

Rachael Hageman Blair, Ph.D.  
Curriculum Vitae  
(updated 07/2017)

Department of Biostatistics  
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## Education

- Ph.D. (2007) Case Western Reserve University, Cleveland, OH  
Mathematics (advisor: Daniela Calvetti)  
Dissertation: *Bayesian methods for large-scale parameter estimation and sensitivity analysis for myocardial metabolism.*
- M.S. (2006) Case Western Reserve University, Cleveland, OH  
Mathematics (advisor: Daniela Calvetti)  
Thesis: *Iterative methods for blind deconvolution.*
- B.S. (2002) State University of New York College at Fredonia, Fredonia, NY  
Mathematics (*cum laude*).

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## Professional Appointments

- 08/2011 – present **State University of New York at Buffalo**, Buffalo, NY  
Department of Biostatistics  
*Assistant Professor*  
(one year tenure clock stop 2012-2013 due to birth of child)
- 08/2011 – present **Roswell Park Cancer Institute**, Buffalo, NY  
Department of Biostatistics  
*Adjunct Professor*

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## Research Experience & Training

- 08/2007 – 08/2011 **The Jackson Laboratory**, Bar Harbor, ME  
*Postdoctoral Associate* (mentor: Gary Churchill)
- Major projects include statistical methodologies for causal inference, high-throughput data analyses of microarray and quantitative trait loci (QTL) data in collaborations with biologists in the NIGMS Center for Genome Dynamics.
- 08/2005 – 05/2007 **Case Western Reserve University**, Cleveland, OH  
*Research Fellow*
- Department of Mathematics and the NIGMS Center for Modeling Integrated Metabolic Systems.

05/2001 – 08/2001 **Worcester Polytechnic Institute**, Worcester, MA

*NSF Undergraduate Research*

- NSF Research Experience for Undergraduates (REU) in collaboration with DEKA Research Corporation

## **Teaching Experience & Course Development**

08/2012 – present **University at Buffalo**, Buffalo, NY

*Instructor: Statistical Data Mining I-II (STA 545 and STA 546)*

*Developed a data mining course series that spans topics in supervised (STA 545) and unsupervised (STA 546) learning. The course follows a hybrid online format, which makes extensive use of video capture, discussion forums, and other organizational tools through UB learns. In addition to Biostatistics students, the course has attracted students from a variety of quantitative sciences, e.g., engineering, economics, mathematics, and computer science. The course series is now a required component of the Data Science Masters in Engineering and elective in the Computational and Data Enabled Science and Engineering programs.*

08/2007 – 08/2009 **The Jackson Laboratory**, Bar Harbor, ME

*Research mentor for the Summer Student Program in the Center for Genome Dynamics for advanced high-school students from various magnet schools. Distance learning was used to deliver lectures and mentored students in independent research projects.*

05/2003 – 08/2007 **Case Western Reserve University**, Cleveland, OH

**School of Graduate Studies**

**School of Medicine, Department of Mathematics, Department of Computer Science and Engineering**

*Instructor: Calculus I-III (undergraduate course), Applied Statistics for Engineer (graduate course), Applied Mathematics and Statistics (Summer Medical and Dental Education Program).*

*Taught a variety of math and statistics courses as instructor on record to both undergraduate and graduate students. Full responsibility was assumed for development and delivery of lectures, assignment of homework, exam development, grading, and holding office hours.*

### **Guest Lecturer (synergistic teaching activities):**

Department of Pharmaceutical Sciences, Pharmacogenomics in pharmaceutical sciences (PHC 509) – guest lecture “statistical considerations for the analysis of omics data” (Fall 2016).

Computational and Data Enabled Science (CDSE) Days – workshop on Introduction to R programming (Spring 2015).

Roswell Park Cancer Institute, graduate program in Molecular Biophysics (BPR 503), lecture on Pathway Analysis (Fall 2013, Fall 2014, Fall 2015, Fall 2016).

Department of Biostatistics, Bioinformatics (STA 525), guest lecture (Spring 2014).

