OMB No. 0925-0001 and 0925-0002 (Rev. 10/2021 Approved Through 09/30/2024)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Li, Yisheng

eRA COMMONS USER NAME (credential, e.g., agency login): YISHENG

POSITION TITLE: Professor

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE  (if applicable) | Completion Date  MM/YYYY | FIELD OF STUDY |
| --- | --- | --- | --- |
| Peking University, Beijing, China | BS | 7/1991 | Probability & Statistics |
| Sun Yat-sen University, Guangzhou, China | MS | 6/1994 | Probability & Statistics |
| University of Toledo, Toledo, OH | MS | 8/1998 | Statistics |
| University of Michigan, Ann Arbor, MI | PHD | 12/2003 | Biostatistics |

**A. Personal Statement**

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| I have a broad background in biostatistics, with specific expertise in Bayesian adaptive clinical trial design, longitudinal data analysis and study design, Bayesian nonparametrics, missing data methods, and statistical mediation analysis. I have a track record of developing innovative Bayesian adaptive clinical trial design methodology (having published over 10 methodological papers in this area). I currently serve as Co-Director of the Biostatistics and Bioinformatics Core of the MD Anderson Hepatocellular Carcinoma (HCC) SPORE (P50CA217674). I have also served as a co-investigator or primary statistician on over 75 other externally-funded (in particular, NIH-funded) grants in behavioral science, health disparities research, and clinical trials, including as Director of the Biostatistics and Data Management Core of a P60 Center of Excellence Grant (P60 MD000503), and a primary statistician in a Stand Up To Cancer (SU2C) Dream Team Translational Research Grant (SU2C-AACR-DT0209). I have overseen the statistical design, conduct and analysis, and assisted in the interpretation of analysis results and preparation of manuscripts, in the above-mentioned collaborative projects. I have previously collaborated with Dr. Ludwig in a study on which he was a PI. I will serve as a Co-I on the current study by overseeing Bayesian adaptive design for the platform trial, data analysis, and assistance with manuscript publications.  **Ongoing and recently completed projects that I would like to highlight include:**  5P50CA217674-04  Beretta (PI), Role: Co-Director of Biostatistics and Bioinformatics Core  9/25/2019-8/31/2024  The University of Texas MD Anderson Cancer Center SPORE in Hepatocellular Carcinoma |

**Citations**:

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| --- | --- |
| 1. | Yin G, **Li Y**, Ji Y. Bayesian dose-finding in phase I/II clinical trials using toxicity and efficacy odds ratios. Biometrics 62(3):777-787, 2006. PMID: 16984320. |
| 2. | **Li Y**, Bekele BN, Ji Y, Cook JD. Dose-schedule finding in phase I/II clinical trials using a Bayesian isotonic transformation. Statistics in Medicine 27(24):4895-913, 2008. PMCID: PMC4562497. |
| 3. | Bekele BN, **Li Y**, Ji Y. Risk-group-specific dose finding based on an average toxicity score. Biometrics 66(2):541-548, 6/2010. PMCID: PMC4570736. |
| 4. | Ji Y, Liu P, **Li Y**, Bekele BN. A modified toxicity probability interval method for dose-finding trials. Clin Trials 7(6):653-663, 12/2010. PMCID: PMC5038924. |

