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## EDUCATION

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2006-2009	University of Iowa Ph.D., Biostatistics. <i>Received July 2009.</i>	Iowa City, IA
2004-2006	University of Iowa M.S., Biostatistics. <i>Received May 2006.</i>	Iowa City, IA
2002-2004	Iowa State University M.S., Biochemistry. <i>Received August 2004.</i>	Ames, IA
1998-2002	Iowa State University B.S., Mathematics, with honors. <i>Received May 2002.</i> B.S., Physics, with honors. <i>Received May 2002.</i>	Ames, IA

## RESEARCH INTERESTS

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- Methods for analyzing high-dimensional data
- Methods and algorithms for penalized likelihood models
- Analysis of genomic and genetic data
- Computational statistics

## EMPLOYMENT

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2024-Present	University of Iowa Professor, Department of Biostatistics	Iowa City, IA
2017-2024	University of Iowa Associate professor, Department of Biostatistics	Iowa City, IA
2013-2017	University of Iowa Assistant professor, Department of Biostatistics	Iowa City, IA
2009-2013	University of Kentucky Assistant professor, Department of Biostatistics	Lexington, KY
2009-2013	University of Kentucky Assistant professor, Department of Statistics	Lexington, KY
2005-2006	Center for Public Health Statistics, University of Iowa Research assistant	Iowa City, IA

## PEER-REVIEWED PUBLICATIONS

- PETER, T. K., REISETTER, A. C., LU, Y., RYSAVY, O. A. and BREHENY, P. J. (2026). plmmr: an R package to fit penalized linear mixed models for genome-wide association data with complex correlation structure. *Briefings in Bioinformatics*, **27** bbaf672.
- GARCIA, K. C., KHAN, A. A., GHOSH, K., SINHA, S., SCALORA, N., DEWANE, G., FULLENKAMP, C., MERRITT, N., DREBOT, Y., YU, S. Y., LEIDINGER, M., HENRY, M. D., BREHENY, P. J., CHIMENTI, M. S. and TANAS, M. R. (2026). Pi3k regulates taz/yap and mtorc1 axes that can be synergistically targeted. *JCI Insight*, **11**.
- CHOI, A., ALZAYADNEH, E., BREHENY, P. and XIONG, Y. (2026). Clinical, endoscopic, and upper gastrointestinal histological manifestations in pediatric inflammatory bowel disease: Insights from a large cohort. *Pediatric and Developmental Pathology*, **29** 112–119. PMID: 41473946.
- POPE, A. N., MOOSE, D. L., HUDSON, G. O., WERESH, H. R., DYKSTRA, M. R., JOSHI, A. Y., BREHENY, P., TAYLOR, E. B. and HENRY, M. D. (2026). Brief pulses of high-level fluid shear stress enhance metastatic potential and rapidly alter the metabolism of cancer cells. *Cell Reports*, **45** 116908.
- SCALORA, N., DEWANE, G., DREBOT, Y., KHAN, ALI, A., SINHA, S., GHOSH, KRISHNENDU, ROBINSON, D., COGSWELL, PATRICIA, BELLIZZI, A. M., SNOW, ANTHONY, N., BREHENY, P., CHIMENTI, MICHAEL, S. and TANAS, M. R. (2025). EHE cell cultures are a platform for mechanistic and therapeutic investigation. *Scientific Reports*, **15** 35516.
- DE MARCH, C. A., BREHENY, P., TITLOW, W. B., MATSUNAMI, H. and MCCLINTOCK, T. S. (2025). Distinct odorant receptor response patterns to aliphatic odorants in freely behaving mice. *Chemical Senses*, **50** 1–10.
- BORBON, L. C., SHERMAN, S. K., BREHENY, P. J., CHANDRASEKHARAN, C., MENDA, Y., BUSHNELL, D., BELLIZZI, A. M., EAR, P. H., O'DORISIO, M. S., O'DORISIO, T. M., DILLON, J. S. and HOWE, J. R. (2025). Peptide receptor radionuclide therapy improves survival in patients who progress after resection of gastroenteropancreatic neuroendocrine tumors. *Annals of Surgical Oncology*, **32** 1136–1148.
- PETRIN, A. L., MACHADO-PAULA, L. A., HINKLE, A., HOVEY, L., AWOTOYE, W., CHIMENTI, M., DARBRO, B., RIBEIRO-BICUDO, L. A., DABDOUB, S. M., PETER, T., BREHENY, P., MURRAY, J. C., OTTERLOO, E. V., VENUGOPALAN, S. R. and MORENO-URIBE, L. M. (2025). Familial oculoauriculovertebral spectrum: a genomic investigation of autosomal dominant inheritance. *The Cleft Palate Craniofacial Journal*, **0** 10556656241306202.
- DAI, B. and BREHENY, P. (2024). Cross-validation approaches for penalized Cox regression. *Statistical Methods in Medical Research*, **33** 702–715. PMID: 38445300.
- VAUGHN, H., MAJOR, H., KADERA, E., KECK, K., DUNHAM, T., QIAN, Q., BROWN, B., SCOTT, A., BELLIZZI, A. M., BRAUN, T., BREHENY, P., QUELLE, D. E., HOWE, J. R. and DARBRO, B. (2024). Functional copy-number alterations as diagnostic and prognostic biomarkers in neuroendocrine tumors. *International Journal of Molecular Sciences*, **25** 7532.
- MILLER, R. and BREHENY, P. (2023). Feature-specific inference for penalized regression using local false discovery rates. *Statistics in Medicine*, **42** 1412–1429.

