

JEONG HOON JANG

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RESEARCH INTERESTS

Statistical Methodology

Functional data analysis; High-dimensional data analysis; Agreement; Missing data methods; Bayesian methods; Biomarkers; ROC analysis; Predictive modelling.

Subject-matter Application

Infectious diseases; Kidney diseases; Rehabilitation; Brain injury; Electronic health records (EHR).

EDUCATION

Ph.D., Biostatistics, Emory University 2019

Advisor: Dr. Amita Manatunga

Dissertation: *Statistical Methods for Evaluating Continuous and Functional Markers*

B.S., Mathematics and Statistics, New York University Stern School of Business 2014

Graduated with Cum Laude

ACADEMIC APPOINTMENTS

Assistant Professor 08/2019 - Present
Department of Biostatistics and Health Data Science, Indiana University School of Medicine

Adjunct Assistant Professor 08/2019 - Present
The Richard M. Fairbanks School of Public Health, Indiana University

PEER-REVIEWED JOURNAL PUBLICATIONS

1. **Jang JH** (2021). Principal component analysis of hybrid functional and vector data. *Statistics in Medicine*, in press.
2. **Jang JH**, Manatunga AK, Chang C and Long Q (2021). A multiple imputation approach to bivariate functional data with missing components. *Statistics in Medicine*, in press.
3. Bosslet GT, Pollak M, **Jang JH**, Roll R, Sperling M and Khan B (2021). The effect of in-person primary and secondary school instruction on county-level SARS-CoV-2 spread in Indiana. *Clinical Infectious Diseases*, in press.
4. Hammond FM, Zafonte RD, Tang Q and **Jang JH** (2021). Carbamazepine for irritability and aggression after traumatic brain injury: a randomized, placebo-controlled study. *Journal of Neurotrauma*, in press.
5. Neumann D, Sander AM, Witwer N, **Jang JH**, Bhamidipalli SS and Hammond FM (2021). Evaluating negative attributions in persons with brain injury: A comparison of two measures. *Journal of Head Trauma Rehabilitation*, 36(3), E170–E177.
6. Anderson AM, **Jang JH**, Easley KA, Fuchs D, Gisslen M, Zetterberg H, Blennow K, Ellis RJ, Franklin D, Heaton RK, Grant I and Letendre SL (2020). Cognitive and neuronal link with inflammation: longitudinal study in people with and without HIV Infection. *Journal of Acquired Immune Deficiency Syndromes*, 85(5), 617–625.

7. Chang C, **Jang JH**, Manatunga AK, Taylor AT and Long Q (2020). A latent Bayesian class model to predict kidney obstruction in the absence of gold standard. *Journal of the American Statistical Association*, 115(532), 1645–1663.
8. Hornby TG, Henderson CE, Holleran CL, Lovell L, Roth EJ and **Jang JH** (2020). Stepwise regression and latent profile analyses of locomotor outcomes post-stroke. *Stroke*, 51, 3074–3082.
9. Aldrete S, **Jang JH**, Easley KA, Okulicz J, Dai T, Chen YN, Pino M, Agan BK, Maves RC, Paiardini M and Marconi VC (2020). CD4 rate of increase is preferred to CD4 threshold for predicting outcomes among virologically suppressed HIV-infected adults on antiretroviral therapy. *PLOS One*, 15(1): e0227124.
10. **Jang JH**, Peng L and Manatunga AK (2019). Assessing alignment between functional markers and ordinal outcomes based on broad sense agreement. *Biometrics*, 75(4), 1367–1379.
11. **Jang JH**, Manatunga AK, Taylor AT and Long Q (2018). Overall indices for assessing agreement among multiple raters. *Statistics in Medicine*, 37(28), 4200–4215.
* Received the Student Paper Award from ASA Medical Devices and Diagnostics Section.

