

CURRICULUM VITAE

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EDUCATION

B.S. (1969), Mathematics, Iowa State University, Ames, Iowa
M.A. (1971), Mathematics, University of Wisconsin, Milwaukee, Wisconsin
M.S. (1974), Statistics, Iowa State University, Ames, Iowa
Ph.D. (1976), Statistics, Iowa State University, Ames, Iowa

MEMBERSHIPS OF PROFESSIONAL ORGANIZATIONS AND HONORARY SOCIETIES

American Statistical Association
Phi Kappa Phi
Mu Sigma Rho

EXPERIENCE

Analysis of data collected from noise pollution study, Milwaukee Department of Public Health, Milwaukee, Wisconsin, Summer 1973.

Postdoctoral Instructor, Department of Mathematics, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1976-78.

Assistant Professor, Department of Mathematics, Indiana University, Bloomington, Indiana, 1978-79.

Research participation in air pollution dispersion modeling and monitoring, Energy and Environmental System Division, Argonne National Laboratory, Argonne, Illinois, Summer 1982.

Assistant Professor, Department of Statistics, Kansas State University, Manhattan, Kansas, 1979-1983.

Associate Professor, Department of Statistics, Kansas State University, Manhattan, Kansas. 1984-1988.

Visiting Associate Professor, Department of Statistics, Iowa State University, Ames, Iowa. Summer 1988.

Associate of the Center for Research in Computer Controlled Automation - A KTEC Center of Excellence at Kansas State University, 1988-1990.

Professor, Department of Statistics, Kansas State University, Manhattan, Kansas, 1989-present.

Volunteer Park Ranger at the Olympic National Park, Summer 1991.

I have been involved in statistical consultations with experimenters from engineering, grain science, food and nutrition science, veterinary medicine, astronomy and economics. Many of these consulting activities have led to publications.

AREAS OF CURRENT RESEARCH INTEREST

Nonparametric Statistics. Mixed Effects Models. Analysis of Data from Unreplicated Experiments. Bioinformatics.

COMPUTER KNOWLEDGE

Working knowledge of SAS and Fortran programming

PUBLICATIONS

Statistical Journals

1. David, H.A., O'Connell, M.J., and Yang, S.S. (1977). Distribution and expected value of the rank of a concomitant of an order statistics. *Ann. Statist.*, 5, 216-223.
2. Yang, S.S. (1977). General distribution theory of the concomitants of order statistics. *Ann. Statist.*, 5 996-1002.
3. Yang, S.S. (1981). Linear function of concomitants of order statistics with application to nonparametric estimation of a regression function. *JASA*, 76, 658-662.
4. Yang, S.S. (1981). Linear combinations of concomitants of order statistics with application to testing and estimation. *Ann. Inst. Statist. Math.*, 33, 463-470.
5. Bhattacharya, P.K., Chernoff, H., and Yang, S.S. (1983). Nonparametric estimate of the slope of a truncated regression. *Ann. Statist.*, 11, 505-514.
6. Yang, S.S. (1984). Sample analogues to multidimensional coverages with application to prediction. *JASA*, 79, 804-806.
7. Yang, S.S., Solomon, B.P., Oner, M.D., and Erickson, L.E. (1984). A method of estimation and testing common parameters for some multiresponse models associated with growth and bioenergetics. *Technometrics*, 26, 355-361.
8. Yang, S.S. (1985). On bootstrapping a class of differentiable statistical functionals with applications to L- and M-estimates. *Statistica Neerlandica*, 39, 375-385.
9. Yang, S.S. (1985). A smooth nonparametric estimation of a quantile function, *JASA*, 80, 1004-1011.

