Keegan D Korthauer, PhD

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EDUCATION

University of Wisconsin, Madison, Wisconsin   2015
Department of Statistics
  Ph.D., Statistics
  Dissertation: *Bayesian hierarchical modeling of high-throughput genomic data with applications to cancer bioinformatics and stem cell differentiation*
  Advisor: Christina Kendziorski, Ph.D.

University of Minnesota, Minneapolis, Minnesota   2009
Division of Biostatistics, School of Public Health
  M.S., Biostatistics
  Thesis: *The impact of missing confounders on propensity stratification in observational studies*
  Advisor: David Nelson, Ph.D.

University of Minnesota, Minneapolis, Minnesota   2007
College of Biological Sciences
  B.S., *summa cum laude*, Biology

RESEARCH EXPERIENCE

Harvard T.H. Chan School of Public Health, &   2015 - present
Dana-Farber Cancer Institute, Boston, Massachusetts
  Postdoctoral Research fellow
  Advisor: Rafael Irizarry, Ph.D.
  Role: Develop statistical & computational tools for high-throughput genomics data

University of Wisconsin, Madison, Wisconsin   2013 - 2015
Department of Biostatistics and Medical Informatics
  Graduate Research Assistant
  Advisor: Christina Kendziorski, Ph.D.
  Role: Collaborate with clinical oncologists and developmental biologists to gain
    insight into biological processes

University of Wisconsin, Madison, Wisconsin   2010 - 2013
Department of Biostatistics and Medical Informatics
  Predoctoral Fellow, NIGMS Biostatistics Training Grant
  Rotation Projects:
  - *Hidden Markov Modeling of Palindromic Sequences*
    Advisor: Bret Larget, Ph.D.
  - *SNP-based Genomic Signature of Survival in Ovarian Cancer*
    Advisor: Christina Kendziorski, Ph.D.
  - *Analysis of Copy Number in Whole Genome Amplified Samples*
    Advisor: Michael Newton, Ph.D.

University of Wisconsin, Madison, Wisconsin   2009-2010
Institute for Clinical and Translational Research (ICTR)
    Project Assistant
    Advisor: Mary Lindstrom, Ph.D.
    Role: Consult with ICTR investigators on design and analysis plans

Veterans Affairs (VA) Medical Center &   2008-2009
University of Minnesota, Minneapolis, Minnesota
    Statistics Intern
    Supervisor: David Nelson, Ph.D.
    Role: Investigate the impact of missing confounders in causal inference

University of Minnesota, Minneapolis, Minnesota   2007-2009
Biostatistics Design and Analysis Center
    Project Assistant
    Supervisor: Cynthia Davey, M.S.
    Role: Consult with on-campus investigators on design and analysis plans

PUBLICATIONS   *Peer-Reviewed Journal Articles*

K. Korthauer, S. Chakraborty, Y. Benjamini, R. A. Irizarry. 'Detection and accurate False Discovery Rate control of differentially methylated regions from Whole Genome Bisulfite Sequencing. *Biostatistics*, in press, 2018.

C. J. Shukla, A. L. McCorkindale, C. Gerhardinger, **K. Korthauer**, M. N. Cabili, D. M. Shechner, R. A. Irizarry, P. G. Maass, J. L. Rinn. High-throughput identification of RNA nuclear enrichment sequences. *The EMBO Journal*, in press, 2017.

J. Choi, S. Ye, K. Eng, **K. Korthauer**, W. H. Bradley, J. S. Rader and C. Kendziorski. IPI59: an actionable biomarker to improve treatment response in serous ovarian carcinoma patients. *Statistics in Biosciences*, 9(1):1-12, 2017.

K. Korthauer, L.-F. Chu, M. A. Newton, Y. Li, J. Thomson, R. Stewart and C. Kendziorski. A statistical approach for identifying differential distributions in single-cell RNA-seq experiments. *Genome Biology*, 17:222, 2016.

C. Bodelon, M. Horswill, A. K. Chaturvedi, N. Wentzensen, S. Vinokurova, **K. Korthauer**, S. T. Dunn, J. N. Sampson, M. Schiffman, M. A. Newton, J. den Boon, M. E. Sherman, P. Ahlquist, J. L. Walker, R. E. Zuna, S. S. Wang. Copy number alterations and HPV integration in cervical precancer and invasive cancer. *Carcinogenesis*, 37(2):188-196, 2016.

K. Korthauer, C. Kendziorski. MADGiC: a model-based approach for identifying driver genes in cancer. *Bioinformatics*, 31(10): 15261535, 2015.

Y. J. Sung, **K. Korthauer**, M. Swartz and C. Engelman. Methods for Collapsing Multiple Rare Variants in Whole Genome Sequencing Data. *Genetic Epidemiology*, 38(S1):S13-S20, 2014.

J. Delgado, E. A. Jacobs, N. E. Adler, **K. Korthauer** and A. Fernandez. The relation between subjective socioeconomic status, depression and self-rated health in a population of African Americans, Hispanics and non-Hispanic whites with diabetes, *Journal of General Internal Medicine*, 28: S209, 2013.

M. Wuthrich, K. Ersland, J. C. Pick-Jacobs, B. H. Gern, C. A. Frye, T. D. Sullivan, M. B. Brennan, H. I. Filutowicz, K. O'Brien, **K. Korthauer**, S. Schultz-Cherry, B. S. Klein. Limited model antigen expression by transgenic fungi induces disparate fates during differentiation of adoptively transferred T cell receptor transgenic CD4+ T cells: robust activation and proliferation with weak effector function during recall. *Infection and immunity*, 80(2): 787-797, 2012.