- KOHLMAYER, J. L., LINGO, J. J., KAEMMER, C. A., SCHERER, A., WARRIER, A., VOIGT, E., RAYGOZA GARAY, J. A., MCGIVNEY, G. R., BROCKMAN, Q. R., TANG, A., CALIZO, A., POLLARD, K., ZHANG, X., HIRBE, A. C., PRATILAS, C. A., LEIDINGER, M., BREHENY, P., CHIMENTI, M. S., SIEREN, J. C., MONGA, V., TANAS, M. R., MEYERHOLZ, D. K., DARBRO, B. W., DODD, R. D. and QUELLE, D. E. (2023). CDK4/6-MEK Inhibition in MPNSTs Causes Plasma Cell Infiltration, Sensitization to PD-L1 Blockade, and Tumor Regression. *Clinical Cancer Research*, **29** 3484–3497.
- ZIOGAS, I. A., TASOUDIS, P. T., BORBON, L. C., SHERMAN, S. K., BREHENY, P. J., CHANDRASEKHARAN, C., DILLON, J. S., BELLIZZI, A. M. and HOWE, J. R. (2023). Surgical management of G3 gastroenteropancreatic neuroendocrine neoplasms: a systematic review and meta-analysis. *Annals of Surgical Oncology*, **30** 148–160.
- THIEL, K. W., NEWTON, A. M., DEVOR, E. J., ZHANG, Y., MALMROSE, P. K., BI, J., LOSH, H. A., DAVIES, S., SMITH, L. E., PADILLA, J., LEIVA, S. M., GRUETER, C. E., BREHENY, P., HAGAN, C. R., PUFALL, M. A., GERTZ, J., GUO, Y. and LESLIE, K. K. (2023). Global expression analysis of endometrial cancer cells in response to progesterone identifies new therapeutic targets. *The Journal of Steroid Biochemistry and Molecular Biology*, **234** 106399.
- WANG, C. and BREHENY, P. (2022). Adaptive hybrid screening for efficient lasso optimization. *Journal of Statistical Computation and Simulation*, **92** 2233–2256.
- KOHLMAYER, J. L., KAEMMER, C. A., LINGO, J. J., VOIGT, E., LEIDINGER, M. R., MCGIVNEY, G. R., SCHERER, A., KOPPENHAFFER, S. L., GORDON, D. J., BREHENY, P., MEYERHOLZ, D. K., TANAS, M. R., DODD, R. D. and QUELLE, D. E. (2022). Oncogenic RABL6A promotes NF1-associated MPNST progression in vivo. *Neuro-Oncology Advances*, **4** 1–11.
- ANAND, S. T., RYCKMAN, K. K., BAER, R. J., CHARLTON, M. E., BREHENY, P. J., TERRY, W. W., MCLEMORE, M. R., KARASEK, D. A., JELLIFFE-PAWLOWSKI, L. L. and CHRISCHILLES, E. A. (2022). Hypertensive disorders of pregnancy among women with a history of leukemia or lymphoma. *Pregnancy Hypertension*, **29** 101–107.
- ANAND, S. T., CHRISCHILLES, E. A., BAER, R. J., CHARLTON, M. E., BREHENY, P. J., TERRY, W. W., MCLEMORE, M. R., KARASEK, D. A., JELLIFFE-PAWLOWSKI, L. L. and RYCKMAN, K. K. (2022). The risk of preterm birth among women with a history of leukemia or lymphoma. *The Journal of Maternal-Fetal & Neonatal Medicine*, **35** 6115–6123. PMID: 33832388.
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- ZENG, Y., YANG, T. and BREHENY, P. (2021). Hybrid safe-strong rules for efficient optimization in lasso-type problems. *Computational Statistics and Data Analysis*, **153** 107063.

- ZENG, Y. and BREHENY, P. (2021). The biglasso package: a memory- and computation-efficient solver for lasso model fitting with big data in R. *R Journal*, **12** 6–19.
- DESAI, C., THOMASON, J., KOHLMAYER, J. L., REISSETTER, A. C., AHIRWAR, P., JAHANSEIR, K., LEIDINGER, M., OFORI-AMANFO, G., FRITCHIE, K., VELU, S. E., BREHENY, P., QUELLE, D. E. and TANAS, M. R. (2021). Prognostic and therapeutic value of the Hippo pathway, RABL6A, and p53-MDM2 axes in sarcomas. *Oncotarget*, **12** 740–755.
- KAEMMER, C. A., UMESALMA, S., MAHARJAN, C. K., MOOSE, D. L., NARLA, G., MOTT, S. L., ZAMBA, G. K. D., BREHENY, P., DARBRO, B. W., BELLIZZI, A. M., HENRY, M. D. and QUELLE, D. E. (2021). Development and comparison of novel bioluminescent mouse models of pancreatic neuroendocrine neoplasm metastasis. *Scientific Reports*, **11** 10252.
- MAHARJAN, C. K., UMESALMA, S., KAEMMER, C. A., MUNIZ, V. P., BAUCHLE, C., MOTT, S. L., ZAMBA, K. D., BREHENY, P., LEIDINGER, M. R., DARBRO, B. W., STEPHENS, S. B., MEYERHOLZ, D. K. and QUELLE, D. E. (2021). RABL6A promotes pancreatic neuroendocrine tumor angiogenesis and progression in vivo. *Biomedicines*, **9** 633.
- SCOTT, A. T., TESSMANN, J. B., BRAUN, T., BROWN, B., BREHENY, P. J., DARBRO, B. W., BELLIZZI, A. M., DILLON, J. S., O’DORISIO, T. M., ALDERSON, A., BENNETT, B., BERNAT, J. A., METZ, D. C. and HOWE, J. R. (2021). Presacral neuroendocrine tumors associated with the Currarino syndrome. *American Journal of Medical Genetics Part A*, **185** 1582–1588.
- JASPER, E. A., CHO, H., BREHENY, P. J., BAO, W., DAGLE, J. M. and RYCKMAN, K. K. (2021). Perinatal determinants of growth trajectories in children born preterm. *PLOS ONE*, **16** 1–20.
- WANG, S., ZIMMERMAN, D. L. and BREHENY, P. (2020). Sparsity-regularized skewness estimation for the multivariate skew normal and multivariate skew t distributions. *Journal of Multivariate Analysis*, **179** 104639.
- HAN, C., JOHNSON, J., DONG, R., KANDULA, R., KORT, A., WONG, M., YANG, T., BREHENY, P. J., BROWN, G. D. and HAIM, H. (2020). Key positions of HIV-1 Env and signatures of vaccine efficacy show gradual reduction of population founder effects at the clade and regional levels. *mBio*, **11**.
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- DE MARCH, C. A., TITLOW, W. B., SENGOKU, T., BREHENY, P., MATSUNAMI, H. and MCCLINTOCK, T. S. (2020). Modulation of the combinatorial code of odorant receptor response patterns in odorant mixtures. *Molecular and Cellular Neuroscience*, **104** 103469.
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- MCCLINTOCK, T. S., WANG, Q., SENGOKU, T., TITLOW, W. B. and BREHENY, P. (2020). Mixture and Concentration Effects on Odorant Receptor Response Patterns In Vivo. *Chemical Senses*, **45** 429–438.