10. Yang, S.S. (1985). A discussion of the invited paper by D.M. Bates and D.G. Watts: Multiresponse estimation with special application to system of linear differential equations. *Technometrics*, 27, 349-351.
11. Koch, P.D. and Yang, S.S. (1986). A method for testing the independence of two time series that accounts for a potential patterns in the cross correlation function. *JASA*, 81, 553-544.
12. Nelson, P.I. and Yang, S.S. (1988). Some properties of Kendall's partial rank correlation coefficient. *Statistics and Probability Letter*, 6, 147-150.
13. Yang, S.S. (1988). A central limit theorem for the bootstrap mean. *The American Statistician*, 44, 202-203.
14. Gan, G. and Yang, S.S. (1989). An elementary Proof of the order Statistics Characterization of the Poisson Process. *The American Statistician*, 43, 45-46.
15. Neill, J. and Yang, S.S. (1990). Testing regression function adequacy in nonlinear multiresponse model. *Statistics and Probability Letters*, 9, 101-105.
16. Yang, S.S. (1992). A class of nonparametric procedures for comparing two survival distributions over an interval based on randomly right censored data. *Statistica Sinica*, 2, 265-283.
17. Kemp, K.E., Yang, S.S., Perng, S.K. and Nelson, P.I. (1993). An Asymptotically Distribution Free Test for Assessing the Separation Between Two Distributions. *Nonparametric Statistics*, 2, 235-248.
18. Siepmann, H.P. and Yang, S.S. (1994). Generalized Least Squares Estimation of Multivariate Nonlinear Models with Missing Data. *Communications in Statistics*, 6, 1565-1579.
19. Jayawardene, S. and Yang, S.S. (1995). A Nonlinear Ordered Rank Test to Detect Stochastic Ordering between Two Distributions. *Statistical Theory and Application*, H.N., Nagaraja, P.K. Sen and Donald F. Morrison, Ed. Springer-Verlag, New York, Inc.
20. A-Shiha, A.A. and Yang, S.S. (1996). An Improved Approximation for the Shapiro-Wilk Test Statistics for Normality. *Pakistan Journal of Statistics*, 12 (3).
21. Jayawardene, S. and Yang, S.S. (1997). On Using Linear Ordered Rank Statistics for Detecting Early Differences between Two Distributions. *Applied Mathematics and Computation: Modeling of the Environment*, 84, 103-113.
22. Al-Shiha, A.A. and Yang, S.S. (1999). A multistage procedure for analyzing unreplicated factorial experiments. *Biometrical Journal*, 6, 659-670.
23. Al-Shiha, A.A. and Yang, S.S. (2000). Critical values and some properties fo a new test statistic for analyzing unreplicated factorial experiment. *Biometrical Journal*, 42, 605-616.
24. A-Shiha, A.A. and Yang, S.S. (2001). The asymptotic distribution of $L_{n,k}$ test statistics for analyzing nonreplicated factorial experiments. *Calcutta Statistical Association Bulletin*, Vol. 51, 205-212.
25. Al-Zaid, M. and Yang, S.S. (2001). An approximate EM algorithm for nonlinear mixed effects models. *Biometrical Journal*, 43, 881-993.

26. Yang, S.S., Yu, Q. and Al-Zaid, M. (2001). A two-stage estimation procedure for linear mixed-effects models. *Biometrical Journal*, 43, 881-993.
27. A-Shiha, A.A. and Yang, S.S. (2002). A multistage test for detecting multiple outliers in the normal case. *Arab Journal of Mathematical Sciences*, Vol. 7, No. 2, 43-63.
28. Alhadeed, A. and Yang, S.S. (2002). Optimal simple step-stress plan for Khamis and Higgins model. *IEEE Transaction on Reliability*, Vol. 5, 51, 212-215.
29. Alhadeed, A. and Yang, S.S. (2004) Optimal Simple Step-Stress Plan for Cumulative Exposure Model Using Lognormal Distribution. *IEEE Transaction in Reliability*, Vol 54, No. 1, 64-68.
30. Zhaohui Su and Yang S.S. (2006). A Note on Lack-of-Fit Tests for Linear Models Without Replications. *JASA* 101, 205-210.

Nonstatistical Journals

1. Hinz, P.N.R., Shorter, R., Dubose, P.A., and Yang, S.S. (1977). Probabilities fo selecting genotypes when testing at several locations. *Crop Science*, 17, 325-326.
2. Solomon, B.O., Erickson, L.E., Hess, J.L. and Yang, S.S. (1982). Maximum likelihood estimation of growth yields, *Biotechnol, Bioeng.*, 25, 631-646.
3. Oner, M.D., Erickson, L.E., and Yang, S.S. (1983). Estimation of true grown and product yields in aerobic cultures. *Biotechnol. Bioeng.*, 25, 631-646.
4. Solomon, B.O., Erickson, L.E., and Yang, S.S. (1983). Estimation of biomass concentration in the presence of solids for the purpose parameter estimation. *Biotechnol. Bioeng.*, 25, 2469-2477.
5. Solomon, B.O., Erickson, L.E. , and Yang, S.S. (1983). Utilization of statistics and experimental design in data collection and analysis. *Biotechnol. and Bioeng.*, 25, 2683-2705.
6. Erickson, L.E., Solomon, B.O., Oner, M.D., and Yang, S.S. (1984). Estimation of yields associated with the conversion of cereal carbohydrates to fermentation products. In *Cereal Polysaccharides in Technology and Nutrition*, V.F. Rasper, Ed., American Association fo Cereal Chemists. St. Paul, Minn. 79-101.
7. Lee, H.Y., Erickson, L.E., and Yang, S.S. (1984). The estimation of growth yield and maintenance parameters for photoautotrophis growth. *Biotechnol. Bioeng.*, 26, 926-935.
8. Lee, H.Y., Erickson, L.E., and Yang, S.S. (1984). Estimation of true grown yield and maintenance parameters for methanol utilizing organisms. *J. Ferment. Technol.*, 62, 341-351.
9. Solomon, B.O., Oner, M.D., Erickson, L.E., and Yang, S.S. (1984). Estimation fo parameters where dependent observations are related by equality constraints. *AiChE Journal*, 30, 747-757.
10. Oner, D.D., Erickson, L.E., and Yang, S.S. (1984). Estimation of yield, maintenance and product formation *Biotechnol, and Bioneng*, 26, 1436-1444.

