

Curriculum Vitae

Hua Liang

Professor of Biostatistics

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Education

Jan 1999-May 2001	Texas A&M University	Statistics, Ph.D.
Sep 1989-Jun 1992	Chinese Academy of Sciences, China	Mathematical Statistics, Ph.D.
Sep 1985-Jun 1987	Northwestern Polytechnical University, China	Applied Statistics, M.S.
Sep 1981-Jun 1985	Nanchang University, China	Mathematics, B.S.

Experience

Feb 2009—	Professor, Department of Biostatistics and Computational Biology, University of Rochester Medical Center, Rochester, NY 14642
Aug 2005- Jan 2009	Associate Professor, Department of Biostatistics and Computational Biology, University of Rochester Medical Center, Rochester, NY 14642
Jun 2002-Jul 2005	Assistant Member, Department of Biostatistics, St. Jude Children's Research Hospital, Memphis, TN 38105
Nov 2002-Dec 2005	Adjunct Member of the Graduate Faculty, Department of Mathematical Sciences at University of Memphis, TN 38152
Jun 2000-May 2002	Research Associate, Frontier Science Foundation, Chestnut Hill, MA 02467
Jun 1999-Jul 1999	
Nov 1998-Dec 1998	Visiting Associate Professor at the Humboldt University of Berlin, Berlin, Germany
Mar 1998-Jun 1998	
Jan 1999-May 2000	Research Assistant, Texas A&M University (Collaborator: Professor Raymond Carroll)
May 1996-Feb 1998	Alexander von Humboldt Research Fellow at the Humboldt University, Berlin, Germany (Collaborator: Professor Wolfgang Härdle)
Dec 1992-Dec 1998	Research Assistant, Associate Professor at the Institute of Systems Science, Chinese Academy of Sciences
Jun 1987-Sep 1989	Lecturer at Nanchang Institute of Aeronautical Technology, China

Selected Awards and Honors

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1. Elected member of the International Statistical Institute
 2. Fellow of the Royal Statistical Society
 3. Award by ASA for travel to the 54th Session of the ISI in Berlin, Germany, 2003
 4. Alexander von Humboldt Research Fellow (September 1996-February 1998)
 5. Fellowship for Young Mathematicians by International Mathematical Union in 1998

6. Second Award by the State Statistical Bureau of China in 1996.

Research Fields

- HIV/AIDS Clinical Trial and Dynamic Modeling
- Partially Linear Models
- Measurement Error Models
- Semiparametric Mixed Effects Models
- Nonparametric and Semiparametric Regression
- Variable Selection
- Empirical Likelihood
- Nonlinear Mixed Effect Models
- Solid Tumor Clinical Trial

Research Grants

- **Principal Investigator**

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|--------------------------|---|
| DMS0806097 (NSF) | Development of Model Selection for Semiparametric Models in Analysis of High-Dimensional Data
Contract period: 09/01/2008-08/30/2011 |
| R01 AI059773 (NIAID/NIH) | Generalized varying-coefficient partially linear models
Total cost: \$ 592,500
Contract period: 09/02/2005-08/30/2009 |
| R01 AI062247 (NIAID/NIH) | Analysis of AIDS data by using semiparametric models
Total cost: \$ 582,500
Contract period: 07/01/2004-06/30/2008 |

- **Co-investigator**

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|----------------------------|--|
| R01 AI-41387-08 | Impact of NNRTI-resistance on RNase H & HIV replication
Contract period: 04/01/98 04/30/12
Co-PI |
| N01-AI-50020 (NIAID/NIH) | Rochester Center for Biodefense Immune Modeling
Contract period: 10/01/2005-09/30/2010
Co-Director of Statistics Core |
| R01 HL079511 (NIH) | Images of a Healthy Worksite
Contract period: 2004-2008
Statistician |
| 5 P01 CA23099-25 (NCI/NIH) | Studies of childhood solid tumors
Contract period: 07/01/2002-06/30/2003
Biostatistics Core |
| R01 | A Phase I/II Trial of the Safety and Immunogenicity of FluMist a Live, Intranasal Influenza Virus Vaccine vs. Placebo in Immuno-compromised Children Ages 5 through 18 Years of Age
Biostatistician |
| R01 AI45356 (NIAID/NIH) | Modeling Cellular Kinetics in Treated HIV Patients
Contract period: 4/1/99-7/31/03 |

