

Lynn Lin

CONTACT INFORMATION

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EDUCATION

Duke University, Durham, North Carolina, USA

Ph.D., Statistics, July 2012

- Dissertation Topic: “Bayesian variable selection in clustering and hierarchical mixture modeling”
- Advisor: Dr. Mike West

National University of Singapore, Singapore

M.Sc., Statistics, July 2008

B.Sc., First Class Honors, Statistics, July 2007

ACADEMIC EXPERIENCE

The Pennsylvania State University, University Park, Pennsylvania, USA

Assistant Professor of Statistics

August 2015 - present

Primary member of Bioinformatics and Genomics program

January 2016 - present

Fred Hutchinson Cancer Research Center, Seattle, Washington, USA

Postdoctoral Fellow

August 2012 - 2015

- with Dr. Raphael Gottardo
- under Vaccine and Infectious Disease Division
- research in Bayesian statistics and statistical computation, applied to single-cell assays and immunological studies

SELECTED AWARDS

- Mitchell Prize by the International Society of Bayesian Analysis, 2016
- Saw Swee Hock Gold Medal by National University of Singapore, 2007

PROFESSIONAL ORGANIZATIONS AND SOCIETIES

- Associate Editor, *Statistical Analysis and Data Mining* (2018 - present).
- Council of Sections Representative, American Statistical Association, Section on Bayesian Statistical Science (2017 - 2019).

PUBLICATIONS

(published under the name Lin Lin)

Li, W., **Lin, L.**, Malhotra, R., Yang, L., Acharya, R., & Poss, M. (2019). A computational framework to assess genome-wide distribution of polymorphic human endogenous retrovirus-K in human populations. *PLoS Computational Biology*, 15(3), e1006564.

Li, W., Yang, L., Harris, R.S., **Lin, L.**, Olson, T.L., Hamele, C.E., Feith, D.J., Loughran, T.P., & Poss, M. (2019). Retrovirus insertion site analysis of LGL leukemia patient genomes. *BMC Medical Genomics*, 12(1), p.88.

Li, J., Seo, B., & **Lin, L.** (2019). Optimal transport, mean partition, and uncertainty assessment in cluster analysis. *Statistical Analysis and Data Mining: The ASA Data Science Journal*, 12: 359 - 377.

Lin, L., & Fong, D. K. H. (2019). Bayesian multidimensional scaling procedure with variable selection. *Computational Statistics & Data Analysis*, 129, 1-13.

Guo, W., Huang, S., Tao, Y., Xing, X., & **Lin, L.** (2018). Explaining deep learning models – A Bayesian non-parametric approach. In *Advances in Neural Information Processing Systems* (pp. 4519-4529).

Guo, W., Wang, Q., Zhang, K., Ororbia, A. G., Huang, S., Liu, X., Giles, C.L., **Lin, L.** & Xing, X. (2018). Defending against adversarial samples without security through obscurity. In 2018 *IEEE International Conference on Data Mining (ICDM)* (pp. 137-146). [Oral Presentation, top 8% among 948 submissions]

Lin, L., & Li, J. (2017). Clustering with hidden Markov model on variable blocks. *The Journal of Machine Learning Research*, 18(1), 3913-3961.

Li, J., & **Lin, L.** (2017). Baum-Welch algorithm on directed acyclic graph for mixtures with latent Bayesian networks. *Stat*, 6(1), 303-314.

Shah, J.A., Musvosvi, M., Shey, M., Horne, D.J., Wells, R.D., Peterson, G.J., Cox, J.S., Daya, M., Hoal, E.G., **Lin, L.**, Gottardo, R., Hanekom, W.A., Scriba, T.J., Hatherill, M., & Hawn, T.R. (2017). A functional TOLLIP variant is associated with BCG-specific immune responses and tuberculosis. *American Journal of Respiratory And Critical Care Medicine* 196(4): 502-511.

Guan, L., Xu, J., Wang, S., Xing, X., **Lin, L.**, Huang, H., Liu, P., & Lee, W. (2016). From physical to cyber: Escalating protection for personalized auto insurance. In *Proceedings of the 14th ACM Conference on Embedded Network Sensor Systems CD-ROM* (pp. 42-55).