11. Oner, M.D., Erickson, L.E., and Yang, S.S. (1986). Analysis of exponential growth data for yogurt cultures. *Biotechnol. and Bioeng.*, 28, 895-901.
12. Oner, M.D., Erickson, L.E., and Yang, S.S. (1986). Estimation of the true growth yield and maintenance coefficient for yogurt cultures. *Biotechnol. and Bioeng.*, 28, 919-926.
13. Buono, M.A., Yang, S.S., and Erickson, L.E. (1986). Comparison of two methods of selecting smoothing spline functions for estimation of specific rates in fermentation. *Chemical Engineering Communication*, 45, 145-161.
14. Oner, M.D., Erickson, L.E., and Yang, S.S. (1986). Utilization of spline functions for smoothing fermentation data and for estimation of specific rates. *Biotechnol. and Bioeng.*, 28, 903-918.
15. Regier, N.K., Schrock, M.D., Thompson, J.G., and Yang, S.S. (1986). Time series analysis of power loading patterns for agricultural tractor. American Control Conference, Seattle, WA, June 18-20, Proceeding, Volume 2, pp. 925-930.
16. Lee, H.Y., Erickson, L.E., and Yang, S.S. (1987). Kinetics and bioenergetics of light-limited photoautotrophic growth of *Spirulina plantensis*. *Biotechnol. and Bioeng.*, 29, 832-843.
17. Oner, M.D., Erickson, L.E., and Yang, S.S. (1987). Mathematical modeling and analysis of yogurt fermentations. In *Food and Engineering and Process Applications*, M. Le Maguer and P. Jelen, ed. Elsevier Applied Science Publishers, Long and New York, 367-376.
18. Erickson, L.E., Yang, S.S., and Oner, M.D. (1988). Statistical estimation of kinetic and yield parameters. In *Handbook on Anaerobic Fermentations*, L.E. Erickson and D.Y. Fung, ed. Marcel Dekker, Inc., New York, 463-494.
19. Erickson, L.E., Oner, M.D., and Yang, S.S. (1988). Bioenergetic and product yields. In *Handbook on Anaerobic Fermentations*, L.E. Erickson and D.Y. Fung, ed. Marcel Dekker, Inc., New York, 293-321.
20. Su, H., Kanemasu, E.T., Ransom, M.D., and Yang, S.S. (1990). Separability of soils in a tallgrass prairie using SPOT and DEM data. *Remote Sensing of Environment*, 33, 157-163.
21. Mehta, R.L., Zayas, J.F., and Yang, S.S. (1994). Ajowan as a Source of Natural Lipid Antioxidant. *J. Agric. Food Chem.*, 42, 1420-1422.
22. Mehta, R.L., Zayas, J.F., and Yang, S.S. (1994). Antioxidative Effect of Isubgolin Model and in Lipid System. *J. of Food Processing and Preservation*, 18, 439-452.
23. Solomon, B.O., Erickson, L.E., Yang, S.S., Posten, C., and Deckwer, W. (1994). Estimation of True Biomass Energetic Yield and Maintenance Coefficient with Errors in the Variables. *J. Chem. Tech. Biotechnol.*, 61, 261-267.
24. Su, H., Ransom, M.D., Kanemasu, E.T., Nellis, M.D., and Yang, S.S. (1995). Extracting Soil-Independent Spectral Component for Estimating Oat Residue Covers. *Geocarto International*, 10, 61-68.