Short Course on Systems Genetics (Formerly short course on Complex Traits), The Jackson Laboratory, guest lecture and computer lab development (Fall 2008, Fall 2009, Fall 2010).

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## Professional Awards and Honors

- UB SPHHP Outstanding Junior Researcher, 2017
- NLMNIH Travel Award, Pacific Symposium for Biocomputing, 2015
- SAMSI Ideas/Innovation Lab Participant, 2015
- UB Individual Development Award, Spring 2014
- Department of Biostatistics Award for Teaching Excellence, Spring 2013.
- Department of Biostatistics Award for Teaching Excellence, Fall 2012.
- High Dimensional Statistics in Biology Workshop NIH travel award, 2008.
- SIAM, ICIAM travel award, 2007.
- AWM, Joint Mathematics Meeting travel award, 2007.
- SIAM, Conference on the Life Sciences award, 2006.
- European Mathematical Society, Mathematical Models of the Heart travel award, 2006.
- Mathematical Biosciences Institute, Cardiac Workshop travel award, 2006.
- Mathematical Sciences Research Institute, Imaging Workshop travel award, 2004.
- Graduate Dean's Award in Instructional Excellence, Case Western University, 2003.

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## Peer Reviewed Publications

- Quiñones-Lombrana A, **Hageman Blair R**, Blanco JG. (2017) Investigation of the role of DNA methylation in the expression of ERBB2 in human myocardium. (in press) *Gene*
- Hao F and **Hageman Blair R.\*** (2016) A comparative study: classification vs. user-based collaborative filtering for clinical risk prediction. 172(16) *BMC Medical Research Methodology* \*Senior author - first author graduate student
- Hoefler CA\*, **Hageman Blair R.\***, Blanco JG (2016) Development of a CART model to predict the synthesis of cardiotoxic daunorubicinol in heart tissue samples from donors with and without down-syndrome. *Journal of Pharmaceutical Sciences* 105(6) 2005-8.  
\*equal contributions
- Moharil J., May P, Gaile D., **Hageman Blair R.\*** (2016) Belief Propagation in Genotype-phenotype networks. *Statistical Applications in Genetics and Molecular Biology* 15(1):39-53. \*Senior author - first author graduate student
- Hoefler CC, Quinones-Lombrana A, **Hageman Blair R.**, Blanco JG (2016) Role of DNA methylation on the expression of the anthracycline metabolizing enzyme AKR7A2 in human heart. *Cardiovascular Toxicity* 16(2): 182-192.
- Farasat A, Nikolaev A, Srihari S, **Hageman Blair R.\*** (2015) Probabilistic Graphical Models in Modern Social Networks. *Social Network Analysis and Mining* 5(1) 1-18.  
\*Senior author - first author graduate student

