December 27, 2020 at 6:44am

Unkyung Lee

Contact Information

U.S. Food & Drug Administration
Division of Biostatistics
Office of Biostatistics and Epidemiology Evaluation
Center for Biologics Evaluation and Research
10903 New Hampshire Avenue
Silver spring, MD 20993

Phone: (979) 229-7146
Email: uklee1029@gmail.com
Web: http://unkyunglee.github.io

Employment

Post Doctoral Research Fellow, Oak Ridge Institute for Science and Education Program, U.S. Food and Drug Administration — 11/2020 – Present
Mentor: Dr. Zhenzhen Xu

Post Doctoral Research Associate, Biostatistics, Bioinformatics, Nutrition and Cancer Research Training Program (NIH T32), Texas A&M University, College Station, TX — 06/2017 – 08/2020
Mentors: Prof. Raymond J. Carroll, Prof. Tanya P. Garcia, and Prof. Guoyao Wu

Adjunct Faculty, Sam Houston State University, Huntsville, TX — 08/2016 – 01/2017

Education

Ph.D., Applied Mathematics, University of North Carolina at Charlotte, Charlotte, NC — 06/2016
Adviser: Prof. Yanqing Sun
Dissertation: Analysis of Semiparametric Regression Models for the Cumulative Incidence Functions Under the Two-Phase Sampling Designs.

M.S., Mathematics, Ewha Womans University, Seoul, Korea — 02/2011
Adviser: Prof. Sunyoung Kim
Thesis: Solving a Nonconvex Quadratic Optimization problem by Splitting Coefficient Matrices of its Constraints and its Numerical Experiments.

B.S., Mathematics, Ewha Womans University, Seoul, Korea — 08/2007

Research Interests

Longitudinal Data Analysis, Competing Risks Data Analysis, Missing Data Analysis, Nonparametric Models, Semiparametric Models, Survival Analysis, Application to Neurodegenerative Diseases and Animal Science.

Publications

Peer-Reviewed Papers

7. **Lee, U.**, Carroll, R.J., Marder, K., Wang, Y. and Garcia, T.P. (2020). Estimating disease onset from change points of markers measured with error. *Biostatistics*, **0**, 1-17, doi:10.1093/biostatistics/kxz068.
6. **Lee, U.**, Garcia, T.P., Carroll, R.J., Gilbreth, K.R., Wu, G. (2019). Analysis of repeated measures data in nutrition research , *Frontiers In Bioscience*, Landmark, **24**, 1378-1390 .
5. **Lee, U.**, Sun, Y., Scheike, T.H., Gilbert, P.B. (2018). Analysis of generalized semiparametric regression models for cumulative incidence functions with missing covariates, *Computational Statistics and Data Analysis*, **122**, 59-79.

Manuscript in preparation

4. **Lee, U.** and Garcia, T.P. (2020+) JPRAT: an R package for the Joint Progression of Risk Assessment Tool, which evaluates and compares all outcomes simultaneously across multiple studies and adjusts for outcome dependencies. The description for the detailed estimation procedure is in the following paper: Garcia, T. P., Marder, K., and Wang, Y. (2017). Time-varying proportional odds model for mega-analysis of clustered event times, *Biostatistics*, **20(1)**, 129-146.
3. Sun, Y., Heng, F., **Lee, U.** and Gilbert, P.B. (2020+) Estimation of Cumulative Incidence Functions under Generalized Semiparametric Regression Models with Missing Covariates and Applications to Vaccine-Induced Antibodies as Correlates of HIV-1 Infections.
2. Comparing different methods for determining the expected number of individuals who will have Huntington disease onset in the next 10 years with developing an R shiny software.
1. Analyzing infant rats data whether exposure to the air pollution and the types of diet would affect fetal growth.

Presentations

Contributed Talks

8. 2019 Eastern North American Region (ENAR) Annual Meeting, Philadelphia, PA — 03/2019

7. The 20th Meeting of New Researchers in Statistics and Probability, Simon Fraser University, Burnaby, Canada — 07/2018

Contributed Poster Presentations

6. Joint Statistical Meetings, Virtual Conference Due to COVID-19 — 08/2020
5. Southeast Texas Chapter of the American Statistical Association Poster Session, Texas A&M University, College Station, TX — 04/2019
4. Statistical Bioinformatics and Cancer Symposium, Institute for Applied Mathematics and Computational Science, Texas A&M University, College Station, TX — 09/2018
3. The 3rd Annual Postdoctoral Research Symposium, Texas A&M University, College Station, TX — 09/2018

2. The 20th Meeting of New Researchers in Statistics and Probability, Simon Fraser University, Burnaby, Canada — 07/2018
1. The 6th Workshop on Biostatistics and Bioinformatics, Georgia State University, Atlanta, GA — 05/2018

Teaching

TEXAS A&M, College Station, TX
- *Instructor*, STAT 642 Method of Statistics II — Summer 2020
- *Instructor*, STAT 302 Statistical Methods — Fall 2019

Sam Houston State University, Huntsville, TX
- *Instructor*, MATH 1314 Pre-Calculus Algebra — Fall 2016
- *Instructor*, STAT 3379 Statistical Methods in Practice (with SPSS) — Fall 2016

University of North Carolina at Charlotte, Charlotte, NC
- *Instructor*, STAT 1221 Elements of Statistics I — Spring 2016
- *Instructor*, STAT 2122 Introduction to Probability and Statistics — Summer 2015
- *Instructor*, STAT 1222 Introductory Statistics — Spring 2014
- *Instructor*, MATH 0900 Math Study Skills & Algebra Review — Fall 2013
- *Tutor*, Mathematics and Statistics, Math Learning Center

University of North Carolina at Charlotte, Charlotte, NC
- *Teaching Assistant*, Introductory to Statistics — Spring 2013
- *Teaching Assistant*, Matrices and Linear Algebra — Spring 2012
- *Teaching Assistant*, Calculus IV — Fall 2011
- *Tutor*, Mathematics and Statistics, Math Learning Center

Ewha Womans University, Seoul, Korea
- *Teaching Assistant*, Advanced Calculus I — Fall 2010
- *Teaching Assistant*, Numerical Differential Equation — Spring 2009
- *Teaching Assistant*, Calculus, Linear Algebra I, II — Spring, Fall 2008

Honors and Awards

7. **Participant in Junior Biostatisticians in Health Research Workshop**, Eastern North American Region International (ENAR) Biometric Society, Philadelphia, PA — 2019
   Invited to workshop which promotes interaction and networking among junior researchers in Biostatistics.
6. **Participant in 20th Meeting of New Researchers in Statistics and Probability**, Simon Fraser University, Canada — 2018
   Travel award to attend workshop which promotes interaction and networking among new researchers in statistics and probability.
5. **Participant in 6th Workshop on Biostatistics and Bioinformatics**, Georgia State University — 2018
   Travel Award for Young and Minority Researchers.

4. **Graduate Teaching Award**, UNC at Charlotte — 2015
   In recognition of excellent undergraduate teaching in the Department of Mathematics and Statistics during the 2014-2015 academic year.
3. **Graduate Assistantship**, UNC at Charlotte — 2011−2016
2. **Brain Korea 21 Fellowship**, National Research Foundation, Korea — 03/2008−07/2009, Spring 2010
1. **Graduate Teaching Assistantship**, Ewha Womans University — 03/2008−07/2009, Spring 2010

Research Experience

Post Doctoral Research Associate, Biostatistics, Bioinformatics, Nutrition and Cancer Research Training Program (NIH T32), