



**Pei-Sheng Lin, PhD
Investigator**

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Education

8/2001 Ph.D. in Statistics, University of Wisconsin-Madison, Wisconsin, USA.

6/1994 M.S. in Applied Mathematics, National Chung-Hsing University, Tai-Chung, Taiwan.

8/1992 B.S. in Applied Mathematics, National Chung-Hsing University, Tai-Chung, Taiwan.

Professional Experiences

7/2017 ~ present

Investigator, Institute of Population Health Research, National Health Research Institutes, Taiwan.

8/2017~ present

Adjunct Professor, Department of Mathematics, National Chung-Cheng University, Taiwan.

7/2012 ~ 6/2017

Associate Investigator, Institute of Population Health Research, National Health Research Institutes, Taiwan.

8/2009 ~ 6/2012

Assistant Investigator, Institute of Population Health Research, National Health Research Institutes, Taiwan.

8/2009 ~ 6/2017

Adjunct Associate Professor, Department of Mathematics, National Chung-Cheng University, Taiwan.

8/2008 ~ 7/2009

Associate Professor, Department of Mathematics, National Chung-Cheng University, Taiwan.

8/2008 ~ 7/2009

Adjunct Assistant Investigator, Division of Biostatistics and Bioinformatics, National Health Research Institutes, Taiwan.

8/2001 ~ 7/2008

Assistant Professor, Department of Mathematics, National Chung-Cheng University, Taiwan.

Research Interests

Dr. Lin's research interest is on development of classification methods on

correlated data, including statistical modeling on spatial-temporal data, detection of clusters by scan statistics, and estimating equations for analysis of gene data. Dr. Lin's research interest also includes in applying big data techniques to develop disease surveillance systems, such as geographic information systems for dengue control.

Research Activities & Accomplishment

Selected Publications

Statistical Methodology

Huang, Y.-W. and *Lin, P.-S. (2003). A correction for chi-squared statistics on two by two contingency table with spatial autocorrelation. *Journal of Chinese Statistical Association* **41**, 461-473.

*Lin, P.-S. and Clayton, M. K. (2005). Analysis of spatially binary data by quasi-likelihood estimating equations. *Annals of Statistics* **33**, 542-555.

*Lin, P.-S. and Clayton, M. K. (2005). Properties of binary random variables generated from a truncated Gaussian random field. *Communications in Statistics* **34**, 537-544.

*Lin, P.-S. and Huang, Y.-W. (2006). Applications of pseudo-likelihood estimation on binary markov random field. *Journal of Chinese Statistical Association* **44**, 91-107.

*Lin, P.-S. (2008). Efficiency of quasi-likelihood estimation for spatially correlated binary data on L_p spaces. *Journal of Statistical Planning and Inference* **138**, 1528-1541.

Chang, M.-L., *Lin, P.-S. and Tsou, H.-H. (2008). Application of hierarchical models for detection of spatially clustered diseases in Taiwan. *Journal of Chinese Statistical Association* **46**, p.22-35.

*Lin, P.-S. (2008). Estimating equations for spatially correlated data in multi-dimensional spaces. *Biometrika* **95**, 847-858.

*Lin, P.-S., Lee, H.-Y. and Clayton, M.K. (2009). A comparison of efficiencies for estimates in non-separable spatial-temporal binary models. *Journal of Statistical Planning and Inference* **139**, 3310-3318.

*Lin, P.-S. (2010). A working estimating equation for spatial count data. *Journal of Statistical Planning and Inference* **140**, 2470-2477.

*Lin, P.-S. (2010). Estimating Equation for Spatial-Temporal Binary

Data. *Environmental and Ecological Statistics* **47**, 543-557.

***Lin, P.-S.** (2011). Quasi-deviance functions for Spatially Correlated Data. *Statistica Sinica* **21**, 1785-1806.

***Lin, P.-S.** (2012). Analysis of spatial frailty models by a weighted estimating equation. *Journal of Statistical Planning and Inference* **142**, 1436-1444.

Kung, Y.-H., ***Lin, P.-S.** and Kao, C.-H. (2012). An optimal k-nearest neighbor density estimation. *Statistics and Probability Letters* **82**, 1786-1791.

***Lin, P.-S.** (2014). Generalized scan statistics for disease surveillance. *Scandinavian Journal of Statistics* **41**, 791-808.