Lin, L., Chan, C., & West, M. (2016). Discriminative variable subsets in Bayesian classification with mixture models, with application in flow cytometry studies. *Biostatistics* 17(1), 40-53.

Lin, L., Finak, G., Ushey, K., Seshadri, C., Hawn, T. R., Frahm, N., Scriba, T. J., Mahomed, H., Hanekom, W., Bart, P. A., Pantaleo, G., Tomaras, G. D., Rerks-Ngarm, S., Kaewkungwal, J., Nitayaphan, S., Pitisuttithum, P., Michael, N. L., Kim, J. H., Robb, M. L., O’Connell, R. J., Karasavvas, N., Gilbert, P., De Rosa, S., McElrath, M. J., & Gottardo, R. (2015). COMPASS identifies T-cell subsets correlated with clinical outcomes *Nature Biotechnology* 33(6), 610-616.

Lin, L., Frelinger, J., Jiang, W., Finak, G., Seshadri, C., Bart, P. A., Pantaleo, G., McElrath, J., DeRosa, S., & Gottardo, R. (2015). Identification and visualization of multidimensional antigen-specific T-cell populations in polychromatic cytometry data. *Cytometry. Part A* 87(7), 675-682.

Seshadri, C., **Lin, L.**, Scriba, T. J., Peterson, G., Freidrich, D., Frahm, N., DeRosa, S. C., Moody, D. B., Prandi, J., Gilleron, M., Mahomed, H., Jiang, W., Finak, G., Hanekom, W. A., Gottardo, R., McElrath, M. J., & Hawn, T. R. (2015). T-cell responses against mycobacterial lipids and proteins are poorly correlated in South African adolescents. *The Journal of Immunology* 195(10), 4595-4603.

Lin, L., Chan, C., Hadrup, S. R., Froesig, T. M., Wang, Q., & West, M. (2013). Hierarchical Bayesian mixture modelling for antigen-specific T-cell subtyping in combinatorially encoded flow cytometry studies. *Statistical Applications in Genetics and Molecular Biology* 12(3), 309-331.

Cron, A., Gouttefangeas, C., Frelinger, J., **Lin, L.**, Singh, S. K., Britten, C. M., Welters, M. J., van der Burg, S. H., West, M., & Chan, C. (2013). Hierarchical modeling for rare event detection and cell subset alignment across flow cytometry samples. *PLOS Computational Biology* 9(7), e1003130.

Chan, C., **Lin, L.**, Frelinger, J., Hérbert, V., Gagnon, D., Landry, C., Sékaly, R. P., Enzor, J., Staats, J., Weinhold, K. J., Jaimes, M., & West, M. (2010). Optimization of a highly standardized carboxyfluorescein succinimidyl ester flow cytometry panel and gating strategy design using discriminative information measure evaluation. *Cytometry. Part A* 77(12), 1126-1136.

Book Chapters

Lin, L., & Chan, C. (2017). Quantitative methods and Bayesian models for flow cytometry analysis in HIV/AIDS research. *Quantitative methods for HIV/AIDS research, 1st edition*, edited by Chan, C., Hudgens, M.G., & Chow, S.C.

Gan, F.F., **Lin, L.**, & Loke, C.K. (2012). Risk-adjusted cumulative sum charting procedures. *Frontiers in Statistical Quality Control 10*, edited by Lenz, H. J., Schmid, W., & Wilrich, P. T., Springer Science & Business Media.

PHD STUDENT SUPERVISION 2016 - Sahar Zarmehri (Co-advised with Ephraim Hanks) Department of Statistics, Penn State.
2017 - Beomseok Seo (Co-advised with Jia Li) Department of Statistics, Penn State.
2018 - Lin Qiu (Co-advised with Vernon Chinchilli) Department of Public Health Sciences, Penn State College of Medicine.