TECHNICAL REPORTS AND PAPERS PRESENTED IN PROFESSIONAL MEETINGS

1. Yang, S.S. (1977). Linear function of concomitants of order statistics. M.I.T. Technical Report No. 7.
2. Bhattacharya, P.K., Chernoff, H., and Yang, S.S. (1980). Nonparametric estimate of the slope of a truncated regression. M.I.T. Technical Report No. 18.
3. Linear combination of concomitants of order statistic with application to testing and estimation. 1980 NSF-CBMS regional conference on Jackknife and Bootstrap Methods in Statistics.
4. Testing and estimation based on order statistics and their concomitants. 1980 ASA Annual Statistical Meeting.
5. A method for identifying multivariate outlying observations. International conference to mark the 50th anniversary of the Iowa State University Statistical Laboratory (June 13-15, 1983).
6. Estimation of parameters for some multiresponse models where the responses are related by constraints. 1984 ASA Annual Statistical Meeting.
7. A discussion of the invited paper by D.M. Bates and D.G. Watts: Multiresponse estimation with special application to system of linear differential equations. 1985 ASA Annual Statistical Meeting.
8. Two-sample nonparametric procedures based on sample coverage. With Ali Elamaari. 1986 ASA Annual Statistical Meeting.
9. A nonparametric procedure for comparing two survival distributions based on randomly right censored data. Presented in 1988 IMS Annual Statistical Meeting.
10. A class of nonparametric procedures for comparing two survival distributions over a prespecified interval based on randomly censored data. Presented in 1989 IMS/WNAR Meeting.
11. Generalized Least Squares Estimation of Multi-Response Models with Missing Data. Presented in 1990 the First Conference on Recent Developments in Statistical Research - organized by the International Chinese Statistical Association.
12. On Using Linear Rank Statistics for Detecting Stochastic Ordering of Two Distributions Over an Interval. Invited Presentation at the Northern Illinois University Symposium of Statistics, Fall 1996.

GRANT

1. Co-Investigator of a National Science Foundation grant. (Dr. L.E. Erickson, Professor of Chemical Engineering, is the principal investigator.)
Title: Application of Mass and Energy Balance Regularities in Biochemical Engineering
Award Amount: \$299,616
Period Covered: 4/1/82 to 3/31/84
2. CO-PI of a NIH grant with Dr. Weigun Wang as the lead PI
Title: Weight Control, Cell Signaling and Cancer Prevention
Award Amount: \$689,850
Period Covered: 5/1/04 – 4/30/07

DIRECTION OF GRADUATE STUDENTS

Master Students

1. Yejin Lee (1981)
Thesis Title: A Diagnostic Procedure for Identifying Multivariate Outlying Observations
2. Ngeny, John Mark A. (1989)
Thesis Title: A Regression Diagnostic for Goodness-of-Fit
3. Yuen-Yuen Chiu (1990)
Thesis Title: Stochastic Modeling for Metal Ions Sorption and Interaction with Soils
4. Yih-Fen Chen (1994)
Thesis Title: State Space Modeling of Time Series
5. Hui Wang (2002)
Thesis Title: Testing Lack-of-Fit
6. Liansheng Zhu (2003)
Thesis Title: General Linear Mixed Models
7. Xuemei Yang (2003)
Thesis Title: Statistical Analysis of ACT Assessment

Ph.D. Students

1. Ali Alamaari (1986)
Thesis Title: Two-Sample Nonparametric Procedures for Censored and Uncensored Data
2. Howard Siepman (1987)
Thesis Title: Estimation for the Multiple Response Model Complete and Incomplete Data Arrays
3. Sumedha Jayawardene (1991)
Thesis Title: Some Nonparametric Test Procedures for Comparing Two Distribution Functions
4. Abdullah A.M. Al-Shiha (1995)
Thesis Title: Inference for Unreplicated Two-Level Factorial and Two-Way Classification Experiments
5. Munther A. Al-Zaid (1996)
Thesis Title: Iterative Two-Stage Procedures for Fitting Mixed Effects Models
6. Abdulla Alhadeed (1998)
Thesis Title: Model for Step-Stress Accelerated Life Testing
7. Qifeng Yu (1998)
Thesis Title: Fitting Linear Mixed Effects Model with Heterogeneous Correlated Data VIA ECM

Algorithm

8. Yih-Fen Chen (1999)
Thesis Title: Significant Tests for Unreplicated Experiments
9. Zhaohui Su (2004)
Thesis Title: Inference on Some Linear Mixed-Effects Models and Testing Lack-of-Fit from Experiment Without Replication

COURSES TAUGHT IN THE LAST 15 YEARS

Multivariate Methods
Time Series Analysis
Experimental Design for Product Developments and Improvements
Introductory Probability and Statistics for Engineering and Computer Sciences
Stochastic Processes I and II

REFERENCES

Herbert A. David
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Department of Statistics
Iowa State University
102 Snedecor Hall
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Herman Chernoff, Professor
Department of Statistics
Harvard University
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Kansas State University
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