- Griesenhofer L., **Hageman Blair R.\*** (2014) Evaluating performance of link prediction in scale-free evolving networks and a Facebook community. *Social Network Analysis and Mining* 4(183). \* Senior author - first author graduate student
- Quinnes-Lombrana A., Ferguson D., **Hageman Blair R.**, Kalabus J.L., Redzematovic A., and Blanco J.G. (2014) Individual variability in the cardiac expression of anthracycline reductases in donors with- and without- Down Syndrome. *Pharmaceutical Research* 2014; (31)7: 1644-55.
- Alkakna A, Choi S, Savage H, **Hageman Blair R**, Gu T, Svenson KL, Churchill GA, Hibbs M, Korstaje R. (2012) Pla2g12b and Hpn are genes identified by mouse ENU mutagenesis that affect HDL cholesterol. *PLoS One* 7(8): e43139.
- **Hageman Blair R**, Trichler DL, Gaile DP. (2012) Mathematical and Statistical Modeling in Cancer Systems Biology. *Frontiers in Physiology* 3(227).
- **Hageman Blair R**, Kliebenstein DJ, Churchill GA. (2012) What can causal networks tell us about metabolic pathways? *PLoS Computational Biology* 8(4): e10024258.
- Leduc MS, **Hageman Blair R**, Tsaih SW, Verdugo RA, Walsh K, Churchill GA, Paigen B. (2012) Using bioinformatics and systems genetics to dissect HDL cholesterol genetics in an MRL/MpJ x SM/J intercross. *The Journal of Lipid Research* (53)6: 1163-1175.
- Leduc MS, **Hageman RS**, Tsaih SW, Verdugo RA, Walsh K, Churchill GA, Paigen B. (2011) Integration of QTL and bioinformatic tools to identify candidate genes for triglycerides in an MRL/MpJ x SM/J intercross. *The Journal of Lipid Research* 52: 1672-1682.
- **Hageman RS**, Leduc M, Paigen B, Korstanje R, and Churchill GA. (2011) A Bayesian Framework for Inference of the Genotype-Phenotype Map for Segregating Populations. *Genetics* 187(4): 1163-1170.
- **Hageman RS**, Leduc MS, Caputo CR, Tsaih SW, Paigen B, Churchill GA, and Korstanje R. (2011) Uncovering Genes and Regulatory Pathways Related to Urinary Albumin Excretion in Mice. *Journal of the American Society of Nephrology* 22: 73-81 (2011). (Selected by the Faculty of 1000 Biology.)
- Leduc MS, **Hageman RS**, Meng Q, Verdugo RA, Tsaih SW, Churchill GA, Paigen B, Yuan R. (2010) Identification of genetic determinants of IGF-1 levels and longevity among mouse inbred strains. *Aging Cell* 9(5): 823-836.
- **Hageman RS**, Wagener A, Hantschel C, Svenson KL, Churchill GA, and Brockmann GA. (2010) High fat diet leads to tissue specific changes reflecting risk factors for diseases in DBA/2J mice. *Physiological Genomics* 42:55-66.
- \*Calvetti D, \***Hageman R**, \*Occhipinti R, and \*Somersalo E. (2008) Dynamic Bayesian sensitivity analysis of a myocardial metabolic model. *Mathematical Biosciences* 212:1-21.\*  
- Authors alphabetized with equal contributions

- \*Calvetti D, \***Hageman R**, and \*Somersalo E. (2006) Large-scale Bayesian parameter estimation for a three-compartment cardiac metabolism model during ischemia. *Inverse Problems* 22:1797-1816. \* - Authors alphabetized with equal contributions

### Peer Reviewed Conference Proceedings

- Yu H and **Hageman Blair R\*** (2016) A framework for attribute-based community detection with applications to integrative functional genomics. *Pacific Symposium on Biocomputing* 21:69-90. \*Senior author - first author graduate student (rank 3/52 - conferences in bioinformatics and comp. biology via Microsoft academic search)

### Book Chapters

- **Hageman Blair R**, Trichler DL, Gaile DP. (2014) Cancer Systems Biology. In *Recent Advances in Systems Biology*. NovaScience Publishers.

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### Submitted Manuscripts

- Yu H, Chapman B, DiFlorio A, Eischen E, Gotz D, and **Hageman Blair R.\*** Bootstrapping estimates of stability for clusters, observations and model selection (under review). \*Senior author - first author graduate student
  - Yu H and **Hageman Blair R.\*** Weighted fast greedy algorithm for clustering large attributed networks. (under review) \*Senior author - first author graduate student
  - Yu H, Moharil J and **Hageman Blair R.\*** BayesNetBP for probabilistic reasoning in Bayesian Networks. (under review) \*Senior author - first author graduate student
  - Bubier J, Philip VM, Quince C, Campbell J, Zhou Y, Vishnivetskaya T, Duvvuru S, **Hageman Blair R**, Ndukum J, Donahue K, Phillips K, Foster CM, Mellert DJ, Weinstock GJ, Culiati CT, Baker EJ, Langston MA, O'Hara B, Palumbo AV, Podar MV and Chesler EJ. Systems genetic discovery of host-microbiome interactions reveals mechanisms of microbial involvement in disease. (under review).
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### Conference Proceedings

