistant, Queen's University Tutorial leader in calculus (MATH 121) Term and exam marker for numerical methods and actuarial mathematics

6.2 Short courses and Tutorials

2017/01/27	Bhatnagar SR: 7 Interactive Plots from the Pharmaceutical Industry
2016/05/21	Bhatnagar SR: GitHub for Data Scientists without the Terminal
2016/04/15	Bhatnagar SR: Loops and Simulations in R. Department of Epidemiology, Biostatistics and Occupational Health, McGill University. Sponsored by Epidemiology, Biostatistics and Occupational Health Student Society (EBOSS).
2015/07/29	Bhatnagar SR: Atelier sur le logiciel en R: Un introduction à la programmation en R. GERAD: Groupe d'études et de recherche en analyse, Université de Montréal. Sponsored by HEC Montréal.
2015/05/28	Bhatnagar SR: Reproducible Research: An introduction to `knitr`. Department of Epidemiology, Biostatistics and Occupational Health, McGill University. Sponsored by the CRM Statistics Laboratory and the Montreal Biostatistics Seminar Series.
2013/05/13	Bhatnagar SR: Introduction to LaTeX. Queen's University, Department of Mathematics and Statistics.

7 Other Contributions

7.1 Administrative Responsibilities and Committees

2015–	International Genetic Epidemiology Society Communications Committee Member
2014–2015	Post-Graduate Students' Society (PGSS) Councillor

7.2 Professional Associations

2011–	Society of Actuaries
2013–	Statistical Society of Canada
2016–	International Genetic Epidemiology Society

7.3 Volunteer Service

2010–Present	Math Teacher, Aditya Youth Trust Fund Teaching mathematics to a group of elementary and high school students who are financially under resourced. Motivate and inspire students to place a high value on education while promoting wholesome social involvement, and to encourage them to achieve their maximum potential
2011–2013	MAB - Mackay Rehabilitation Center Working with elderly patients diagnosed with Retinitis Pigmentosa. Accompaniment to perform everyday tasks that would be difficult to do independently such as grocery shopping, banking transactions, and outdoor activities

8 Publications

8.1 Published/In Press

1. Klein Oros K, Oualkacha K, Lafond M, Bhatnagar SR, Tonin PN, Greenwood CMT (2016). Gene coexpression analyses differentiate networks associated with diverse cancers harbouring TP53 missense

or null mutations. *Frontiers in Genetics, section Statistical Genetics and Methodology.* Aug 3;7:137. DOI 10.3389/fgene.2016.00137

2. Sun J., Bhatnagar SR, Oualkacha K, Ciampi A, Greenwood CMT (2016) Joint analysis of multiple blood pressure phenotypes in GAW19 data by using a multivariate rare-variant association test. *BMC Proceedings.* 2016, 10(Suppl 7):14. DOI 10.1186/s12919-016-0048-3

3. Bhatnagar SR, Greenwood CMT, Labbe A (2016) Assessing transmission ratio distortion in extended families: a comparison of analysis methods. *BMC Proceedings.* 2016, 10(Suppl 7):12. DOI 10.1186/s12919-016-0030-0

4. Wang Y, Murphy O, Turgeon M, Wang ZY, Bhatnagar SR, Schulz J, and Moodie EEM (2015) The perils of Quasi-likelihood Information Criteria. *Stat.* Feb 1;4(1):246-54. DOI: 10.1002/sta4.95

5. Bhatnagar SR, Atherton J, Benedetti A (2015). Comparing alternating logistic regressions to other approaches to modelling correlated binary data. *Journal of Statistical Computation and Simulation.* Jul 3;85(10):2059-71. DOI 10.1080/00949655.2014.916707

8.2 Submitted

1. Hamadani FT, Bhatnagar SR, Balvardi S, Trepanier M, Grushka J, Deckelbaum D, Court O, Fata P. Burnout and Career Satisfaction Among Canadian General Surgeons: Results of the CAGS National Burnout Study. Submitted (2016/08).