MANUSCRIPTS UNDER REVIEW OR IN PREPARATION

1. Neumann D, Mayfield R, Sander AM, **Jang JH**, Bhamidipalli SS and Hammond FM (2021+). An examination of social inferencing skills in males and females following traumatic brain injury. *Archives of Physical Medicine and Rehabilitation*, in revision.
2. Neumann D, Backhaus S, **Jang JH**, Bhamidipalli SS, Winegardner J, Helton B and Hammond FM (2021+). Intervention to change attributions that are negative: a feasibility study on reducing anger after brain injury. *Submitted*.
3. Hammond FM, Zafonte RD, Sherer M, Bell KR, Bogner J, Malec J, Tang Q and **Jang JH** (2021+). Assessing the Benefits and Risks of Amantadine for Irritability and Aggression after Traumatic Brain Injury. *Submitted*.
4. Hosler H, Schleyer TK, **Jang JH**, Schaffer JT, Price J and Rivera RL (2021+). Does the direct integration of a novel health information application with an EHR increase use of health information exchange in emergency departments? *Submitted*.
5. Cui Y, **Jang JH** and Manatunga AK (2021+). An efficient model-based approach for clustering multiple two-dimensional functional data incorporating the covariates. *Submitted*.
6. **Jang JH** and Manatunga AK (2021+). Diagnostic evaluation of quantitative features of functional markers. *Submitted*.
7. **Jang JH** and Tu W (2021+). Probit function-on-function regression model for binary- and ordinal-valued functional Data. *In preparation - Manuscript available*.
8. **Jang JH**, Bian S, Taylor AT and Manatunga AK (2021+). Use of broad sense agreement to define the important features for the interpretation of 99mTc-MAG3 diuretic scintigraphy. *In preparation - Manuscript available*.
9. **Jang JH**, Chang C, Manatunga AK, Taylor AT and Long Q (2021+). A Bayesian joint modeling on renography and expert ratings for diagnosing kidney obstruction. *In preparation*.

INVITED TALKS

“Principal component analysis of hybrid functional and vector data”. 4th International Conference on Econometrics and Statistics (EcoSta 2021), HKUST, Hong Kong, June 2021.

“Principal component analysis of hybrid functional and vector data”. Department of Statistics, Purdue University, West Lafayette, IN, February 2021.

“Development of statistical tools for non-invasive detection of anemia using patient-sourced smartphone photos”. BERD Day: Quantitative Sciences Collaborations, Indianapolis, IN, October 2020.

“Principal component analysis of hybrid functional and vector data”. Department of Biostatistics, Indiana University School of Medicine, Indianapolis, IN, September 2020.

“Principal component analysis of hybrid functional and vector data”. Department of Mathematical Sciences, Indiana University-Purdue University Indianapolis, Indianapolis, IN, September 2020.

“CD4 increase < 100 cells/ μ L/year during 2 years of ART is associated with worse outcomes”. Center for AIDS Research (CFAR) Network Seminar, Emory University, Atlanta, GA, March 2019.

“Application of Finkelstein & Schoenfeld Test when Evaluating Multiple Endpoints in Cardiovascular Trials: A Simulation Study”. Novartis Pharmaceuticals Corporation, East Hanover, NJ, January 2019.

“Statistical Methods for Evaluating Functional Markers”. Department of Epidemiology & Biostatistics, Memorial Sloan Kettering Cancer Center, New York, NY, February 2019.

CONTRIBUTED TALKS

“Principal component analysis of hybrid functional and vector data”. Joint Statistical Meeting, Virtual Event, August 2021.

“Principal component analysis of hybrid functional and vector data”. ENAR Spring Meeting, Virtual Event, March 2021.

“Diagnostic Evaluation of Quantitative Features of Functional Markers”. International Biometric Conference (IBC 2020), Virtual Event, August 2020.

“Diagnostic Evaluation of Quantitative Features of Functional Markers”. ENAR Spring Meeting, Virtual Event, March 2020.

“Assessing Alignment Between Functional Markers and Ordinal Outcomes Based on Broad Sense Agreement”. ENAR Spring Meeting, Atlanta, GA, March 2018.

“Overall Unscaled Indices for Assessing Agreement Among Multiple Raters”. Joint Statistical Meeting, Baltimore, MD, July 2017.