Postdoctoral Fellows or Students trained

- Xiaoyong Wu, currently at McGill University
- Haiyan Su, currently at University of Rochester
- Xiang Liu, currently at University of Rochester

Visiting Scholars hosted/supported

- Jing Wang, Assistant Professor at University of Illinois at Chicago, 2008
- Guohua Zou, Professor at the Chinese of Academy of Sciences, 2006-2008
- Lan Xue, Assistant Professor at Oregon State University, 2006
- Yongsong Qin, Professor at Guangxi Normal University, China, 2006
- Lixin Song, Professor at Dalian University of Technology, China, 2006
- Anna Liu, Assistant Professor at University of Massachusetts, 2007
- Weixing Song, Assistant Professor at Kansas State University, 2007

University/Department Service

- Departmental Colloquia Committee (Chair)
- Departmental Faculty Recruiting Committee (Chair, 2006)
- Graduate student defense committee (Chair, 2006, Economics Department)
- Graduate student defense committee (Member, 2007, Mathematics Department)
- University Council on Graduate Studies (2006-2008)

Courses Taught

Generalized Linear Models; Large Sample Theory; Linear Algebra; Linear Models; Linear and Nonlinear Mixed-effects Models; Nonparametric and Semiparametric Regression; Parameter Estimation; Probability Theory; Seminar in Stat Literature; Statistical Inference; Stochastic Processes.

Professional Memberships

- Institute of Mathematical Statistics (permanent)
- International Chinese Statistical Association (permanent)
- American Statistical Association (Life member)
- ENAR (1999-)
- American Mathematical Society (1996, 1997)

Books

- Härdle, W., **Liang, H.** and Gao, J. T. (2000). [Partially Linear Models](#), Springer Physica-Verlag, Heidelberg, Germany.
- Liang, H. (2008). [Related Topics in Partially Linear Models](#), VDM Verlag, Saarbrücken, Germany.

Professional Service

- Associate Editor: JASA (2008-)

- 2003, 2004, 2005—— NSF grant review
- NIH grant review
 - ◇ 2005, AIDS Clinical Studies and Epidemiology Study Section (ACE)
 - ◇ 2006, ACE
 - ◇ 2007, ACE, Biostatistical Methods and Research Design Study Section (BMRD)
 - ◇ 2008, ACE, Infectious, Reproductive, Asthma, and Pulmonary Epidemiology (IRAP)
- Local organizer for ICSA Statistics Symposium (1995, Beijing)
- Special contributed session chair for CSPA and IMS, 2005, Beijing, China
- Invited session chair for JSM (2008, Denver)
- Invited session chair for ICSA (2008, Piscataway)
- Invited session organizer for JSM (2006, Seattle; 2007, Salt Lake City)
- Invited session organizer for ICSA Applied Statistics Symposium (2006, Storrs; 2007, Chapel Hill; 08, Piscataway)
- Referee of more than 90 articles for the following journals:
 - ◇ The Annals of Applied Statistics
 - ◇ The Annals of Statistics
 - ◇ Annals of the Institute of Statistical Mathematics
 - ◇ Bernoulli Journal
 - ◇ Bioinformatics
 - ◇ Biometrics
 - ◇ Biometrika
 - ◇ Biostatistics
 - ◇ Communications in Statistics-Theory and Methods
 - ◇ Computational Statistics and Data Analysis
 - ◇ Econometrics Journal
 - ◇ Econometric Theory
 - ◇ Health Services and Outcomes Research Methodology
 - ◇ International Journal of Statistics and Management System
 - ◇ Journal of the American Statistical Association
 - ◇ Journal of Computational and Graphical Statistics
 - ◇ Journal of Multivariate Analysis
 - ◇ Journal of Nonparametric Statistics
 - ◇ Journal of Statistical Planning and Inference
 - ◇ Journal of the Royal Statistical Society-Series B
 - ◇ Journal of Statistical Planning and Inference
 - ◇ Lifetime Data Analysis
 - ◇ Mathematics and Computers in Simulation
 - ◇ Pharmaceutical Statistics
 - ◇ Scandinavian Journal of Statistics
 - ◇ Statistics and Probability Letters
 - ◇ Statistics in Medicine
 - ◇ Statistica Sinica
 - ◇ Statistics

Presentations

• Invited Talks

1. Department of Statistics, Virginia Tech, Blacksburg, VA 24061, Oct 2, 2008
2. Applied Statistics Symposium of the ICASA, Piscataway, NJ, June 5, 2008
3. Department of Statistics, Oregon State University, Corvallis, OR 97330, May 5, 2008.
4. Department of Epidemiology and Biostatistics, Texas A&M University, College Station, TX 77843, Mar 19, 2008
5. Department of Statistics and Probability, Michigan State University, East Lansing, MI 48824, Feb 21, 2008
6. Department of Epidemiology and Biostatistics, University of South Carolina, Columbia, SC, 29208, Feb 14, 2008
7. Department of Statistics and Applied Probability, National University of Singapore, Dec 14, 2007
8. Department of Statistics, Cornell University, Ithaca, NY, Oct 3, 2007
9. Joint Statistical Meetings, Salt Lake City, Aug 2, 2007
10. Applied Statistics Symposium of the ICASA, Raleigh, NC, June 5, 2007
11. Department of Statistics, Kansas State University, Manhattan, KS, Apr 27, 2007
12. UCSD School of Medicine, La Jolla, CA, Mar 15, 2007
13. National Institute of Allergy and Infectious Diseases (NIAID), NIH, Jan 5, 2007.
14. Department of Biostatistics, University of New York at Buffalo, Buffalo, NY, Sept 28, 2006
15. Joint Statistical Meetings, Seattle, Aug 5-10, 2006
16. System, Cybernetic and Informatic Conference, Orlando, July 15-20, 2006
17. Applied Statistics Symposium of the ICASA, Storrs CT, June 14-17, 2006
18. Department of Mathematics and Statistics, York University, Toronto, M3J 1P3, Dec 9, 2005
19. Department of Statistics, University of Kentucky, Lexington, KY, Nov 18, 2005
20. Joint Statistical Meetings, Minneapolis, Aug 7-11, 2005
21. The joint meeting of the Chinese Society of Probability and Statistics and the Institute of Mathematical Statistics, Beijing, China, July 9 12, 2005.
22. Institute of Systems Science, Chinese Academy of Sciences, Beijing, China, June 30, 2005
23. Applied Statistics Symposium of the ICASA, Washington DC, June 12-15, 2005
24. Department of Biostatistics, Harvard School Public Health, Boston, Feb. 10, 2005
25. International Conference on: Statistics in Health Sciences, Nantes, France, June 23-25, 2004
26. ENAR Spring Meeting, Pittsburgh, USA, March 27-21, 2004
27. The 54th Session of ISI, Berlin, Germany, Aug 13-20, 2003
28. West Tennessee Chapter of ASA, June 28, 2002, Memphis, USA
29. The 6th conference of the Chinese Society of Probability and Statistics, Beijing, China, October 19, 1998
30. Institute of Applied Mathematics, Chinese Academy of Sciences, Beijing, China, July 20, 1998
31. Weierstrass-Institut für Angewandte Analysis und Stochastik, Berlin, Germany, April 29, 1998
32. Department of Statistics, Southampton University, Southampton, UK, July 2, 1997
33. Department of Statistics, Liverpool University, Liverpool, UK, June 30, 1997

34. Deutsche Statistische Gesellschaft, DMV-Fachgruppe Stochastik, Berlin, Germany, April 1997
35. Beijing University, Beijing, China, March 1995

- **Contributed Talks**

36. International Conference on Nonparametric Statistics and Related Topics, Ottawa, Canada, Sept 15-17, 2006.
37. Joint Statistical Meeting, Toronto, Canada, Aug 7-12, 2004
38. Joint Statistical Meeting, San Francisco, USA, Aug 2-7, 2003
39. ENAR Spring Meeting, Tampa, FL, USA, March 31-April 2, 2003
40. ICSA 2001 Applied Statistics Symposium, Chicago, USA, June 7-9, 2001
41. International Congress of Mathematicians, Berlin, Germany, August 26, 1998
42. Workshop on Nonparametric and Semiparametric Statistical Methods, University of Coimbra, Portugal, November 1997
43. Berlin-Paris Seminar, Schmerwitz, Germany, September 1997
44. The 50th Session of ISI, Beijing, China, 21-29 August 1995
45. The 3rd International Chinese Statistical Association Statistical Conference, Beijing, China, 18-20 August 1995

Selected Publications

1. **Liang, H.** and Li, R.Z. (2009). Variable selection and inference in partially linear error-in-variable models. *Journal of the American Statistical Association*, accepted.
2. **Liang, H.**, Su, H. Y., Thurston, S., Meeker, J. and Hauser, R. (2009). Empirical likelihood based inference for additive partial linear measurement error models. *Statistics and Its Interface*, in press.
3. Wang, J. X., **Liang, H.** and Zou, G. H. (2009). Optimal two-stage design with given power in association studies. *Biostatistics*, in press.
4. **Liang, H.**, Qin, Y. S., Zhang, X.Y., and Ruppert, D. (2009). Empirical-likelihood-based inferences for generalized partially linear models. *Scandinavian Journal of Statistics*, in press.
5. **Liang, H.** (2009). Generalized partially linear mixed-effects models incorporating mismeasured covariates. *Annals of the Institute of Statistical Mathematics*, **61**, 27-46.
6. **Liang, H.** and Song, W. X. (2009). Improved estimation in multiple linear regression model with measurement error and general constraint. *Journal of Multivariate Analysis*, **100**, 726-741.
7. Zhou, Y. and **Liang, H.** (2009). Statistical inference for semiparametric varying-coefficient partially linear models with error-prone linear covariates. *The Annals of Statistics*, **37**, 427-458.
8. **Liang, H.** and Wu, H. L. (2008). Parameter estimation for differential equation models using a framework of measurement error in regression models. *Journal of the American Statistical Association*, **103**, 1570-1583.
9. **Liang, H.** and Qin, Y.S. (2008). Empirical likelihood based inferences for partial linear models with missing covariates. *Australian and New Zealand Journal of Statistics*, **50**, 347-359.
10. Yi, Y., He, W. Q. and **Liang, H.** (2008). Semiparametric methods for clustered binary data. *Journal of Multivariate Analysis*, **100**, 278-290.

11. **Liang, H.**, Su, H. Y. and Zou, G. H. (2008). Confidence intervals for a common mean with missing data with applications in an AIDS study. *Computational Statistics and Data Analysis*, **53**, 545-553.
12. Huang, Y.X., **Liang, H.** and Wu, H. L. (2008). Identifying predictors for anti-HIV treatment response: mechanism-based differential equation models versus empirical semiparametric regression models. *Statistics in Medicine*, **27**, 4722-4739.
13. **Liang, H.**, Wu, H.L, and Zou, G. H. (2008). A note on conditional AIC for linear mixed-effects models. *Biometrika*, **95**, 773-778.
14. **Liang, H.**, Thurston, S., Ruppert, D., Apanasovich, T., and Hauser, R. (2008). Additive partial linear models with measurement errors. *Biometrika*, **95**, 667-678.
15. Zuo, Y.J., Zou, G. H., Wang, J.X., Zhao, H. Y., and **Liang, H.** (2008). Optimal two-stage design for case-control association analysis incorporating genotyping errors. *Annals of Human Genetics*, **72**, 375-387.
16. **Liang, H.** and Zhou, Y. (2008). Semiparametric inference to ROC curve with censoring. *Scandinavian Journal of Statistics*, **35**, 212-227.
17. **Liang, H.** and Zou, G.H. (2008). Improved AIC selection strategy for survival analysis. *Computational Statistics and Data Analysis*, **52**, 2538-2548.
18. Li, R.Z. and **Liang, H.** (2008). Variable selection in semiparametric regression modeling. *The Annals of Statistics*, **36**, 261-286.
19. **Liang, H.** (2008). Generalized partially linear models with missing covariates. *Journal of Multivariate Analysis*, **99**, 880-895.
20. **Liang, H.** (2008). Evaluation of change of CD4+ counts in AIDS clinical trials. *Statistical Methods in Medical Research*, **17**, 141-150.
21. **Liang, H.** and Zou, G.H. (2007). Analysis of relation between virologic responses and immunologic responses, patient's factors in AIDS clinical trials using semiparametric mixed-effects models. *Biometrical Journal*, **48**, 406-415.
22. Treanor, J. J., Schiff, G. M., Hayden, F. G., Brady, R. C., Hay, C. M., Meyer, A. L., Wiltse, J. H., **Liang, H.**, Gilbert, A., and Cox, M. (2007). Safety and immunogenicity of a baculovirus- expressed hemagglutinin influenza vaccine- a randomized controlled trial. *Journal of the American Medical Association*, **297**, 1557-1582.
23. **Liang, H.**, Wang, S.J., and Carroll, R. (2007). Partially linear models with missing response variables and error-prone covariates. *Biometrika*, **94**, 185-198.
24. **Liang, H.** (2007). Comparison of antitumor activities in tumor xenograft treatment. *Contemporary Clinical Trials*, **28**, 115-119.
25. **Liang, H.** (2007). Segmental modeling of changing viral load to assess drug resistance in HIV infection. *Statistical Methods in Medical Research*, **16**, 365-373.
26. Treanor, J., Wu, H.L., **Liang, H.**, and Topham, D. J. (2006). Immune responses to vaccinia and influenza elicited during primary versus recent or distant secondary smallpox vaccination of adults. *Vaccine*, **24**, 6913-6923.

27. **Liang, H.** (2006). Checking linearity of nonparametric component in partially linear models with an application in systemic inflammatory response syndrome study. *Statistical Methods in Medical Research*, **15**, 273-284.
28. **Liang, H.** (2006). A new method of evaluating antitumor activity from measured tumor volumes. *Contemporary Clinical Trials*, **27**, 269-273.
29. McCullers, J.A., Kathleen M. Speck, K.M. Williams, B.F., **Liang, H.**, and Mirro, J. (2006). Influenza vaccination of health care workers at a pediatric cancer hospital. *Infection Control and Hospital Epidemiology*, **27**, 77-79.
30. Zhou, X. H. and **Liang, H.** (2006). Semi-parametric single-index two-part regression models. *Computational Statistics and Data Analysis*, **50**, 1378-1390.
31. **Liang, H.** (2006). Estimation in partially linear models and numerical comparisons. *Computational Statistics and Data Analysis*, **50**, 675-687.
32. Zhou, Y. and **Liang, H.** (2005). Empirical-likelihood-based semiparametric inference for the treatment effect in the two-sample problem with censoring. *Biometrika*, **92**, 271-282.
33. **Liang, H.** (2005). Modeling antitumor activity in tumor xenograft treatment. *Biometrical Journal*, **47**, 358-368.
34. **Liang, H.** and Ren, H.B. (2005). Generalized partially linear measurement error models. *Journal of Computational and Graphical Statistics*, **14**, 237-250.
35. **Liang, H.** and Wang, N. S. (2005). Partially linear single-index measurement error models. *Statistica Sinica*, **15**, 99-116.
36. Woo, M. H., Peterson, J. K., Billups, C., **Liang, H.**, Bjornsti, M.A., and Houghton, J. (2005). Enhanced antitumor activity of irinotecan in combination with irinotecan in pediatric solid tumor xenograft models. *Cancer Chemother Pharmacol*, **55**, 411-419.
37. **Liang, H.**, Tan, W.Y. and Xiong, X.P. (2005). A Bayesian approach for assessing drug resistance in HIV infection using viral load, in W.Y. Tan and H.L. Wu (eds), *Deterministic and Stochastic Models for AIDS Epidemics and HIV Infection with Interventions*, World Scientific Publishing Company, 497-512.
38. Schmidt, J.E., Morgan, J.I., Rodriguez-Gonzalez, C., Webb, D., **Liang, H.**, and Tamburro, R.F. (2004). Heme oxygenase-1 mRNA expression in peripheral blood monocyte of patient with systemic inflammatory response syndrome. *Pediatric Critical Care Medicine*, **5**, 554-560.
39. Ren, H. B., Zhou, X. H., and **Liang, H.** (2004). A flexible method for estimating ROC curve. *Journal of Applied Statistics*, **31**, 773-784.
40. **Liang, H.**, Wang, S. J., Robins, J. and Carroll, R. (2004). Estimation in partially linear models with missing covariates. *Journal of the American Statistical Association*, **99**, 357-367.
41. **Liang, H.** and Sha, N. J. (2004). Modeling antitumor activity by using a nonlinear mixed-effects models. *Mathematical Biosciences*, **189**, 61-73.
42. Wu, H. L., Zhao, C. X. and **Liang, H.** (2004). Comparisons of linear model, nonlinear model and semiparametric model for estimating HIV dynamic parameters. *Biometrical Journal*, **46**, 233-245.

43. **Liang, H.** (2004). Comparison of curves based on Cramér-von Mises statistic. *Computational Statistics and Data Analysis*, **45**, 805-812.
44. Wu, H.L. and **Liang, H.** (2004). Backfitting random varying-coefficient models with time-dependent smoothing covariates. *Scandinavian Journal of Statistics*, **31**, 3-19.
45. **Liang, H.**, Wu, H. L. and Carroll, R. (2003). The relationship between virologic and immunologic responses in AIDS clinical research using mixed-effect varying-coefficient semiparametric models with measurement error. *Biostatistics*, **4**, 297-312.
46. Galindo, C., **Liang, H.**, Kauermann, G. and Carroll, R. (2001). Bootstrap confidence intervals for local likelihood, local estimating equations and varying coefficient models. *Statistica Sinica*, **11**, 121-134
47. **Liang, H.**, Härdle, W. and Sommerfeld, V. (2001). Bootstrap approximations in a partially linear regression model. *Journal of Statistical Planning and Inference*, **91**, 413-426.
48. He, X. M. and **Liang, H.** (2000). Quantile regression estimates for a class of linear and partially linear errors-in-variables models. *Statistica Sinica*, **10**, 129-140.
49. Zhou, Y. and **Liang, H.** (2000). Asymptotic normality for L_1 norm kernel estimator of conditional median under α -mixing dependence. *Journal of Multivariate Analysis*, **73**, 136-154
50. **Liang, H.** (2000). Asymptotic normality of parametric part in partly linear models with measurement error in the nonparametric part. *Journal of Statistical Planning and Inference*, **86**, 51-62.
51. **Liang, H.**, Härdle, W. and Carroll, R. J. (1999). Estimation in a semiparametric partially linear errors-in-variables model. *The Annals of Statistics*, **27**, 1519-1536.
52. **Liang, H.** (1999). An application of Bernstein's inequality. *Econometric Theory*, **15**, 152, 905-906.
53. Gao, J.T. and **Liang, H.** (1997). Asymptotic theory in semiparametric index regression models. *Annals of the Institute of Statistical Mathematics*, **49**, 493-517.
54. Zou, G.H. and **Liang, H.** (1997). Admissibility of the usual estimators under error-in-variables superpopulation model. *Statistics and Probability Letters*, **32**, 301-309.
55. Gao, J.T. and **Liang, H.** (1995). Asymptotic normality of pseudo-LS estimator for partly autoregression models. *Statistics and Probability Letters*, **23**, 27-34.
56. **Liang, H.** (1995). On Bahadur asymptotic efficiency of maximum likelihood estimator for a generalized semiparametric model. *Statistica Sinica*, **5**, 363-371.
57. **Liang, H.** (1995). Second order asymptotic efficiency of PMLE in generalized linear models. *Statistics and Probability Letters*, **24**, 273-279.
58. **Liang, H.** and Cheng, P. (1993). Second order asymptotic efficiency in a partial linear model. *Statistics and Probability Letters*, **18**, 73-84.