2. Delouya G, Bhatnagar SR, Tiberi D, Campeau S, Rompotinos D, Taussky D. Impact of adipose tissue distribution on cancer aggressiveness and positive margins after radical prostatectomy. Submitted (2017/01).

3. Bhatnagar SR, Yang Y, Khundrakpam B, Evans A, Blanchette M, Bouchard L, Greenwood CMT. An analytic approach for interpretable predictive models in high dimensional data, in the presence of interactions with exposures. DOI 10.1101/102475. Submitted (2017/01).

9 Presentations

* indicates the person that gave the presentation

9.1 Contributed Conference Presentations

2017/06/12 Bhatnagar SR*, Yang Y, Jolicoeur-Martineau A, Wazana A, Greenwood CMT: Strong heredity penalized regression models for non-linear gene-environment interactions. 45th Annual Meeting of the Statistical Society of Canada, Winnipeg, Canada.

2016/11/18 Bhatnagar SR: Genomic Visualisations for Biologists in R. Plotcon 2016, New York City, NY. YouTube video of presentation.

2016/11/03 Bhatnagar SR*, Yang Y, Khundrakpam B, Evans A, Blanchette M, Bouchard L, Greenwood CMT: An analytic approach for interpretable predictive models in high dimensional data, in the presence of interactions with exposures. 25th Annual International Genetic Epidemiology Society Meeting, Toronto, Canada.

2016/09/09 Hamadani FT*, Bhatnagar SR, Balvardi S, Trepanier M, Grushka J, Deckelbaum D, Court O, Fata P: Burnout and Career Satisfaction Among Canadian General Surgeons: Results of the CAGS National Burnout Study. Canadian Surgery Forum, Toronto, Canada.

2016/07/10 Bhatnagar SR*, Yang Y, Blanchette M, Greenwood CMT: Strong Heredity Models in High Dimensional Data. 28th International Biometrics Conference, Victoria, Canada.

2016/04/18 Bhatnagar SR*, Yang Y, Blanchette M, Greenwood CMT: A Model for Interpretable High-Dimensional Interactions. 5th Annual Canadian Human and Statistical Genetics Meeting, Halifax, Canada.

2015/04/19 Bhatnagar SR*, Houde A, Voisin G, Bouchard L, Blanchette M, Greenwood CMT: DNA methylation and Expression to predict childhood obesity. 4th Annual Canadian Human and Statistical Genetics Meeting, Vancouver, Canada.

9.2 Submitted Conference Presentations

2017/03/01 Abou Khalil M, Bhatnagar SR, Boutros M: A Nomogram for Prediction of Mortality in Patients who Undergo Surgery for Fulminant Clostridium Difficile Colitis: Results from the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) Database. American College of Surgeons' 2017 Clinical Congress (October 22-26), in San Diego, CA.

2017/01/25 Kronfli N, Bhatnagar SR, Moodie EEM, Hull M, Klein MB: Trends in Cause-Specific Mortality in HIV-hepatitis C (HCV) co-infected patients in Canada (2003 2016): Possible Beneficial impact of HCV therapy. 9th IAS Conference on HIV Science, Paris, France.

9.3 Poster Presentations

2017/05/13 Nadig A*, Flanagan T, Bhatnagar SR, White K: Results of a RCT on a Transition Support Program for Adults with ASD: Effects on Quality of Life and Self-Determination. 2017 International Meeting for Autism Research, San Francisco, California, USA.

2016/05/12 Hull M*, Bhatnagar SR, Moodie EEM, Klein M: Trends in causes of mortality in the Canadian Co-infection cohort (CCC) 2005 – 2015. 25th Annual Canadian Conference on HIV/AIDS Research, Winnipeg, Canada.

2016/04/17 Bhatnagar SR*, Yang Y, Blanchette M, Greenwood CMT: A Model for Interpretable High Dimensional Interactions. 5th Annual Canadian Human and Statistical Genetics Meeting, Halifax, Canada.

