

Jimin Ding

CURRICULUM VITAE

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Appointments:

- 2006-present Assistant Professor,
Department of Mathematics,
Washington University in St. Louis, Saint Louis, MO
- 2011-present Assistant Professor (Joint Appointment),
Division of Biostatistics, School of Medicine,
Washington University in St. Louis, Saint Louis, MO
- 2007 summer Visiting Professor,
Department of Medicine,
University of Washington , Seattle, WA
- 2010 fall Research Fellow, (long-term visitor),
Statistical and Applied Mathematical Sciences Institute (SAMSI),
Research Triangle Park, NC

Education:

- Ph.D. (2003-2006) Department of Statistics, University of California at Davis
Advisor: Jane-Ling Wang
Dissertation: Joint Modeling of Longitudinal and Survival Data
- M.S. (2001-2003) Department of Statistics, University of California at Davis
- B.S. (1997-2001) Financial Mathematics Dept., School of Mathematical Sciences,
Peking University

Current Research Interests:

Survival Analysis, Longitudinal Data Analysis, Joint Modeling of Longitudinal and Survival Data; Functional Data Analysis, Systems of Differential Equations, Dynamical Systems, Nonparametric Smoothing Methods, Profile Likelihood, Asymptotic Theories

Publications & Manuscripts:

- **Peer-reviewed journal publications:**
[1] Holte, S.E., Randolph, T.W, **Ding, J.**, Tien, J., McClelland, R.S., Baeten, J.M., and Overbaugh J.(2012), “Efficient use of longitudinal CD4 counts and viral load measures in survival analysis”, *Statistics in Medicine*, **31**(19): 2086-2097.
[2] **Ding, J.**, Symanzik, J., Sharif, A., Wang, J., Duntley, S., and Shannon, W. (2011), “Powerful Actigraphy data through functional representation”, *Chance*, **24**: 30-36.
[3] Wang J., Xian, H., Lici, A., Deych, E. **Ding, J.**, McLeland, J., Toedebusch, C., Li, T., Duntley, S., and Shannon, W. (2011), “Measuring the impact of apnea and obesity

on circadian activity patterns using functional linear modeling of Actigraphy data”, *Journal of Circadian Rhythms*, **9**: 11.

[4] Boero, J., Duntley, S., Kampelman, J., Clifford, D., **Ding, J.**, and Shannon, W. (2009), “Actigraphy and functional data analysis for objective measurement of fatigue: a case study in HIV/AIDS”, *JSM Proceedings*.

[5] Molleman, F., **Ding, J.**, Boggs, C.L., Carey, J.R., and Arlet, M.E. (2009), “Does dietary restriction reduce life span in male fruit-feeding butterflies?”, *Experimental Gerontology*, **44**: 601-606.

[6] Molleman, F., **Ding, J.**, Carey, J.R., and Wang, J.L. (2009), “Nutrients in fruit increase fertility in wild-caught females of large and long-lived *Euphaedra* species”, *Journal of Insect Physiology*, **55**: 375-383.

[7] **Ding, J.** and Wang, J.L. (2008), “Modeling longitudinal data with nonparametric multiplicative random effects jointly with survival data”, *Biometrics*, **64**: 546-556.

[8] Molleman, F., **Ding, J.**, Wang, J.L., Brakefield, P.M., Carey, J.R., and Zwaan, B. (2008), “Amino acid sources in the adult diet do not affect life span and fecundity in the fruit-feeding butterfly *Bicyclus anynana*”, *Ecological Entomology*, **33**: 429-438.

[9] Molleman, F., **Ding, J.**, Wang, J.L., Brakefield, P.M., Carey, J.R., and Zwaan, B. (2008), “Adult diet affects life span and reproduction of the fruit-feeding butterfly, *Charaxes fulvescens*”, *Entomologia Experimentalis et Applicata*, **129**(1): 54-65.

[10] Kaysen, G., Müller, H. G., **Ding, J.**, and Chertow, G.M. (2005), “Challenging the validity of the EPO index”, *American Journal of Kidney Diseases*, **47**(1): 166 e1- 166 e13.

➤ **In Press:**

[11] Hsieh, F., **Ding, J.**, and Wang, J.L. (2013), “Method of sieves to jointly model survival and longitudinal data”, *Statistica Sinica*, *in press*.

➤ **Revise and Submitted**

[12] **Ding, J.**, Xian, H., Deych, E., and Shannon, W., “Functional longitudinal additive mixed-effects model in characterizing population trend and variability of circadian rhythm using actigraphy data”, *under revision (Annals of Applied Statistics)*.

[13] **Ding, J.**, “Joint modeling of survival and functional data association”, *submitted*.