J. Delgado, A. Fernandez, N. E. Adler, **K. Korthauer**, E. Jacobs. Subjective and objective socioeconomic status and control of hypertension and diabetes. *Journal of General Internal Medicine*, 27:S312-S312, 2012.

D. Z. Bliss, J. Lewis, **K. Hasselmann (now Korthauer)**, K. Savik, A. Lowry, R. Whitebird. Use and evaluation of disposable absorbent products for managing fecal incontinence by community-living people. *Journal of wound, ostomy, and continence nursing*, 38(3):289, 2011.

L. Wang, R. M. Mitra, **K. Hasselmann (now Korthauer)**, M. Sato, L. Lenarz-Wyatt, J. D. Cohen, F. Katagiri, J. Glazebrook. The genetic network controlling the Arabidopsis transcriptional response to Pseudomonas syringae pv. maculicola: roles of major regulators and the phytotoxin coronatine. *Molecular plant-microbe interactions*, 21(11): 1408-1420, 2008.

Book Chapters

K. Korthauer, J. Dawson and C. Kendziorski. Predicting cancer subtypes using survival-supervised latent Dirichlet allocation models. In *Advances in Statistical Bioinformatics: Models and Integrative Inference for High-Throughput Data*, K.-A. Do, Z. S. Qin and M. Vannucci (Eds). Cambridge University Press, 2013.

In Preparation

P. Kimes*, **K. Korthauer***, A. Reyes, C. Duvallet[†], A. Subramanian[†], M. Teng[†], Chinmay Shukla, R. A. Irizarry and S. C. Hicks. A Practical Guide for Methods Controlling False Discovery Rates. Draft available upon request.

M. A. Keibler, W. Dong, J. L. Coloff, **K. Korthauer**, A. M. Hosios, L. B. Sullivan, O. D. Arevalo, A. S. Phanse, J. Lee, K. Ho, R. A. Irizarry, J. S. Brugge, J. K. Kelleher, O. Iliopoulos, M. G. Vander Heiden, and G. Stephanopoulos. Differential Substrate Use in EGF- and Oncogenic KRAS-Stimulated Human Mammary Epithelial Cells. Draft available upon request.

* Denotes co-first authorship.
† Denotes equal contribution.

HONORS AND AWARDS	*Travel Award*, Workshop on Statistical Challenges in Single-Cell Biology Ascona, Switzerland	2017
	Travel Award, Biometrics Section, American Statistical Association Joint Statistical Meetings, Chicago, Illinois	2016
	Poster Award, Regional Advisory Board, International Biometric Society Eastern North American Region Meeting, Miami, Florida	2015
	Travel Grant, Vilas Conference Presentation Trust	2014
	Travel Scholarship, Howard Hughes Medical Institute/NIGMS Jackson Laboratory short course on Systems Genetics, Bar Harbor, Maine	2013
	Travel Award, Genetic Analysis Workshop Stevenson, Washington	2012
	Predoctoral Training Grant in Biostatistics National Institute for General Medical Sciences, University of Wisconsin	2010-2013
	Outstanding Teaching Assistant Award, University of Minnesota	2008
	Phi Beta Kappa Society, University of Minnesota	2007
	Research Grant, Undergraduate Research Opportunities Program University of Minnesota	2006
	National Merit James E. Casey Scholarship National Merit Scholarship Program & United Parcel Service (UPS)	2003-2007
SELECTED INVITED TALKS	Bioconductor Meeting, Boston, Massachusetts *Detection and inference of differentially methylated regions from bisulfite sequencing*	July 2017
	Festival of Genomics California, San Diego, California *Exploiting heterogeneity in single-cell transcriptomic analyses: how to move beyond comparisons of averages*	September 2016
	iBRIGHT, M. D. Anderson Cancer Center, Houston, Texas *A statistical approach for identifying differential distributions in single-cell RNA-seq*	November 2015

TEACHING EXPERIENCE	**Harvard T.H. Chan School of Public Health**, Boston, Mass. Fall 2017

Harvard T.H. Chan School of Public Health, Boston, Mass.   Fall 2017
Department of Biostatistics
Teaching Assistant for BST 260: Introduction to Data Science
- Formulate problem sets, solutions, and exam questions with teaching team
- Final project supervision and mentorship

University of Puerto Rico, San Juan, Puerto Rico   March 2017
Co-organizer for the Healthcare Innovation Replicathon
- Generated course material for a two-day hackathon-style event focusing on reproducibility and replicability in biomedical data science
- Led interdisciplinary teams from basic data science skills through reproducible analyses and presentations using R and GitHub

Cold Spring Harbor Laboratory, Cold Spring Harbor, New York   2016-2017
Teaching Assistant for Summer Short Course: Statistical Methods for Functional Genomics (2 sessions)
- Guided students through hands-on laboratory sessions

University of Wisconsin, Madison, Wisconsin   Spring 2014
Department of Statistics
Instructor for STAT 324: Applied Introductory Statistics for Engineers
- Curated course material and lectured to 120 students
- Designed problem sets and exams
- Supervised Teaching Assistants

University of Wisconsin, Madison, Wisconsin   Spring 2013
Greater University Tutoring Service
Volunteer Tutor for STAT 301: Introduction to Statistical Methods
- Led weekly review sessions for small groups of undergraduate students

University of Minnesota, Minneapolis, Minnesota   2007-2008
Division of Biostatistics, School of Public Health
Teaching Assistant for PubH 6414: Introduction to Biostatistical Methods I (3 semesters)
- Taught weekly lab sections, held office hours, and graded homework and exams

JOURNAL REFEREE
Annals of Applied Statistics, Bioinformatics, Biostatistics, GigaScience

PROF. SOCIETY MEMBERSHIPS
American Statistical Association, International Biometric Society (ENAR)