DOCTORAL THESIS COMMITTEES Shi Pu (College of Education), Chen Kan (Department of Industrial and Manufacturing Engineering), Bomin Kim (Department of Statistics), Bachir Mohammad (Department of Civil and Environmental Engineering), Yiming Liao (College of Information Sciences and Technology), Mauricio Nascimento (Department of Statistics), Elena Hadjicosta (Department of Statistics), Likun Zhang (Department of Statistics), Junjie Liang (College of Information Sciences and Technology), Seongjin Jin (Department of Economics).

CONFERENCE PRESENTATIONS (* = INVITED)

- Focus Program on Data Science and Optimization, November 2019, Fields Institute, Toronto, Canada.*
- APHA's Annual Meeting and Expo "Spiegelman Awardee Invited Session", November 2019, Philadelphia, PA.*
- Fall Eastern Sectional Meeting of the American Mathematical Society session on "Computational statistics and Applications", October 2019, Binghamton, NY.*
- Joint Statistical Meetings session on "Emerging Challenges in Precision Medicine", July 2019, Denver, Colorado.*
- Annual Meeting of the Statistical Society of Canada, June 2018, Montreal, Canada.*
- ICSA Applied Statistics Symposium, June 2018, New Brunswick, NJ.*
- The 31st New England Statistics Symposium, April 2017, Storrs, CT.*
- ENAR session on "Machine Learning and Massive Biological Data", March 2017, Washington DC.*

- Duke Industry Statistical Symposium session on “Discovery Science for Immunotherapy Trials”, September 2016, Durham, North Carolina.*
- International Indian Statistical Association conference session on “Statistical Methods for Single-Cell Analysis”, August 2016, Corvallis, Oregon.*
- Joint Statistical Meetings session on “Hierarchical and Multilevel Models”, August 2014, Boston, Massachusetts.
- International Indian Statistical Association conference session on “Bayesian Model Selection”, July 2014, Riverside, California.*
- Joint Statistical Meetings session on “Bayesian Modeling and Model Selection”, August 2013, Montreal, Canada.
- Joint Statistical Meetings, July 2011, Miami, Florida*.
- Valencia International Meetings on Bayesian Statistics, June 2010, Benidorm, Spain.

TEACHING
EXPERIENCE

- STAT 461 Analysis of Variance, Spring 2016, Fall 2018, Fall 2019.
- STAT 501 Regression Methods, Spring 2016, Spring 2017, Fall 2019.
- STAT 597 Bayesian Studies, Spring 2017, Fall 2018.
- STAT 500 Applied Statistics, Fall 2017, Spring 2019.
- STAT 200 Elementary Statistics, Fall 2017.

PROFESSIONAL
SERVICE

- Peer Review for Biostatistics, BMC Bioinformatics, BMC Genetics, Biometrics, Bayesian Analysis, Journal of the Royal Statistical Society, Computational Statistics and Data Analysis, Computational Statistic, Cytometry Part A, Journal of the American Statistical Association, Stat, Statistics in Medicine, Statistical Methods in Medical Research, Annals of Applied Statistics, Statistica Sinica, Bioinformatics, Statistical Analysis and Data Mining.
- Book Proposal Review for Wiley.
- Judge for the ASA Section on Statistics in Genomics and Genetics’ Distinguished Student Paper Competition (2018, 2019, 2020).
- Session on Advancing Translational Research Using Novel Statistical Analyses for Complex and Omics Data
Joint Statistical Meetings
Invited Session Organizer *July 2017, Baltimore, Maryland*
- Session on Single Cell omics: Frontiers in Exploratory and Confirmatory Analysis
WNAR
IMS Invited Session Co-organizer *June 2017, Santa Fe, New Mexico*
- Session on Statistical modeling and inference on complex biomedical data
International Chinese Statistical Association Applied Statistics Symposium
Invited Session Organizer and Chair *June 2016, Atlanta, Georgia*

- Session on Bayesian Model Selection
International Indian Statistical Association conference
Chair *July 2014, Riverside, California*
- Session on Bayesian Theory and Methods
Joint Statistical Meetings
Chair *August 2013, Montreal, Canada*