[14] Xian, H., Gonzalez, C., Deych, E., Farris, S., **Ding, J.**, Shannon, W., and McCall, V., “Age-related effects on circadian phase in the sleep of depressed insomniacs”, *submitted*.

➤ **To be Submitted and In Preparation**

[15] **Ding, J.** and Wang, J.L. “Varying-coefficient Cox model with nonparametric longitudinal covariates”, to be submitted.

[16] **Ding, J.**, “Geometric functional longitudinal additive mixed-effects model for clustered functional data”, to be submitted.

[17] Cheng, A., **Ding, J.**, and Xiong, C., “Questions to remember for early detection of Alzheimer’s disease: an analysis of cognitive data”, to be submitted.

[18] Kowal, D. and **Ding, J.**, “Applications of linear mixed-effects model: math performance of a school district in Missouri”, to be submitted.

[19] **Ding, J.**, Symanzik, J., and Slaven, J.E., “Statistical Analysis of Actigraphy Data”,

to be submitted.

Presentations:

➤ ***Invited:***

- Indiana University-Purdue University Indianapolis, Department of Biostatistics, Feb., 2013.
- Joint Statistical Meetings, San Diego, CA, Aug. 2012.
- Institute of Mathematical Statistics Asia Pacific Rim Meeting, Tsukuba, Japan, July 2012.
- Washington University at St. Louis, SIBS guest lecture, St. Louis, MO, Jun. 2012.
- Interface, “Future of Statistical Computing”, Houston, TX, May, 2012.
- Washington University at St. Louis, Biostatistics Division, Medical School, May, 2012.
- Joint Statistical Meetings, Miami, FL, Aug. 2011.
- Washington University at St. Louis, SIBS guest lecture, St. Louis, MO, Jun. 2011.
- Fudan University, Institute of Biostatistics, School of Life Science, Jun. 2011.
- SAMSI: Analysis of Object Data Workshop -- Interface Functional and Longitudinal Data Analysis, Research Triangle Park, NC, Nov. 2010.
- ICSA Applied Statistical Symposium, San Francisco, CA, Jun. 2009.
- International Biometrics Conference, Dublin, Ireland, Jul. 2008
- Washington University at St. Louis, Biostatistics Division, Medical School, Sep. 2007
- Joint Statistical Meetings, Salt Lake City, UT, Aug. 2007.
- University of Wisconsin, Madison, Department of Biostatistics & Medical Informatics, Mar., 2006
- Harvard University, Statistics Department, Feb. 2006
- University of Michigan, Department of Statistics, Feb. 2006
- Sacramento Statistical Association, CSU Sacramento, CA, Mar., 2005.
- University of California, Davis, Medical School, Oct. 2003.

➤ ***Contributed:***

- New Research Conference, Boulder, CO, Aug., 2008
- IMS/WNAR Western Regional meeting, Alaska, June 2005.

Funding:

- Past
R01 HL9083901 PI: Shannon, William D 4/1/2009-3/31/2012
NIH
New Data Analysis Methods for Actigraphy in Sleep Medicine
The purpose of this study to develop statistic and informatics tolls for analyzing and visualizing actigraphy data linked to fatigue in sleep medicine center patients. An actigraph is a watch-like device attached to the wrist that uses an accelerometer to measure movement nearly continuously over several days. An American Academy of

Sleep Medicine 2002 report defines the practice parameters for the use of actigraphy as a useful tool for detecting sleep in healthy individuals, assessing specific aspects in insomnia and restless leg syndrome, and a useful adjunct to a detailed history and subjective sleep diary for diagnosing and treating insomnia, circadian-rhythm disorders, and excessive sleepiness. Concurrent with these recommendations is an increased interest in the use of actigraphy as a tool for objectively measuring fatigue. With improved high-end statistical methods for analyzing this data, actigraphy has the potential to become more important as an objective diagnostic tool for determining fatigue, sleep abnormalities and assessing response to treatment. Other special areas of neurology and medicine where actigraphy can be used more effectively include restless leg syndrome, the elderly and nursing home patients with and without dementia, newborns, infants, children, and adolescents, hypertensive individuals, depressed or schizophrenic patients, and individuals in in accessible situations.

Role: Co-Investigator

- Current
R01 AG034119-01A1 PI: Xiong, Chengjie 8/01/2010 -7/31/2015
NIH/NIA
Two Preclinical Latent Scores to Predict Occurrence of DAT
This project will determine the earliest preclinical cognitive changes prior to the symptomatic onset of AD, and associate such changes with a wide spectrum of biomarkers (CSF, PIB, MRI).
Role: Co-Investigator
- Pending
NSF- SES- Methodology, Measurement, and Statistics
Functional Trend and Variability in Clustered Longitudinal Studies.
Role: PI

Alzheimer's Association – New Investigator Research Grant
Early Detection of Alzheimer's Disease with Multimodal Markers.
Role: PI

Collaboration and Consulting:

- Summer Institute for Training in Biostatistics, Washington University in St.Louis, School of Medicine, 2012
-- A program sponsored by the National Heart, Lung, and Blood Institute (NHLBI) and the National Center for Research Resources (NCRR), in which I am one of the instructors.
- Statistical Consultant for the law firm of “Rosenblum, Goldenhesh, Silverstein & Zaffi”, Clayton, MO, 63105, 2012
-- I provide statistical analyses for some of their lawsuits.
- Clayton School District Mathematical Program Review, 2012

-- A consulting project for the Clayton school district (MO), in which I am in charge of statistical analysis for their math program review.

- USRDS (United States Renal Data System) Erythropoietin Index project & Myocardial Infarction project, 2004-2006
--A collaboration with medical researchers, in which I am responsible for data analysis of a large observational study (more than 10 GB of data), developing SAS MACROS, fitting survival and varying-coefficient statistical models and writing statistical reports.
- Entomology butterfly project, 2005
- Consultant for STAT LAB, Summer 2003

Teaching Experience:

➤ *Students:*

Lan Xu (Master, May, 2013)
Adam Cheng (Undergraduate Honor Thesis, Dec., 2012)
Dan Kowal (Undergraduate Honor Thesis, May, 2012)
Artem Kreimer (Undergraduate Honor Thesis, May, 2012)

➤ *Washington University*

Semiparametric Statistics (Math 533)
Theories in Statistics (Math 5061, 5062)
Advanced Linear Models (Math 4392)
Probability (Math 493)
Mathematical Statistics (Math 494)
Statistical Computation (Math 475)
Survival Analysis (Math 434)
Matrix Algebra (Math 309)

➤ *UC Davis (As an Instructor)*

Probability Modeling (STA 102), Introduction to Statistics (STA 13)

➤ *As a Teaching Assistant:*

Longitudinal Data Analysis (G), Introduction to Probability Theory (U), Time Series Analysis (U), Analysis of Variance (U), Probability Modeling (U), Elementary Statistics (U), Probability & Statistics in Engineering (U)

Department Committees:

- Statistics committee chair: 2012-2013
- Statistics committee, 2006-2013
- Undergraduate committee, 2011-2012
- Special lecture committee, 2009-2010
- Departmental colloquium committee chair, 2008-2009
- Statistical seminar organizer, 2007-2009
- Graduate screening committee, 2006-2008

- Graduate student independence studies, 2006-2008

Academic Service:

- Editorial Work: referee for
 - *Annals of Statistics*
 - *Journal of American Statistical Association*
 - *Annals of Applied Statistics*
 - *Biometrics*,
 - *Statistica Sinica*,
 - *Life Time Data*,
 - *Journal of Statistical Computation and Simulation*,
 - *Books published by Springer*.
 - *Scandinavian Journal of Statistics*,
 - *Journal of Statistical Planning and Inference*,
- Conference Session Chair: Institute of Mathematical Statistics Asia Pacific Rim Meeting, Tsukuba, Japan, July 2012.
- Conference Session Chair and Organizer: Joint Statistical Meetings, San Diego, CA, Aug. 2012.
- Conference Session Chair, First Joint Biostatistics Symposium, Beijing, July, 2010.
- Conference Session Chair: 2009 ICSA Applied Statistical Symposium, San Francisco, CA, June, 2009.
- Conference Organization: I assisted in organizing the *Focused Research Group Conference* in Aug. 2005. (<http://anson.ucdavis.edu/~mueller/frg/index3.htm>)

Professional Affiliations:

- Membership of Institute of Mathematical Statistics (IMS)
- Membership of American Statistics Association (ASA)
- Membership of International Chinese Statistical Association (ICSA)

Computing Skills:

Matlab, SAS, R, S-plus, Minitab.

Awards & Honors:

- *Research Travel Award* – Graduate Students Association, UC Davis, 2005
Travel support to attend WNAR 2005 Annual Meeting
- *Graduate Student Fellowship Award* -- Sacramento Statistical Association, 2005
Award to outstanding graduate student research
- *Dissertation Year Fellowship* -- University of California, 2004-2005
Award to student advanced to candidacy for outstanding dissertation research
- *Summer Research Fellowship*—Graduate Studies, UC Davis, 2003
Support for outstanding research
- *Julius R. Blum Memorial Award* – Department of Statistics, UC Davis, 2002

Award to outstanding graduate student