- Yu H and **Hageman Blair R.\*** Attribute-based module detection for the elucidation of tissue-specific pathways for oncoimmunology. Topic contributed paper to appear Joint Statistical Meetings, Baltimore, 2017. \*Senior author - first author graduate student
- Smith RV, McGann D, Gotwals R, Symonds R, **Hageman RS**, Vedell PT, and Churchill GA. (2009) *Independent Studies in Computational Biology*. National Consortium for Specialized Secondary Schools of Math, Science and Technology Journal, 15(1):10-16.
- Calvetti D, **Hageman RS**, Occhipinti R, and Somersalo E. (2005) *Large-scale statistical parameter estimation during circulatory occlusion*. International Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE) proceedings.

- Calvetti D, **Hageman RS**, Occhipinti R, and Somersalo E. (2005) *Large-scale statistical estimation of metabolic parameters at steady-state*. International Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE) proceedings.

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## Selected Abstracts from Presentations at Conferences and Meetings

- Yu H and **Hageman Blair R**. Attribute-based module detection for the elucidation of tissue-specific pathways for oncoimmunology. ASA JSM, Baltimore, MD, 2017. (oral presentation – Yu H).
- Yu H and **Hageman Blair R**. BayesNetBP: Probabilistic Reasoning in Bayesian Networks. Complex Traits Consortium 2017, Memphis, TN, 2017. (oral presentation – Yu H).
- Grieshober L, Wactawski-Wende J, **Hageman Blair R**, Mu L, Liu K, Nie J, Carty CL, Hale L, Kroenke C, LaCroix AZ, Reiner AP, Ochs-Balcom HM. *Longer sleep duration is associated with longer telomeres: results from the Women's Health Initiative Society for Epidemiologic Research*, Seattle, WA, 2017. (poster – Grieshober L)
- **Hageman Blair R**, Chapman B, DiFlorio A, Eischen E, Gotz D, Yu H. *Flexible bootstrapping and analytic approaches towards the clustering of complex medical data*. *F1000Research* 2016, 5:2724 (poster) (doi: [10.7490/f1000research.1113440.1](https://doi.org/10.7490/f1000research.1113440.1)) B2DK All Hands Meeting, Bethesda MD, 2017. (poster – Blair RH)
- **Hageman Blair R\***, Chapman B\*, DiFlorio A\*, Eischen E\*, Gotz D\*. *Interactive ensemble clustering for mied data with application to mood disorders*. B2DK All Hands Meeting, Bethesda MD, 2017. (poster – Eischen E) \* - Authors alphabetized with equal contributions
- Yu H, Chapman B, DiFlorio A, Eischen E, Gotz D, and **Hageman Blair R**. *Bootstrapping estimates of stability for clusters, observations and model selection*. ISCB Rocky Mountain Bioinformatics Conference, Aspen, CO, 2016. (poster – Yu H)
- Moharil J and **Hageman Blair R**. *Probabilistic reasoning in genotype-phenotype networks*. ISCB RSG-DREAM Phoenix, AZ, 2016. (oral presentation – Blair RH)
- Tison GH, Nah G, Olgin, J, Vittinghoff E, Howard B, Foraker R, Allison M, Casanova R, **Hageman Blair R**, Breathett K, Klein L, Parikh N. *Identifying novel predictors for incident heart failure using statistical learning techniques in the Women's Health Initiative (WHI) cohort*. AHA Scientific Sessions, New Orleans LA, 2016. (poster – Tison GH)
- Yu H and **Hageman Blair R**. *A framework for attribute-based community detection with applications to integrative functional genomics*. Pacific Symposium on Biocomputing, Kona, HI, 2016. (oral presentation –Blair RH)
- Crowley A, Zhoulin H, **Hageman Blair R**. *Data mining major league baseball's pace of play problem*. New England Symposium on Statistics in Sports, Boston, MA 2015. (poster – Crowley A) winner of best poster in Department of Biostatistics