***Lin, P.-S.**, Hsiung, C.A., and Cheng, C.-W. (2014). Analysis of non-separable spatiotemporal data with application to enterovirus study in Taiwan. *Environmental and Ecological Statistics* **21**, 733-750.

***Lin, P.-S.**, Chen, F.-C., Kuo, S.-F., and Kung, Y.-H. (2014). Assessing the relationship of evolutionary rates and functional variables by generalized estimating equations for mixture distributions. *Statistics and Probability Letters* **94**, 248-256.

Feng, X., Zhu, J., Steen-Adams, M.M., and **Lin, P.-S.** (2014). Composite likelihood estimation for spatial ordinal data and spatial proportional data with zero/one inflation. *Envirometrics* **25**, 571-583.

***Lin, P.-S.**, Kung, Y.-H., and Clayton, M.K. (2016). Spatial scan statistics for detection of multiple clusters in arbitrary shapes, *Biometrics*, **72**, 1226-1234.

***Lin, P.-S.**, Zhu, J., Kuo, S.-F., and Curtis, K. (2016). A statistical method in change-set analysis. In book *Statistical Applications from Clinical Trials and Personalized Medicine to Finance and Business Analytics, Chapter 21*. Springer, New-York.

Feng, X., Zhu, J., **Lin, P.-S.**, and Steen-Adams, M. (2017). Composite likelihood approach to the regression analysis of spatial multivariate ordinal data and spatial compositional data with exact zero values. *Environmental and Ecological Statistics* **24**, 39-68.

Yuan, H.-Y., Wen, T.-H., Kung, Y.-H., Tsou, H.-H., Chen, C.-H., Chen, L.-W, and ***Lin, P.-S.** (2019). Prediction of annual dengue incidence by hydro-climatic extremes for southern Taiwan. *International Journal*

of *Biometeorology* **63**, 259-268.

*Kuo, L.-W., ***Lin, P.-S.**, Lin, H.-Y., Liu, M.-F., Jan, H., Lee, H.-C., and Wang, S.-C. (2019). Functional correlates of resting-state connectivity in default-mode network of heroin users on methadone treatment and medication-free therapeutic community program. *Modalities. Frontiers in Psychiatry* 10:281.

***Lin, P.-S.** and Zhu, J. (2019). A heterogeneity measure for cluster identification with application to disease mapping. *Biometrics*, accepted.

Yuan, H.-Y., Liang, J., **Lin, P.-S.**, Sucipto, K., Tsegaye, M.M., Wen, T.-H., Pfeiffer, S., and Pfeiffer, D. (2020). The effects of seasonal climate variability on dengue annual incidence in Hong Kong: A modelling study. *Scientific Report*, accepted.

Statistical Consulting

Wang, S.-C., Ho, I.-K., Tsou, H.-H., Tian, J.-N., Hsiao, C.-F., Chen, C.-H., Tan, H.-K., Lin, L.-L., Wu, C.-S., Su, L.-W., Huang, C.-L., Yang, Y.-H., Liu, M.-L., Lin, K.-M., Chen, C.-Y., Liu, S.-C., Wu, H.-Y., Chan, H.-W., Tsai, M.-H., Lin, P.-S. and Liu, Y.-L. (2011). CYP2B6 polymorphisms influence the plasma concentration and clearance of the methadone S-enantiomer. *Journal of Clinical Psychopharmacology* **31**, 463-469.

Chang, T.-P., Ho, M.-W., Yang, Y.-L., Lo, P.-C., **Lin, P.-S.**, Wang, A.-H., Lo, H.-J. (2013). Distribution and drug susceptibilities of *Candida* species causing candidemia from a medical center in central Taiwan. *Journal of Infection and Chemotherapy* **19**, 1065-1071.

Lin, H.-L., Hsu, Y.-T., Liu, C.-Y., Chen, C.-H., Hsiao, M.-C., Liu, Y.-L., Sheng, W., Hsiao, C.-F., Liu, S.-I., Chang, L.-H., Tang, H.-S., Lai, H.-L., **Lin, P.-S.**, Lin, K.-M., and Tsou, H.-H. (2013). Comparison of escitalopram and paroxetine in the treatment of major depressive disorder. *International Clinical Psychopharmacology* **28**, 339-344.

Patent

None