“Overall Unscaled Indices for Assessing Agreement Among Multiple Raters”. ENAR Spring Meeting, Washington, D.C., March 2017.

POSTER SESSIONS

“Application of Finkelstein & Schoenfeld Test when Evaluating Multiple Endpoints in Cardiovascular Trials: A Simulation Study”. FDA Internal Statistician Meeting, Silver Spring, MD, August 2018.

“CD4 increase < 100 cells/ mm^3 /year during 2 years of ART is associated with worst outcomes”. Center for AIDS Research (CFAR) Network Seminar, Emory University, Atlanta, GA, February 2018.

“Overall Unscaled Indices for Assessing Agreement Among Multiple Raters”. NSF / Harshbarger Student Poster Session, SRCOS Summer Research Conference, Savannah, GA, June 2017.

HONORS AND AWARDS

Livingston Fellow Award

2018

- Rollins School of Public Health, Emory University

- Recognizes outstanding achievements as a doctoral student in the Department of Biostatistics
- Boyd Harshbarger Poster Travel Award** 2017
- SRCOS Summer Research Conference
- Travel Award Scholarship** 2017
- Summer Institute in Statistics for Big Data at University of Washington
- Student Paper Competition Award** 2017
- ASA Section on the Medical Devices and Diagnostics
- Graduate Fellowship** 2014 - 2017
- Laney Graduate School, Emory University
- Founders Day Award** 2014
- New York University
- For achieving a place in the highest bracket of scholastic preferment
- Dean's List at New York University** 2008 - 2014

TEACHING

Indiana University, Indianapolis, IN

- Instructor; Biostatistics Methods III – Applied Survival Analysis Fall 2021
- Instructor; Biostatistics Methods III – Applied Survival Analysis Fall 2020

Emory University, Atlanta, GA

- Guest Lecturer; Survival Analysis Fall 2018
- Guest Lecturer; Survival Analysis Fall 2017
- Teaching Assistant; Applied Linear Models Spring 2017
- Rollins School of Public Health Biostatistics Tutor Fall 2016
- Teaching Assistant; SAS Programming Fall 2016
- Teaching Assistant; Biostatistical Methods I Fall 2016
- Teaching Assistant; Statistical Methods II Spring 2016
- Teaching Assistant; Statistical Methods I Fall 2015

RESEARCH ADVISING/MENTORING

PhD Minor Advisor

- Ratanond Koonchanok, Informatics and Computing, IUPUI 2021

MS/MPH Thesis Committee

- Chenlu Shan, Biostatistics and Bioinformatics, Emory University 2021

Postdoctoral Advisory Panel

- Helen Fu, Public & Population Health Informatics, IUPUI (K99/R00 co-mentor) 2021 - Present

Graduate Research Assistants Mentored

- Heidi Hosler, Public Health Informatics, IUPUI 2021 - Present
- Ye Yue, Biostatistics and Bioinformatics, Emory University 2020 - Present
- Shijia Bian, Biostatistics and Bioinformatics, Emory University 2020 - Present
- Ying Cui, Biostatistics and Bioinformatics, Emory University 2019 - Present
- Samuel Aiyedipe, Biostatistics and Bioinformatics, Emory University 2019 - 2020

RESEARCH FUNDING

Current

1. NIH-NHLBI (R01HL159213)
Developing statistical image analysis tools for non-invasive monitoring of anemia in low birth weight infants
Role: PI (subcontract from Emory University)
Project Period: 08/01/21–05/31/25
Objective is to develop a new image analysis algorithm that analyzes full structural information of clinical pallor in fingernail photos to enable accurate, non-invasive prediction of blood hemoglobin level and anemia risk among low-birth weight infants.
2. DOD-USAMRAA (W81XWH-18-1)
Mechanisms and Efficacy of High-Intensity Variable Training in Patients with Incomplete Spinal Cord Injury (SCI)
Role: Co-Investigator (PI: Hornby)
Project Period: 10/01/19–09/29/22
Objective is to investigate the contributions of training intensity on locomotor function in individuals with motor (SCI).
3. Administration for Community Living (ACL-90DPTB0002-01-00)
Indiana TBI Model System
Role: Biostatistician (PI: Hammond)
Project Period: 10/01/19–09/29/22
Objective is to improve the lives of those affected by TBI.
4. NIH-NICHD (R01HD086124)
Prophylaxis against malaria to enhance child development (PROTECT)
Role: Co-Investigator (PI: John)
Project Period: 12/01/19–12/31/21
Objective is to determine the effect of malaria prevention in pregnant women and children on child neurodevelopment (ND) and identify the major mechanisms by which malaria prevention in pregnant women and children affects child ND.
5. NIH-NICHD (R21HD102871)
Immune Exhaustion in Perinatal HIV Infection
Role: Biostatistician (PI: Khaitan)
Project Period: 04/01/20–03/31/22
The goal of the study is to determine the role of immune exhaustion in pediatric HIV pathogenesis in order to guide innovative approaches toward a functional cure.
6. NIH-AHRQ (R01HS027185)
Improving healthcare processes and outcomes by directly integrating health information exchange data in the clinical workflow
Role: Co-investigator (PI: Schleyer)
Project Period: 09/30/20–09/29/23
The overall objective is to evaluate the effects of direct integration of health information exchange (HIE) information with electronic health records (EHR).
7. NIH-NINDS (1R01NS118009)
Locomotor Recovery and Compensation Post-Stroke
Role: Co-investigator (PI: Hornby)
Project Period: 02/15/21–01/31/26

The goal of this project is to evaluate the relative changes in neurological recovery, locomotor recovery and compensatory strategies utilized in patients in the subacute and chronic stages post-stroke during natural recovery and in response to high intensity training..

Completed

1. NIH-NICHD (R21HD094232)

Intervention to Change Attributions That are Negative (ICAN): A New Approach to Reducing Anger and Aggression After Brain Injury

Role: Biostatistician (PI: Neumann)

Project Period: 10/01/19–01/30/21

Objective is to examine the feasibility, acceptability and effect size of a treatment (ICAN) for participants with TBI who have hostility bias.

PROFESSIONAL ACTIVITIES AND SERVICES

Advisory and Leadership

- Member, ENAR Council for Emerging and New Statisticians (CENS) 2020 – Present

Conference Activities

- Organizer of the invited session “SciComm & Stats: Communicating Statistics to the Public in the New Decade” at Joint Statistical Meeting, Seattle, WA, August 2021.
- Chair of the contributed session “Imaging, High Dimensional Data Analysis” at ENAR Spring Meeting, Virtual Event, March 2021.
- Organizer of the invited session “Oh, The Places You Could Go: Surprising Careers in Statistics and Data Science” at ENAR Spring Meeting, Virtual Event, March 2021.

Journal Referee:

- *Biometrics*
- *Biostatistics & Epidemiology*
- *PLOS ONE*
- *Statistical Methods in Medical Research*

Department of Biostatistics and Health Data Science Committees

- Member, Barry P. Katz Lectureship Committee 2021 – Present
- Member, PhD Qualifying Examination Committee 2021
- Member, MS Exit Examination Committee 2021

School and University Committees

- Member, IUPUI Faculty Council Faculty Guide Committee 2020 – Present

Professional Membership

- American Statistical Association 2016 – Present
- International Biometric Society - Eastern North American Region (ENAR) 2016 – Present

COMMUNITY AND OTHER SERVICES

Special Award Judge at International Science and Engineering Fair (ISEF) May 2021

- Evaluated 50+ science projects of high school students for their creative and intelligent use of statistical analyses or techniques.
- Determined the winner for “American Statistical Association (ASA) Special Awards in Statistics” sponsored by ASA Council of Chapters and Special Award Organization.

Special Award Judge at Hoosier Science and Engineering Fair March 2020

- Evaluated 100+ science projects of middle and high school students to determine the winner for the “Excellence in Application of Statistical Methods Award” sponsored by American Statistical Association Central Indiana Chapter.

President - Korean Emory Graduate Students (KEGS) organization

2015 – 2017

Sergeant - Republic of Korea Army

2009 – 2011