**B. Positions, Scientific Appointments, and Honors  
Positions and Scientific Appointments**

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| 2024 | NIH/NINDS Special Emphasis Panel/Scientific Review Group 2024/10 ZNS1 SRB-W (23) Meeting, NIH, Ad Hoc Member |
| 2024 | NIH/NINDS Special Emphasis Panel/Scientific Review Group 2024/05 ZNS1 SRB-W (22) Meeting, NIH, Ad Hoc Member |
| 2023 | NIH/NINDS Special Emphasis Panel/Scientific Review Group 2023/10 ZNS1 SRB-W (18) Meeting, NIH, Ad Hoc Member |
| 2023 | NIH/NINDS Special Emphasis Panel/Scientific Review Group 2023/05 ZNS1 SRB-W (10) Meeting, NIH, Ad Hoc Member |
| 2022-2023 | Member, Scientific Program Committee, International Chinese Statistical Association (ICSA) 2023 China Conference, Chengdu, Sichuan Province, China |
| 2022 | NIH/NINDS Special Emphasis Panel/Scientific Review Group 2022/10 ZNS1 SRB-W (01) Meeting, NIH, Ad Hoc Member |
| 2022 | NIH/NINDS Special Emphasis Panel/Scientific Review Group 2022/05 ZNS1 SRB-G (48) Meeting, NIH, Ad Hoc Member |
| 2022-present | Member, IRB 3, The University of Texas MD Anderson Cancer Center, Houston, TX |
| 2022-present | Adjunct Professor, Department of Biostatistics and Data Science, School of Public Health, University of Texas Health Science Center, Houston, TX |
| 2022-present | Adjunct Professor, Department of Statistics, Rice University, Houston, TX |
| 2021-2022 | Round NWO Talent Programme 2021 - Behaviour and Education, Dutch Research Council, Ad Hoc Member |
| 2021 | NIH/NINDS Special Emphasis Panel/Scientific Review Group 2021/08 ZNS1 SRB-G (42) meeting, NIH, Internet Assisted Reviewer |
| 2020-present | Professor, Department of Biostatistics, Division of Basic Science Research, The University of Texas MD Anderson Cancer Center, Houston, TX |
| 2020-present | Statistical Consultant, Journal of Immunotherapy and Precision Oncology |
| 2020 | Statistical Grant, Medical Research Council of the United Kingdom, External Reviewer |
| 2020 | NIH/NINDS Special Emphasis Panel/Scientific Review Group 2020/10 ZNS1 SRB-G32 meeting, NIH, Internet Assisted Reviewer |
| 2019-2022 | Adjunct Associate Professor, Department of Statistics, Rice University, Houston, TX |
| 2019 | Statistical Grant, Medical Research Council of the United Kingdom, External Reviewer |
| 2018-present | Regular Member, Quantitative Sciences Program, The University of Texas Graduate School of Biomedical Science, Houston, TX |
| 2017-2022 | Member, Data and Safety Monitoring Board (DSMB), The University of Texas MD Anderson Cancer Center, Houston, TX |
| 2017 | NIMHD Specialized Center of Excellence Special Emphasis Panel, NIH, Member |
| 2015-2016 | Mathematics and Statistics Discovery Grant, NSERC of Canada, External Reviewer |
| 2012-present | Associate Editor, The American Statistician |
| 2011-present | Associate Editor, BMC Medical Research Methodology |
| 2010-2022 | Scientific Member, IRB 5, The University of Texas MD Anderson Cancer Center, Houston, TX |
| 2010-present | Ex-Officio, Institutional Animal Care and Use Committee (IACUC), The University of Texas MD Anderson Cancer Center, Houston, TX |
| 2010-2020 | Associate Professor, Department of Biostatistics, Division of Quantitative Sciences, The University of Texas MD Anderson Cancer Center, Houston, TX |
| 2010-2016 | Member of Editorial Board, Journal of Biometrics and Biostatistics |
| 2010 | Visiting Assistant Professor, Department of Statistics, Rice University, Houston, TX |
| 2009 | Center for Scientific Review Cancer Biomarkers Study Section Special Emphasis Panel, NIH, Internet Assisted Reviewer |
| 2008-2010 | Associate Scientific Member, Institutional Review Board (IRB) 5, The University of Texas MD Anderson Cancer Center, Houston, TX |
| 2008 | Visiting Assistant Professor, Department of Statistics, Rice University, Houston, TX |
| 2008 | Program Committee Member, Joint Statistical Meetings, American Statistical Association |
| 2006-2009 | Member, Psychosocial, Behavioral and Health Services Research Committee (PBHSRC), The University of Texas MD Anderson Cancer Center, Houston, TX |
| 2006-2007 | President, Houston Area Chapter, American Statistical Association |
| 2004-2010 | Assistant Professor, Department of Biostatistics, Division of Quantitative Sciences, The University of Texas MD Anderson Cancer Center, Houston, TX |