- Moharil J., May P, Gaile D., **Hageman Blair R.** *Belief Propagation in Genotype-phenotype networks.* BioMedical Engineering Society (BMES) annual meeting, San Antonio Texas, 2014. (poster – Moharil J)
- **Hageman RS**, Leduc M, Paigen B, Korstanje R, and Churchill GA. *A Bayesian Framework for Inference of the Genotype-Phenotype Map for Segregating Populations.* International conference on Research in Computational Molecular Biology (RECOMB), Lisbon, Portugal, 2010. (poster - Hageman RS)
- **Hageman RS**, Aljakna A, Svenson KL, Churchill GA and Korstanje R. *Multiple mutations perturb a small number of pathways in an HDL mutagenesis screen.* International Symposium on Atherosclerosis, Newport, RI, USA, 2009. (poster – Hageman RS)
- **Hageman RS**, Aljakna A, Svenson KL, Churchill GA and Korstanje R. *Multiple mutations perturb a small number of pathways in an HDL mutagenesis screen.* Complex Traits Consortium, Manchester, England, UK, 2009. (poster – Hageman RS)
- **Hageman RS**, Brockman G and Churchill GA. *Differences in gene expression in the adipose tissues of DBA/2 mice under a high fat diet.* High dimensional statistics in biology workshop, Cambridge, UK, 2008. (poster – Hageman RS)
- Calvetti D, **Hageman RS** and Somersalo E. *Dynamic Bayesian sensitivity analysis in myocardial metabolism.* International Congress of Industrial and Applied Mathematics (ICIAM), Zurich, Switzerland, 2007. (oral presentation – Hageman RS)
- Calvetti D, **Hageman RS** and Somersalo E. *Bayesian Large scale dynamic sensitivity analysis in myocardial metabolism.* Joint Mathematics Meeting, New Orleans, LA, USA, 2007. (poster – Hageman RS)
- Calvetti D, **Hageman RS** and Somersalo E. *Bayesian sensitivity analysis in cardiac metabolism.* Biomedical Engineering Society (BMES): annual meeting, Chicago, IL, USA, 2007. (poster – Hageman RS)
- Calvetti D, **Hageman RS** and Somersalo E. *Large scale parameter estimation for the dynamic cardiac metabolism during ischemia.* Society for Industrial and Applied Mathematics (SIAM): Conference on the Life Sciences, Raleigh, NC, USA, 2006. (oral presentation – Hageman RS)
- **Hageman RS**, Kline K, Wilkins L, Larson C. *Modeling the dynamics of a motorized wheelchair.* Joint Mathematics Meeting, San Diego, CA, USA, 2002. (poster – Hageman RS)

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## Invited Presentations

05/2009 - *Bayesian Networks in Biology.*

Humboldt University, School of Agriculture and Horticulture. Berlin, Germany.

03/2011 - *Modeling Complex Biological Systems.*

NC State, Department of Genetics, Raleigh, NC

09/2011 – *Toward the in silico cell: Alliance Workshop.*

Case Western Reserve University, Cleveland, OH.

- 09/2011 – *Markov Chains and Blind Deconvolution*.  
University at Buffalo, Department of Physiology and Biophysics.
- 09/2011 – *Modeling Complex Biological Systems*  
Roswell Park Cancer Institute, Department of Molecular and Developmental Genetics.
- 01/2012 – *What can causal networks teach us about metabolism?*  
University at Buffalo, Pharmaceutical Sciences and Neurology.
- 01/2013 – *Classification and Regression Trees: training seminar*  
University at Buffalo, Department of Chemistry (Thomas Szyperski Lab)
- 03/2013– *SPHHP Online Symposium*  
University at Buffalo, School of Public Health
- 11/2014 – *Belief Propagation in Genotype-Phenotype Networks*  
Department of Biological Statistics and Computational Biology (seminar speaker)  
Cornell University
- 11/2015 – *Interactive ensemble clustering for mixed data with application to mood disorders*  
NIH BD2K grantees “All Hands” meeting (poster – Ellen Eischen presenter)  
Ellen Eischen, Brian Chapman, David Gotz, Arianna DiFlorio, Rachael Hageman Blair  
National Institute of Health
- 04/2016 – *Perturbing Gene Networks*  
Association of Women in Mathematics, local chapter  
Buffalo, NY

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## Professional Service and Development

### External Professional Service

- Reviewer for *Physiological Genomics*
- Reviewer for *Bioinformatics*
- Reviewer for *Journal of the American Statistical Association (JASA)*
- Reviewer for *The Pacific Symposium on Biocomputing (PSB)*
- Reviewer for *PLoS One*
- Reviewer for *PLoS Computational Biology*
- Reviewer for *BMC Medical Research Methodology*
- Reviewer for *Science*
- Reviewer for *IEEE/ACM Transactions on Computational Biology and Bioinformatics*
- Reviewer for *CRC Press, Taylor & Francis Group: Applications in Data Mining Techniques for Oral Cancer Detection and Prevention*
- Reviewer for *British Journal of Applied Science and Technology*
- Reviewer for *Molecular BioSystems*
- Review Editor *Frontiers in Genomic Physiology* (2011-2012)
- Associate Editor *Advances in Systems Biology* (2013-present)
  
- Early Career Reviewer Program – NIH Center for Scientific Review (2014-present)
- Review Panel NSF DMS Mathematical Biology Program (2015)
- Review Panel NSF/NIGMS Interface of the Biological and Mathematical Sciences (2015)
- Review Panel NSF GRP (Graduate Research Fellowship Program) (2016)
- Review Panel DoD Extramural Medical Research: Combat Casualty Care (2016)
- Review Panel NSF DMS Mathematical Biology Program (2017)
- Reviewer for Center for CTSI (Clinical and Translational Science Institute) Penn State (2017)

Panel Invitations declined:



- Review Panel Department of Defense (DoD) Therapeutics and Treatment Gulf War Illness program

### **UB Internal Professional Service**

- Health Services Policy and Practice (HSSP), Participating Faculty, (2012 – present)
- Genetics, Genomics, and Bioinformatics Program, Participating Faculty, (2012 – present)
- Department of Biostatistics Vision Statement Committee (2012 - 2013)
- Faculty Council, (2012 – 2014)
- Faculty Search Committee Biostatistics/Epidemiology and Environmental Health (2013-2014)
- SPHHP SPEC Committee (2014)
- Perry Poster Day poster judge (2014)
- Communications Committee (2013 - 2015)
- Biostatistics Graduate Admissions Committee (2013-present)
- Faculty Search Committee Biostatistics (2015)
- Computational Data Enabled Science and Engineering, Participating Faculty (2015 – present)
- Computational Data Enabled Science and Engineering Admissions Committee (2015-present)
- UB IMPACT internal funding, review panel for the Life Sciences (2016)
- UB GEM Biostatistics consultation panel for pilot projects (2016)
- UB IMPACT Biostatistics consultation panel for pilot projects (2016)
- Faculty Search Committee UB Department of Chemical and Biological Engineering (2016-2017)
- Search Committee for the Chair of UB Department of Biostatistics (2016-2017)

### **Community Service**

- Faculty Mentor – Association for Women in Mathematics (2011-present)
- Faculty Mentor – UB LSAMP undergraduate summer research program for minorities (2015)
- Genome Day 2016 for Buffalo Public Schools – Sponsored by UB GEM (2016)
- Mind your microbiome week, Buffalo Public Schools – Sponsored by UB GEM (2016)

### **Professional Memberships**

- American Statistical Association (ASA)
- International Society for Computational Biology (ISCB)
- Association for Women in Mathematics (AWM)
- American Association for the Advancement of Science (AAAS) (2010-2012)

### **Development**

- UB CEI Workshop: How to help students learn (to work) in teams (2017)
- IGES Big data phenotyping workshop – University of Toronto (2016)
- UB Workshop: Network on Enriched Academic Relationships Mentoring (2016)
- UB Biostatistics, Applied Genomics Journal Club/Reading Group (2011- present)
- UB Online Training Course (2012)
- Short Course on Systems Genetics- The Jackson Laboratory, Bar Harbor ME, USA, (2008– 2010).
- High Dimensional Statistics in Biology Workshop - Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, 2008.
- Mathematical Models of the Heart - European Mathematical Society, Svalbard, Norway, 2006.
- Cardiac Mechanics and Remodeling Workshop. - Mathematical Biosciences Institute (MBI), Columbus OH, USA, 2006.
- Statistical and Numerical Methods for Inverse Problems Workshop. Bologna, Italy, 2005.
- Image Processing Workshop. Mathematical Sciences Research Institute (MSRI), Berkeley CA, USA, 2004.

## **Mentoring**

### **Masters Students**

#### *Completed*

- Darryl George, MA (2013) committee member
- Carolyn Horwitz MPH (2013) committee member
- Jeffery Rathbun MA (2013) committee member
- Chunyuan Diao MA (2013) committee member
- Jie Gong MA (2014) committee member
- Michael Edinger MPH (2015) committee member
- Mark Heiler MA (2015) committee member
- Joselle O'Brien MA (2015) advisor
- Janhavi Moharil MA (2015) advisor
- Fang Hao MA (2015) advisor
- Aaron Crowley MA (2015) advisor
- Matthew Miller MA (2015) advisor
- Emily Schiller MS (2016) committee member
- Kayla Morrell MS (2016) committee member
- Sarah Kauss MA (2016) committee member
- Nan Nan MA (2016) advisor
- Jieya Lin MA (2017) committee member
- Suruchi Jaikumar Ahunja MS (2017) advisor
- Aishwarya Mandava MS (2017) advisor
- Rui Cheng (MS, advisor)

#### *In progress*

- Krithika Krishnan (MS, advisor)

### **PhD Students**

#### *Completed*

- Iakovos Toumazis, Industrial & Systems Engineering PhD (2015) committee member  
(advisor: Changyun Kwon)

#### *In Progress*

- Han Yu (Biostatistics PhD program, advisor)
- Vineet Madasseri Payyappalli (Industrial & Systems Engineering PhD program, committee member) – advisor Jun Zhuang
- Boris Boutkov (CDSE PhD program, committee member) – advisor Paul Bauman
- Renette Jones (CDSE PhD program, committee member) – advisor Abani Patra
- Michael Vaiana (CDSE PhD program, committee member) – advisor Sarah Muldoon
- Laurie Grieshober (EEH PhD program, committee member) – advisor Heather Ochs-Balcom

### **Other**

- Laurie Grieshober (Department of Mathematics, 2012 summer research)
  - Gabriel Skugor (Department of Mathematics, 2015 undergraduate summer research)
  - Renee Meinhold (RIT Undergraduate, 2016, summer research RPCI) w/ Susan McCann (RPCI)
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## Research Support

### Ongoing Research Support

NSF/DMS-1557593 / Hageman Blair (PI) 09/2015-08/2017

*Project Title: QuBBD: Collaborative Research: Interactive ensemble clustering for mixed data with application to mood disorders*

This planning grant is a joint initiative between NIH and NSF to advance methodologies related to biomedical big data.

Role on Project: PI (multiple PI award: Gotz, Eischen, Jacob, Chapman)

NIH/NIEHS R21 ESO26429-01A1/ Mu (PI) 08/2016-07/2019

*Project title: "Metabolomics profiling of biological responses to air pollution"*

This project leverages metabolomics profiling via Mass Spectrometry to assess exposure to air pollution.

Role on Project: Co-I

NSF/DMS-1312250 / Hageman Blair (PI) 08/2013-08/2017

Mathematical Biology

*Project Title: Integrated Bayesian deterministic and probabilistic modeling of phenotype-genotype networks in the metabolic system.*

This project integrates graphical models of genotype-phenotype networks into dynamical systems, with applications to Arabidopsis and Mus musculus phenotypes.