2015/04/19 Bhatnagar SR*, Houde A, Voisin G, Bouchard L, Blanchette M, Greenwood CMT: Integrating DNA Methylation and Gene Expression data in Placenta Tissue to Predict Childhood Obesity. 4th Annual Canadian Human and Statistical Genetics Meeting, Vancouver, Canada. *$1,000 Award for Best Poster*

2014/08/24 Bhatnagar SR*, Greenwood CMT, Labbe A: Transmission Ratio Distorition in Extended Families. Genetic Analysis Workshop 19, Vienna, Austria.

2014/08/25 Sun J, Bhatnagar SR*, Oualkacha K, Ciampi A, Greenwood CMT: Joint analysis of multiple blood pressure phenotypes in GAW19 data by using a multivariate rare-variant association test. Genetic Analysis Workshop 19, Vienna, Austria.

2014/05/26 Bhatnagar SR*, McGregor K*, Turgeon M*: Effect of economy on TV time use. 42nd Annual Meeting of the Statistical Society of Canada, Toronto, Ontario.

9.4 Seminar Presentations

2015/08/12 Bhatnagar SR: Introduction to knitr and R Markdown. Montréal UseR Group, Notman House, Montréal.

2015/03/12 Bhatnagar SR: Imputing the Epigenome. Lady Davis Institute, Montreal Jewish General Hospital.

2015/03/05 Bhatnagar SR: Making sense of Methylation & Expression data in Cordblood and Placenta Tissues. Lady Davis Institute, Montreal Jewish General Hospital.

2014/04/07 Bhatnagar SR: Estimation and Accuracy after Model Selection by Bradley Efron. Department of Mathematics and Statistics, McGill University.

2014/01/23 Bhatnagar SR: Reproducible Research and Biostatistics. Biostatistics Reading Group, McGill University.

2014/08/07 Bhatnagar SR*, Greenwood CMT, Labbe A: Transmission Ratio Distortion in Extended Families. Lady Davis Institute, Montreal Jewish General Hospital.

2013/08/30 Bhatnagar SR: Absolute Risk Estimation in a Case Cohort Study of Prostate Cancer. Department of Mathematics and Statistics, Queen's University.

2013/03/06 Bhatnagar SR: Colorectal Cancer Screening in Visible Minorities in Canada. Department of Public Health Sciences, Queen's University.

2012/11/27 Bhatnagar SR: Computational Methods for the Case-Cohort Design. Department of Public Health Sciences, Queen's University.

10 Software

10.1 R Packages

acm4r
https://cran.r-project.org/package=acm4r
Fragment lengths or molecular weights from pairs of lanes are compared, and a number of matching bands are calculated using the Align-and-Count Method.

eclust
https://cran.r-project.org/package=eclust
A Statistical Software Tool for the Analysis of High-Dimensional Interactions. It's main functionality is to fit statistical models for analyzing interactions between a high dimensional dataset (e.g. genomics, brain imaging), the environment and a response.

casebase
http://sahirbhatnagar.com/casebase/
A statistical software tool to fit smooth-in-time parametric hazard functions using case-base sampling. This approach allows the explicit inclusion of the time variable into the model, which enables the user to fit a wide class of parametric hazard functions. For example, including time linearly recovers the Gompertz hazard, whereas including time logarithmically recovers the Weibull hazard; not including time at all corresponds to the exponential hazard. This is joint work with Maxime Turgeon, Olli Saarela and James Hanley.

manhattanly
https://cran.r-project.org/package=manhattanly
Create interactive Q-Q and manhattan plots that are usable from the R console, in the 'RStudio' viewer pane, in 'R Markdown' documents, and in 'Shiny' apps.

11 Technical Skills

R

SAS

LaTeX

Microsoft Office suite

Unix/Linux operating system, Bash Shell Script

Git, GitHub

Jekyll, HTML

References

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