**Honors**

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| 2023 | PhD student Chao Yang's paper selected as one of the three finalists of Thomas Chalmers Award at the 44th SCT Meeting, Society of Clinical Trials (SCT) |
| 2010-2011 | Ranked #3 for a few months in the 10 most accessed Biometrics papers, The International Biometric Society |
| 2009 | Acceptance into Cambridge Who's Who among Executives, Professionals and Entrepreneurs, Cambridge Who's Who |
| 2009 | Best Poster Presentation, The International Workshop on Objective Bayes Methodology, Philadelphia, PA, The International Society for Bayesian Analysis |
| 2009 | Young Researcher Travel Award, The 11th Annual Winter Workshop on Semiparametric Methodology, Gainesville, FL |
| 2008 | Early Career Researcher Travel Award, 9th World Meeting of the International Society for Bayesian Analysis (ISBA), Hamilton Island, Australia, ISBA |
| 2007 | Travel Award, Current and Future Trends in Nonparametrics conference, Columbia, SC |
| 2003 | Fellowship, University of Michigan, Department of Biostatistics |
| 1994 | Title winner of "Outstanding Graduate Student," Sun Yat-sen University, Department of Mathematics |
| 1992 | Merit-award (first prize) recipient, Sun Yat-sen University, Department of Mathematics |
| 1988 | Merit-award recipient, Peking University, Department of Probability and Statistics |

**C. Contributions to Science**

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| 1. | **The uniform shrinkage priors (USPs).** The uniform shrinkage priors (USPs) for the random-effect variance or covariance matrix in Bayesian linear or generalized linear mixed models were developed in 1999 and 2000. This approach provided an excellent alternative to the commonly used diffuse proper priors, which are known to have issues of posterior near-impropriety and sensitivity of the inference to the prior specification. Despite the satisfactory performance of the USPs, this approach has not been widely used because it was only developed for simple two-stage hierarchical models, due to both conceptual and technical difficulties in extending the method to more general hierarchical models. I extended the definition of the USP to semiparametric mixed-effects models and showed desirable properties of the new prior both analytically and empirically via simulations. Further extension of this prior specification in a general class of mixed-effects models is currently underway. In all the work, I developed the original idea of the extension and carried out most of the modeling and implementation work that has led to the publication of the following paper. Authors marked with a \* are co-first authors, both being my PhD students. |
| |  |  |  | | --- | --- | --- | | a. | **Li Y**, Lin X, Müller P. Bayesian inference in semiparametric mixed models for longitudinal data. Biometrics 66(1):70-78, 3/2010. PMCID: PMC3081790. |  | | b. | \*Lekdee K, \*Yang C, Ingsrisawang Lily, **Li Y**. A uniform shrinkage prior in spatiotemporal Poisson models for count data. In: Modern Statistical Methods for Health Research. Emerging Topics in Statistics and Biostatistics., First edition. Ed(s) Zhao Y, Chen DG. Springer: Cham, 83-102, 2021. PMID: 978-3-030-72436-8. |  | | |
| 2. | **Nonparametric modeling of an unknown distribution.** Nonparametric modeling of an unknown distribution, in particular, using the Dirichlet process prior, is at the center of robust inferences in Bayesian hierarchical models. When this approach is used in random-effects model, an identifiability issue arises which, if not addressed, will result in incorrect and seriously misleading inferences for the fixed effects that are often of scientific interest. I formally pointed out the issue and proposed a simple yet effective adjustment to inference based on analytic evaluation of the posterior moments of the fixed effects that addressed the identifiability issue. This work has solved a long-standing identifiability problem in nonparametric Bayesian inference using the Dirichlet process prior, thus allowing its wide use for valid inferences in Bayesian hierarchical models. |
| |  |  |  | | --- | --- | --- | | a. | **Li Y**, Müller P, Lin X. Center-adjusted inference for a nonparametric Bayesian random effect distribution. Statistica Sinica 21(3):1201-1223, 7/2011. PMCID: PMC3870168. |  | | |
| 3. | **Dose and dose-schedule finding.** Dose finding and dose-schedule finding are critical early steps in the development of drugs that treat cancer. Along with colleagues, I have developed efficient and robust designs for dose-finding and dose-schedule-finding trials that have improved the drug development process. Examples of our proposed designs include the modified toxicity probability interval-based designs, which have been routinely used by practitioners including major pharmaceutical companies. I have also mentored trainees (marked by a \* below) in developing other novel and efficient designs for dose- and dose-schedule-finding trials. |
| |  |  |  | | --- | --- | --- | | a. | \*Guo B, **Li Y**. Bayesian dose-finding designs for combination of molecularly targeted agents assuming partial stochastic ordering. Stat Med 34(5):859-875, 2/2015. PMCID: PMC4359011. |  | | b. | \*Guo B, **Li Y**, Yuan Y. A dose-schedule-finding design for phase I/II clinical trials. J R Stat Soc Ser C Appl Stat 65(2):259-272, 2/2016. PMCID: PMC4747255. |  | | c. | \*Su X, **Li Y**, Müller P, Hsu C-W, Pan H, Do K-A. A semi-mechanistic dose-finding design in oncology using pharmacokinetic/pharmacodynamic modeling. Pharm Stat 21(6):1149-1166, 11/2022. PMCID: PMC10134386. |  | | d. | \*Yang C, **Li Y**. An extended Bayesian semi-mechanistic dose-finding design in oncology using pharmacokinetic and pharmacodynamic information. Stat Med 43(4):689-705, 2/2024. PMID: 38110304. |  | | |
| 4. | **Missing data methods.** Along with colleagues, I have developed missing data methods, in particular, nonparametric multiple imputation methods for ignorable missing data. These methods are widely applicable in biomedical studies, where missing data commonly arise. |
| |  |  |  | | --- | --- | --- | | a. | Hsu C-H, **Li Y**, Long Q, Zhao Q, Lance P. Estimation of recurrence of colorectal adenomas with dependent censoring using weighted logistic regression. PLoS One 6(10):e25141, 10/2011. PMCID: PMC3204965. |  | | b. | Long Q, Hsu CH, **Li Y**. Doubly robust nonparametric multiple imputation for ignorable missing data. Statistica Sinica 22(1):149-172, 2012. PMCID: PMC3280694. |  | | c. | Hsu C-H, Long Q, **Li Y**, Jacobs B. A nonparametric multiple imputation approach for data with missing covariate values with application to colorectal adenoma data. Journal of Biopharmaceutical Statistics 24(3):634-648, 4/2014. PMCID: PMC4353564. |  | | d. | Hsu CH, He Y, **Li Y**, Long Q, Friese R. Doubly robust multiple imputation using kernel-based techniques. Biom J 58(3):588-606, 5/2016. PMCID: PMC5167998. |  | | |
| 5. | **Causal mediation analysis.** Statistical mediation analysis is an important and common approach to studying the mechanisms of interventions in social science and medicine. I have worked with colleagues to develop Bayesian causal mediation models. |
| |  |  |  |  | | --- | --- | --- | --- | | a. | Kim C, Daniels M, **Li Y**, **Milbury K**, Cohen L. A Bayesian semiparametric latent variable approach to causal mediation. Stat Med 37(7):1149-1161, 3/2018. PMCID: PMC5837944. |  | | | **Complete List of Published Work in My Bibliography:** http://www.ncbi.nlm.nih.gov/sites/myncbi/yisheng.li.1/bibliography/45331928/public/?sort=d ate&direction=ascending. | |  |  | | |