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- SNYDER, B. M., BAER, R. J., OLTMAN, S. P., ROBINSON, J. G., BREHENY, P. J., SAFTLAS, A. F., BAO, W., GREINER, A. L., CARTER, K. D., RAND, L., JELLIFFE-PAWLOWSKI, L. L. and RYCKMAN, K. K. (2020). Early pregnancy prediction of gestational diabetes mellitus risk using prenatal screening biomarkers in nulliparous women. *Diabetes Research and Clinical Practice*, **163** 108139.
- WILSON, G., JACKSON, V., BOYKEN, L., PUIG-ASENSIO, M., MARRA, A. R., PERENCEVICH, E., SCHWEIZER, M. L., DIEKEMA, D., BREHENY, P. and PETERSEN, C. (2020). A randomized control trial evaluating efficacy of antimicrobial impregnated hospital privacy curtains in an intensive care setting. *American Journal of Infection Control*, **48** 862–868.
- WILSON, G. M., JACKSON, V. B., BOYKEN, L. D., SCHWEIZER, M. L., DIEKEMA, D. J., PETERSEN, C. A., BREHENY, P. J., NONNENMANN, M. W. and PERENCEVICH, E. N. (2020). Bioaerosols generated from toilet flushing in rooms of patients with *Clostridioides difficile* infection. *Infection Control and Hospital Epidemiology*, **41** 517–521.
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- MILLER, R. E. and BREHENY, P. (2019). Marginal false discovery rate control for likelihood-based penalized regression models. *Biometrical Journal*, **61** 889–901.
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- VANDERPOOL, R. C., BREHENY, P. J., TILLER, P. A., HUCKELBY, C. A., EDWARDS, A. D., UPCHURCH, K. D., PHILLIPS, C. A. and WEYMAN, C. F. (2015). Implementation and evaluation of a school-based human papillomavirus vaccination program in rural Kentucky. *American Journal of Preventive Medicine*, **49** 317–323.
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- LAHAM, J. L., BREHENY, P. J. and RUSH, A. (2015). Do clinical parameters predict first planned extubation outcome in the pediatric intensive care unit? *Journal of Intensive Care Medicine*, **30** 89–96.
- MCCLINTOCK, T. S., ADIPIETRO, K., TITLOW, W. B., BREHENY, P., WALZ, A., MOMBAERTS, P. and MATSUNAMI, H. (2014). *In Vivo* identification of eugenol-responsive and muscone-responsive mouse odorant receptors. *Journal of Neuroscience*, **34** 15669–15678.
- CAMPOS, J. R., BREHENY, P., ARAUJO, R. R., TROEDSSON, M. H. T., SQUIRES, E. L., TIMONEY, P. J. and BALASURIYA, U. B. R. (2014). Semen quality of stallions challenged with the Kentucky 84 strain of equine arteritis virus. *Theriogenology*, **82** 1068–1079.
- STOKES, S., BREHENY, P., RADULESCU, A. and RADULESCU, V. C. (2014). Impact of obesity on the risk of venous thromboembolism in an inpatient pediatric population. *Pediatric Hematology and Oncology*, **31** 475–480.
- LAHAM, J. L., BREHENY, P. J., GARDNER, B. M. and BADA, H. (2014). Procalcitonin to predict bacterial coinfection in infants with acute bronchiolitis: a preliminary analysis. *Pediatric Emergency Care*, **30** 11–15.

- CRAWFORD, T. N., SANDERSON, W. T., BREHENY, P., FLEMING, S. T. and THORNTON, A. (2014). Impact of non-HIV related comorbidities on retention in HIV medical care: does retention improve over time? *AIDS and Behavior*, **18** 617–624.
- LI, Y. and BREHENY, P. (2013). Kernel-based aggregation of marker-level genetic association tests involving copy-number variation. *Microarrays*, **2** 265–283.
- SANZ, M., LOYNACHAN, A., SUN, L., OLIVEIRA, A., BREHENY, P. and HOROHOV, D. W. (2013). The effect of bacterial dose and foal age at challenge on *Rhodococcus equi* infection. *Veterinary Microbiology*, **167** 623–631.
- HERON, P., STROMBERG, A., BREHENY, P. and MCCLINTOCK, T. (2013). Molecular events in the cell types of the olfactory epithelium during adult neurogenesis. *Molecular Brain*, **6** 49.
- OWEN, C., BREHENY, P., INGRAM, R., PFEIFLE, W., CAIN, J. and RYAN, M. (2013). Factors associated with pharmacy student interest in international study. *American Journal of Pharmaceutical Education*, **77** 54.
- BREHENY, P., CHALISE, P., BATZLER, A., WANG, L. and FRIDLEY, B. L. (2012). Genetic association studies of copy-number variation: should assignment of copy number states precede testing? *PLoS ONE*, **7** e34262.
- BREHENY, P., LI, Y. and CHARNIGO, R. (2012). Statistical challenges and opportunities in copy number variant association studies. *Journal of Biometrics and Biostatistics*, **3** e118.
- HUANG, J., BREHENY, P. and MA, S. (2012). A selective review of group selection in high-dimensional models. *Statistical Science*, **27** 481–499.
- SMITH, K. L., LI, Y., BREHENY, P., COOK, R. F., HENNEY, P. J., SELLS, S., PRONOST, S., LU, Z., CROSSLEY, B. M., TIMONEY, P. J. and BALASURIYA, U. B. R. (2012). New real-time PCR assay using allelic discrimination for detection and differentiation of equine herpesvirus-1 strains with  $A_{2254}$  and  $G_{2254}$  polymorphisms. *Journal of Clinical Microbiology*, **50** 1981–1988.
- NICKELL, M. D., BREHENY, P., STROMBERG, A. J. and MCCLINTOCK, T. S. (2012). Genomics of mature and immature olfactory sensory neurons. *Journal of Comparative Neurology*, **520** 2608–2629.
- PODZIELINSKI, I., RANDALL, M. E., BREHENY, P. J., ESCOBAR, P. F., COHN, D. E., QUICK, A. M., CHINO, J. P., LOPEZ-ACEVEDO, M., SEITZ, J. L., ZOOK, J. E. and SEAMON, L. G. (2012). Primary radiation therapy for medically inoperable patients with clinical stage I and II endometrial carcinoma. *Gynecologic Oncology*, **124** 36–41.
- SCOTT, S. L., MCSPIRIT, S., BREHENY, P. and HOWELL, B. M. (2012). The long-term effects of a coal waste disaster on social trust in Appalachian Kentucky. *Organization and Environment*, **25** 402–418.
- SRINIVASAN, J. and BREHENY, P. J. (2012). Meditation for quality improvement of medical encounters: single-intervention, Vedanta-based meditation effects on vital signs and mood indices. *Journal of Evidence-Based Complementary and Alternative Medicine*, **17** 96–103.

- FARDO, D., DRUEN, A., LIU, J., MIREA, L., INFANTE-RIVARD, C. and BREHENY, P. (2011). Exploration and comparison of methods for combining population- and family-based genetic association using the Genetic Analysis Workshop 17 mini-exome. *BMC Proceedings*, **5** S28.
- BREHENY, P. and HUANG, J. (2011). Coordinate descent algorithms for nonconvex penalized regression, with applications to biological feature selection. *Annals of Applied Statistics*, **5** 232–253.
- GODE-POTRATZ, C. J., KUSTUSCH, R. J., BREHENY, P. J., WEISS, D. S. and MCCARTER, L. L. (2011). Surface sensing in *Vibrio parahaemolyticus* triggers a programme of gene expression that promotes colonization and virulence. *Molecular Microbiology*, **79** 240–263.
- BREHENY, P. and HUANG, J. (2009). Penalized methods for bi-level variable selection. *Statistics and Its Interface*, **2** 369–380.
- OLESON, J. J., BREHENY, P. J., PENDERGAST, J. F., RYAN, S. and LITCHFIELD, R. (2008). Impact of travel distance on WISEWOMAN intervention attendance for a rural population. *Preventive Medicine*, **47** 565–569.
- GFELLER, K., OLESON, J., KNUTSON, J. F., BREHENY, P., DRISCOLL, V. and OLSZEWSKI, C. (2008). Multivariate predictors of music perception and appraisal by adult cochlear implant users. *Journal of the American Academy of Audiology*, **19** 120.
- BREHENY, P. J., LAEDERACH, A., FULTON, D. B. and ANDREOTTI, A. H. (2003). Ligand specificity modulated by prolyl imide bond cis/trans isomerization in the Itk SH2 domain: a quantitative NMR study. *Journal of the American Chemical Society*, **125** 15706–15707.

## PH.D. DISSERTATION

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- BREHENY, P. Regularized methods for high-dimensional and bi-level variable selection. Dissertation advisor: Professor Jian Huang. Defended May 2009.

## OTHER PUBLICATIONS

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- BREHENY, P. (2014). Review of *Genomic Clinical Trials and Predictive Medicine*, by Richard Simon. *Journal of the American Statistical Association*, **109** 868–869.
- SCHOFIELD, M. and BREHENY, P. (2014). Review of *The BUGS Book: A Practical Introduction to Bayesian Analysis*, by David Lunn, et al. *The American Statistician*, **68**: 63.
- BREHENY, P. (2011). Review of *Intuitive Biostatistics: A Nonmathematical Guide to Statistical Thinking*, by H. Motulsky. *The American Statistician*, **65**: 67–68.
- *2005 Iowa Health Fact Book*, University of Iowa College of Public Health and the Iowa Department of Public Health.

## SOFTWARE

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- [grpreg](#), an R package for computing regularized paths for regression models with grouped covariates.

- [ncvreg](#), an R package for fitting MCP- and SCAD-penalized regression models.
- [visreg](#), an R package for visualizing regression models.
- [grpregOverlap](#), extends the [grpreg](#) package to the case of overlapping groups.
- [biglasso](#), an R package for fitting lasso- and elastic-net-penalized regression models for big data (too large to fit into RAM).
- [plmmr](#), an R package for fitting penalized linear mixed models to correct for unobserved confounding effects.

## SELECTED PRESENTATIONS

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- Inference for high-dimensional regression models: False discovery rates and confidence intervals. Keynote speaker. Innovations in Design, Analysis, and Dissemination symposium. April 2024.
- Penalized mixed models to adjust for batch effects and unobserved confounding in high dimensional regression. Invited. Joint Statistical Meetings. Toronto, Canada. August 2023.
- Local False Discovery Rates for Nonconvex Penalties in High-Dimensional Regression Models. Invited. ENAR Spring meeting. Philadelphia, PA. March 2019.
- Marginal False Discovery Rates for Penalized Regression Models. Invited. Joint Statistical Meetings. Baltimore, MD. August 2017.
- Medicine, likelihood, and the mathematics of learning from experience. Keynote lecture. Mathematics Undergraduate Math Symposium, Simpson College. Indianola, IA. April 2016.
- Estimating false inclusion rates in penalized regression models. Invited. ENAR Spring Meeting. Austin, TX. March 2016
- Penalized regression approaches for genomics and genetic association studies. Iowa Institute of Human Genetics Bioinformatics Short Course 2014. Iowa City, IA. July 2014.
- Estimating false inclusion rates in penalized regression models. Invited. International Society for Nonparametric Statistics (ISNPS II). Cádiz, Spain. June 2014.
- Kernel-based aggregation of marker-level genetic association tests involving copy-number variation. Invited. Joint Statistical Meetings. Montreal, Canada. August 2013.
- Visualizing Regression Models using [visreg](#). Joint Statistical Meetings. Montreal, Canada. August 2013.
- Group descent algorithms for nonconvex penalized linear and logistic regression models with grouped predictors. Joint Statistical Meetings. San Diego, CA. July 2012.
- Visualizing Regression Models using [visreg](#). International R Users Meeting (useR). Nashville, TN. June 2012.
- Group exponential penalties for bi-level variable selection. Joint Statistical Meetings. Miami, FL. July 2011.

- Genetic association studies of copy-number variation: should assignment of copy number states precede testing? International Genetic Epidemiology Society Meetings. Boston, MA. October 2010.
- The MNet estimator. Joint Statistical Meetings. Vancouver, British Columbia. August 2010.
- Coordinate descent algorithms for nonconvex optimization. ENAR Spring Meeting. New Orleans, LA. March 2010.
- Coordinate descent algorithms for nonconvex penalized regression methods. Joint Statistical Meetings. Washington, D.C. August 2009.
- Statistical graphics and visualization using R and GGobi. Biostatistics Student Organization Seminar. Iowa City, IA. March 2009.
- A short guide to SAS macros. Iowa SAS Users Group. Iowa City, IA. February 2009.
- Bilevel feature selection with applications to genetic association studies. Invited. Fall Conference on Statistics in Biology. Ames, IA. October 2008.
- A general framework for bi-level variable selection. Joint Statistical Meetings. Denver, CO. August 2008.
- Impact of travel distance on WISEWOMAN intervention attendance. University of Iowa Research Week. Iowa City, IA. April 2008.
- Extending regression models using penalized approaches. Biostatistics Student Organization Seminar. Iowa City, IA. November 2007.

## TEACHING

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Instructor, University of Iowa

- BIOS 7110: Likelihood Theory and Extensions (F25, F24, F23, F22, F21, F20)
- BIOS 4120: Introduction to Biostatistics (S26, S24, S22, S20, S18, S17, S15, S14, Su09)
- BIOS 7600: High-Dimensional Data Analysis (S25, S23, S21, S19, S16)
- BIOS 7210: Survival Data Analysis (F19, F18, F17, F15)
- BIOS 5710: Biostatistical Methods I (F16, F14)

Guest lecturer, University of Iowa

- BIOS 4110: General Biostatistics (Su25, Su24, Su23, Su22, Su21, Su20, Su19, Su18, Su17, Su16, Su15, Su14)
- EPID 5560: Biomarkers in Epidemiology (S25, S23, S20, S18, S16, S15)
- TBM 5001: Intro to Translational Biomedicine (F18)
- Outreach: Topics in Human Genetics Short Course (Su25, Su22, Su20, Su18)
- CBH 6410: Advanced Interventions Research (S18)

- EPID 6250: Genetics and Epidemiology (F17)
- BIOS 5510: Biostatistical Computing (F08, F07)
- BIOS 7120: Theory of Biostatistics II (S09)
- BIOS 5720: Biostatistical Methods II (S08)

Instructor, University of Kentucky

- STA 580: Biostatistics I (S12, F10, S10, F09)
- BST 760: Advanced Regression (S13, S11)
- STA 621: Nonparametric Statistics (F12, F10)
- BST 701: Bayesian Modeling in Biostatistics (S13)
- BST 764: Applied Statistical Modeling for Medicine and Public Health (F11)
- STA 715: Readings in Statistics: Penalized Regression (F11)
- STA 715: Readings in Statistics: Analysis of Copy-Number Variation (S12)

Guest lecturer, University of Kentucky

- BST 675: Biometrics I (F12)
- CPH 701: Current topics in Public Health (F11)
- CPH 786: Doctoral Seminar (F10)

Teaching assistant, University of Iowa

- BIOS 5110: Introduction to Biostatistics (S05, F04)

Teaching assistant, Iowa State University

- BBMB 301: Survey of Biochemistry (S04)

Supplemental instructor, Iowa State University

- Math 166: Calculus II (S01, F00)

## ADVISING

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- Completed Ph.D. dissertations for which I was the doctoral advisor:
  - High-dimensional intervals for penalized regression. Logan Harris, University of Iowa, October 2025.
  - Software for analyzing global family-based association studies: penalized linear mixed models for correlated genetic data with application to orofacial clefts. Tabitha Peter, University of Iowa, April 2025.
  - What You See is What You Get: A Closer Look at Bias in the Visual World Paradigm. Collin Nolte, University of Iowa, March 2023.

- Feature screening rules and algorithms for efficient optimization of sparse regression models. Chuyi Wang, University of Iowa, July 2021.
- Penalized linear mixed models for structured genetic data. Anna Reisetter, University of Iowa, May 2021.
- Projection-based inference and model selection for penalized regression. Biyue Dai, University of Iowa, November 2019.
- Regularized skewness parameter estimation for multivariate skew normal and skew  $t$  distributions. Sheng Wang, Department of Statistics, University of Iowa, May 2019. (co-advisor)
- Marginal false discovery rate approaches to inference on penalized regression models. Ryan Miller, Department of Biostatistics, University of Iowa, June 2018.
- Scalable sparse machine learning methods for big data. Yaohui Zeng, Department of Biostatistics, University of Iowa, November 2017.
- Nonlinear hierarchical models for longitudinal experimental infection studies. Michael Singleton, Department of Biostatistics, University of Kentucky, March 2015.
- Genetic association testing of copy number variation. Yinglei Li, Department of Statistics, University of Kentucky, October 2014.
- Currently serving as doctoral dissertation advisor for:
  - Yoon Joo Cho (Biostatistics, University of Iowa)
  - Yujing Lu (Biostatistics, University of Iowa)
  - Oscar Rysavy (Biostatistics, University of Iowa)
  - Steven Alberding (Biostatistics, University of Iowa; joint with Kai Wang)
- Completed preceptorship projects for which I served as advisor (all in the Department of Biostatistics, University of Iowa):
  - Gene-Based Aggregation to Improve Power for Genome-wide Study of Heart Failure in Arrhythmia Patients. Jiayi Sun, December 2025.
  - tumr: A Collection of Tools for Analyzing Tumor Growth Data. Sydney Plowman, December 2025.
  - Improving Power for Genome-wide Study of Heart Failure in Patients with Arrhythmia. Fangfang Jiang, April 2024.
  - Interactive Exploration of Human microRNA Binding Sites. Oscar Rysavy, April 2024.
  - Mediation Analysis of Acute Carotid Stenting in Tandem Lesions: Impact on Functional Outcome in a Multicenter Registry. Yujing Lu, April 2024.
  - CDX2 in patients with small bowel neuroendocrine tumors. Stephanie Lewis, March 2023.
  - Predicting progression of renal disease in C3G patients. Logan Harris, December 2021.
  - Expanding the gpreg package for sparse additive models. Ryan Kurth, May 2021.
  - A pretty neat thing (about R). Collin Nolte, December 2020.
  - Genome-wide association study of sex differences in brain MRI scans and its genetic correlation to psychiatric disorders. Anna Gudjonsdottir, December 2019.

- Predicting protein structure by applying penalized classification methods to high-throughput two-hybrid screening. Helin Hernandez, December 2018.
- Differential expression in neuroendocrine tumors. Michelle Weitz, December 2018.
- Using CADD scores to inform bayesian analysis of genetic variants implicated in preterm birth. Michael Brumm, May 2018.
- Understanding the sense of smell through identification of olfactory receptors activated by various scents. Ziqian Chen, University of Iowa, May 2017.
- Empirical bayes analysis of overdispersed high-dimensional protein interaction data. Anna Reisetter, University of Iowa, May 2017.
- Comparing cross-validation methods in penalized Cox regression. Biyue Dai, University of Iowa, November 2016.
- Rare variant analysis of paired, case-only, whole-exome sequencing data from a study of preterm birth. Anthony Rhoads, University of Iowa, December 2015.
- Improving the accuracy of gene expression classifiers by incorporating pathway information: A latent group selection approach. Yaohui Zeng, University of Iowa, December 2014.
- Advisor for one completed M.P.H. capstone:
  - Statistical analysis of metabolite concentrations in heart tissue from four groups of mouse models in response to Adriamycin treatment. Zhenyu Huang, College of Public Health, University of Kentucky, November 2011.
- Currently serving on six doctoral committees
- Committee member for three completed M.P.H. capstones
- Committee member for thirty completed Ph.D. dissertations
- Committee member for one completed Dr.P.H. capstone

## FUNDING (ACTIVE)

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- NIH/NCI P50 CA302572, “Neuroendocrine Tumor Specialized Programs of Research Excellence (SPORE) in Human Cancer.” Role: Biostatistics core director. 2025–2030.
- NIH/NIDDK R01 DK110023, “C3 Glomerulopathy – A Collaborative Study.” Role: Co-PI. 2023–2027.
- NIH/NCI R01 CA244271, “Sleep Disordered Breathing as a Targetable Risk Factor in Multiple Myeloma.” Role: Co-investigator. 2021–2026.
- DoD HT9425-23-1-0279, “Validating tRNA viruses to target SCN2A-related autism phenotypes.” Role: Co-investigator. 2023–2026.
- NIH/NICHD P50 HD103556, “UI Hawkeye Intellectual and Developmental Disabilities Research Center (HAWK-IDDRC).” Role: Co-investigator. 2021–2026.
- NIH/NINDS R01 NS119322, “Ink4a / ARF / Ink4b Locus in Neurofibromatosis Type 1.” Role: Co-investigator. 2022–2027.

