

Lynn Lin

CONTACT INFORMATION

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RESEARCH INTERESTS

Bayesian statistics, nonparametric Bayesian, machine learning, hierarchical model, single-cell assays, immunology and infectious disease

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

- Saw Swee Hock Gold Medal of NUS (for outstanding graduate with first class honors in Statistics)

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

PUBLICATIONS

(publish under the name *Lin Lin*)

Refereed Journal Publications

Lin, L. & Li, J., (in press). Clustering with hidden Markov model on variable blocks. *Journal of Machine Learning Research*.

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

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), 610-6. (**This paper wins the Mitchell Prize.**¹)

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), 675-82.

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), 4595-603.

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), 309-31.

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., Hrbert, V., Gagnon, D., Landry, C., Skaly, 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), 1126-36.

Refereed Conference Papers

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. *Proceedings of the 14th ACM Conference on Embedded Networked Sensor Systems (SenSys), Palo Alto, USA, December 2016*. [Acceptance rate: 21/122 = 17%]

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.

¹Awarded by the International Society of Bayesian Analysis in recognition of an outstanding paper that describes how a Bayesian analysis has solved an important applied problem

CONFERENCE
PRESENTATIONS
(* = INVITED)

- 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.
- STAT 501 Regression Methods, Spring 2016, 2017.
- STAT 597 Bayesian Studies, Spring 2017.
- STAT 500 Applied Statistics, Fall 2017.
- 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 Statistics, Cytometry Part A, Journal of the American Statistical Association, Stat, Statistics in Medicine, Statistical Methods in Medical Research, Annals of Applied Statistics.
- Book Proposal Review for Wiley.
- Council Of Sections Representative, American Statistical Association, Section on Bayesian Statistical Science (2017-2019).
- 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*

PROFESSIONAL
MEMBERSHIP

American Statistical Association
International Society for Bayesian Analysis
Institute of Mathematical Statistics