Role on Project: PI

UB CEI Seed Grant (PIs: Hageman Blair & Gaile) 06/2017-05/2018

*Project title: "Integrative learning through the data-driven classroom: the DREAM challenge"*

This project develops an interdisciplinary new course that leverages integrative learning for the ISCB dream challenge.

Role on Project: PI

UB CTSA / Hageman Blair, Mieczkowski, Odunsi, Szyperski (PIs) 11/2015-03/2017

*Project title: "Multi-class modeling of metabolomics data for the detection of early stage ovarian cancer"*

This project utilizes classification methods using RNA-seq to develop predictive models for cancer. I will provide statistical support for the design of experiments, analysis of data, and assist in writing manuscripts.

Role on Project: PI (multiple PI award)

NIH/NIGMS 2R01GM073646 / Blanco (PI) 06/2015-05/2020

*Project Title: Contribution of CBRs and AKRs to the Pharmacodynamics of Anthracycline Drugs.*

This project examines a variety of data related to modeling the pharmacodynamics of anthracycline drugs in down syndrome and healthy patients.

Role on Project: Co-I

UB: Center of Excellence / Genco, Nowak, Haflon, Surtees (PIs) 06/2015-08/2018

*Project Title: The Genome, Environment, and Microbiome.*

This project integrates investigators across disciplines at UB for the purpose of examining the genome, environment, and microbiome, and the complex interplay between them.

Role on Project: Co-I

UB: GEM pilot funding / Millen (PI) 07/2017-06/2018

*Project title: "The Microbiome and Eye Study: The ME study an ancillary study of CAREDS 2"*

This project is a pilot study to test the feasibility and validity of collecting stool samples for microbiome analysis through the mail. The overall study aims to examine associations between gut microbes and age-related macular degeneration and MP optical density.

Role on Project: Co-I

NCI: T32 Training grant in cancer epidemiology / Freudenheim and Moyish (PIs) 09/2017-08/2022  
This grant is collaboration between the University of Buffalo and Roswell Park Cancer Institute for the training of graduate students and postdoctoral fellows using interdisciplinary mentoring and curriculum.  
Role on Project: training mentor

### **Competed Research Support**

1F32 NIH/NHLBI HL095240 Hageman (PI) 12/2008-8/2011

*Project title: Bayesian dynamic genome scale modeling of HDL cholesterol transport.*

The goal of this project was to develop mathematical models describing HDL metabolism in *mus musculus*.

UB/STOR-1111511 Hageman Blair & Syzperski (PIs) 05/2014-08/2014

*Project Title: Predictive models to diagnose ovarian cancer.*

This project relates to seed money for research development for early diagnostics for ovarian cancer.

Role on Project: PI

UB: IMPACT funding / Millen (PI) 06/2015-07/2017

*Project title: "The Neonatal Microbiome Study: A Pilot Study in Meru County; Kenya"*

This project is aimed at testing different microbiome sample collection methods, and understanding the associated variation in low-income regions of Kenya.

Role on Project: Co-I

### **Pending Research Support**

NSF/CISE (PI: Hageman Blair) 09/2017-08/2021

*Project title: "BIGDATA: IA: Integrative and Interactive Ensemble-Based Clustering for the Data-Driven Elucidation of Mental Health"*

This project develops methods relating to the clustering and visualization of "Big Data" with application focus on mood disorders in the UK Biobank.

Role on Project: PI (multiple PI award: Gotz, Eischen, Jacob, Chapman)

NIH (PI: Ramanathan) 10/2017-09/2021

*Project title: "Lipid signals of statin effects in secondary progressive Multiple Sclerosis"*

This project develops models to infer pathways of lipid markers and clinical endpoints.

Role on Project: Co-I

NCI (PI: Blanco) 10/2018-09/2023

*Project title: "Analysis of the patterns of pharmacogenetics testing in the State of New York"*

This project examines longitudinal trends in various pharmacogenetics tests in the state of New York.

Role on Project: Co-I