- NIH/NCI R01 CA260200, “Role of RABL6A-PP2A in Neuroendocrine Tumors.” Role: Co-investigator. 2021–2026.
- NIH/NCI P30 CA086862, “Cancer Center Support Grant.” Role: Biostatistics Core Member. 2013–present.
- NIH/NHLBI R25 HL161716, “Iowa Summer Institute for Research Education in Biostatistics.” Role: Faculty Mentor. 2022–2027.

## FUNDING (COMPLETED)

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- NIH/NCI R01 CA263350, “Influence of Hemodynamic Shear Stress on Circulating Tumor Cells.” Role: Co-investigator. 2022–2027.
- ACS RSG-20-017-01-CCE, “Sleep Disordered Breathing as a Targetable Risk Factor in Multiple Myeloma.” Role: Co-investigator. 2020–2024.
- NIH/NHLBI R01 HL148796, “The Genomic Interface of microRNA Regulation and Heart Failure.” Role: Co-investigator. 2019–2024.
- NIH/NIDCR R01 DE023575, “Dissecting the Transcriptional Network Governing Differentiation of Periderm.” Role: Co-investigator. 2019–2023.
- NIH/NIDDK R01 DK110023, “C3 Glomerulopathy – A Collaborative Study.” Role: Co-PI. 2017–2021.
- American Foundation for Suicide Prevention BSG-1-005-18, “An Integrated Approach to Understanding the Biology of Suicidal Behavior.” Role: Co-investigator. 2019–2022.
- NIH/NIDCD R01 DC014468, “In vivo patterns of receptor activation by odorants.” Role: Co-investigator. 2015–2020.
- NIH/NCI P50 CA174521, “Neuroendocrine Tumor Specialized Programs of Research Excellence (SPORE) in Human Cancer.” Role: Biostatistics Core Member. 2015–2020.
- NIH/NHLBI R25 HL131467, “Iowa Summer Institute for Research Education in Biostatistics.” Role: Faculty Mentor. 2016–2019.
- SBIR G968100-CG, “Improved Detection of Bladder Cancer Recurrence using a Biophysical Marker.” Role: Co-Investigator. 2017–2018.
- NIH/NICHD R21 HD087864, “Newborn Metabolic Screening for Prediction of Childhood Respiratory Phenotypes.” Role: Co-Investigator. 2016 – 2018.
- NIH/NIBIB R21 EB021870, “DEEPN strategy for large-scale differential protein interaction studies.” Role: Co-Investigator. 2015–2017.
- STTR G797300-CG, “Improved Preparation of Cell Suspensions for Single Cell Genomics.” Role: Co-Investigator. 2017.
- NIH/NHLBI T15 HL07622, “Iowa Summer Institute in Biostatistics (ISIB).” Role: Faculty Mentor. 2013–2016.

- Gates Foundation OPP52256, “The Role of Cholesterol in Preterm Birth.” Role: Co-Investigator. 2013–2014. Role: Biostatistician.
- Kentucky Biomedical Research Infrastructure Network grant, “KY IDeA Networks of Biomedical Research Excellence.” Role: Co-Investigator. 2012.
- NIH/NIA R21 AG040542, “Muscle, fat and NK lymphocytes in aging.” Role: Co-Investigator. 2012–2013.
- Merck IISP 40305, “A study to compare the impact of a school based HPV program on vaccination uptake and completion rates.” Role: Consultant. 2012–2013.
- NIH/NICHD P20 RR020145, “Center for the Biologic Basis of Oral/Systemic Diseases.” Role: Co-Investigator. 2010–2013.
- Dan and Virginia Martin Pediatric Research Fund, in association with the University of Kentucky Department of Pediatrics. Role: Statistical support. 2010–2013.
- Altarum Institute SC-10-013, “Models of SNAP Nutrition education and Evaluation, Wave 2.” Role: Co-Investigator. 2013.
- NIH/NIDHD R21 HD059058, “Farm to School: A Community-Based Program to Combat Childhood Obesity.” Role: Co-Investigator. 2010–2012.
- University of Kentucky Summer Research Fellowship, “Visualization of regression functions.” Role: Principal investigator. 2011.
- NIH/NIGMS T32 GM077973, “Statistics in microbiology, infectious diseases, and bioinformatics.” Role: Fellow. 2006–2009.

## PROFESSIONAL SERVICE

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- Associate Editor, *Statistics in Medicine*, 2023–present
- Associate Editor, Reviews Section, *Journal of the American Statistical Association* and *The American Statistician*, 2013–2022
- Associate Editor, *Computational Statistics and Data Analysis*, 2018–2020
- Awards Officer, Section on Statistical Computing and Section on Statistical Graphics, American Statistical Association, 2015–2017
- Review Editor, *Frontiers in Bioinformatics and Computational Biology*, 2011–2015
- Reviewer for grant proposal submitted to the National Security Agency (3)
- Refereed articles for the following journals:
  - *The Journal of the American Statistical Association* (11)
  - *Journal of Computational and Graphical Statistics* (10)
  - *Statistics in Medicine* (10)
  - *Biometrics* (8)
  - *Computational Statistics* (4)
  - *Genetic Epidemiology* (4)

- *BMC Bioinformatics* (3)
- *Journal of Machine Learning Research* (3)
- *Communications in Statistics: Theory and Methods* (3)
- *Statistics and Computing* (3)
- *The American Statistician* (3)
- *Annals of the Institute of Statistical Mathematics* (3)
- *Journal of Multivariate Analysis* (2)
- *Statistical Modelling* (2)
- *Biometrical Journal* (2)
- *Technometrics* (2)
- *Annals of Applied Statistics* (2)
- *Journal of Statistical Computing and Simulation* (2)
- *Scandinavian Journal of Statistics* (2)
- *Biostatistics* (2)
- *Computational Statistics and Data Analysis* (2)
- *Statistical Papers* (2)
- *Communications in Statistics: Simulation and Computation* (2)
- *PLoS ONE* (2)
- *Journal of the Royal Statistical Society: Series B*
- *Entropy*
- *Endocrine Oncology*
- *Journal of Computational Biology*
- *Transactions on Computational Biology and Bioinformatics*
- *Frontiers in Psychology*
- *Bioinformatics*
- *Empirical Economics*
- *Statistics*
- *Statistical Applications in Genetics and Molecular Biology*
- *Psychological Methods*
- *Frontiers in Plant Science*
- *Current Eye Research*
- *Journal of Biometrics and Biostatistics*
- *American Journal of Epidemiology*
- *Frontiers in Genetics*
- *Journal of Translational Medicine*
- *Annals of Statistics*
- *Cancer Epidemiology, Biomarkers & Prevention*
- *OMICS: A Journal of Integrative Biology*
- *Statistical Science*
- *IEEE Transactions on Parallel and Distributed Systems*
- *The Journal of Bayesian Analysis*

- Session chair, Joint Statistical Meetings, 2009–2012, 2014–2018
- Session chair, ENAR Spring Meeting, 2010
- Member, American Statistical Association, 2006–present
- Member, Institute of Mathematical Statistics, 2005–present

## DEPARTMENTAL SERVICE

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- PhD Exam Steering Committee, Department of Biostatistics, University of Iowa; Chair, 2024–present; Member, 2014–2024
- Faculty Search Committee, Department of Biostatistics, University of Iowa, 2013–2014, 2014–2015, 2021–2022

- Computing Committee, Department of Biostatistics, University of Iowa; Chair, 2015–present; Member, 2013–2015
- Student Awards Committee, Department of Biostatistics, University of Iowa, 2017–present
- Promotion and Tenure Internal Peer Evaluation Committee, Department of Biostatistics, University of Iowa; Chair, 2021–2022; Member, 2020–2021, 2024–2025
- Curriculum Review Committee, Department of Biostatistics, University of Iowa, 2017–2020
- PhD Comprehensive Exam Review Committee, Department of Biostatistics, University of Iowa, 2020–2021
- MS Exam Committee, Department of Biostatistics, University of Iowa, 2014–2015, 2018
- Co-chair, Faculty Search Committee, Department of Biostatistics, University of Iowa, 2016–2017
- Exploratory Committee for developing an Advanced Statistical Computing course, Department of Biostatistics, University of Iowa, 2015–2016
- Ph.D. Qualifying Exam Committee, Department of Biostatistics, University of Kentucky, 2010–2012
- M.S. Comprehensive Exam Committee, Department of Statistics, University of Kentucky, 2012–2013
- Degree Program Committee, Ph.D. in Epidemiology and Biostatistics, University of Kentucky, 2010–2012
- Ph.D. Qualifying Exam Committee, Department of Statistics, University of Kentucky, 2011
- Picnic Committee, Department of Statistics, University of Kentucky, 2009–2010
- Minutes Committee, Department of Statistics, University of Kentucky, 2009–2010
- Biostatistics Student Organization, University of Iowa; President, 2006 – 2007

## UNIVERSITY SERVICE

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- Faculty Council, College of Public Health, University of Iowa, 2024–present
- Curriculum Committee, College of Public Health, University of Iowa; Chair, 2025–2026; Representative, 2019–2025
- Computation and Informatics Committee, College of Public Health, University of Iowa, 2014–2024
- Internal reviewer for NSF Career Award, University of Iowa, 2020
- Research Council, College of Public Health, University of Iowa; Chair, 2017–2018; Representative, 2015–2017
- Research Week Poster Competition, College of Public Health, University of Iowa; Faculty judge, 2016–2017

- Internal review committee to evaluate the Department of Community and Behavioral Health, College of Public Health, University of Iowa, 2015–2016
- Search Committee, Tenure-track position in Department of Biomedical Engineering, University of Iowa, 2014–2015
- Comprehensive exam committee for Interdisciplinary Ph.D. Program in Genetics, 2014, 2017
- Academic Affairs Committee, College of Public Health, University of Kentucky, 2011–2013
- Research, Evaluation, and Scholarship Committee, Center for Interprofessional Healthcare Education, Research, and Practice, University of Kentucky, 2012–2013
- University of Kentucky Health Care Common Reading Experience; Discussion moderator, 2011–2012
- Practice and Service Committee, University of Kentucky College of Public Health, 2009–2011
- Ph.D. Qualifying Exam Committee, Center for Biomedical Engineering, University of Kentucky, 2010
- Graduate Student Interdisciplinary Conference, University of Kentucky; Faculty judge, 2010

## HONORS AND AWARDS

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- Marion L. Huit Faculty Award (dedication to students), University of Iowa, 2021
- Faculty Research Award, University of Iowa College of Public Health, 2018
- College of Public Health Faculty Teaching Award, University of Iowa, 2015
- Milford E. Barnes Award (for outstanding graduate student in Biostatistics), University of Iowa, 2009
- Elected to Delta Omega (Public Health Honorary Society), 2009
- Graduate teaching award, Iowa State University, 2003
- National Merit Scholar, 1998-2002

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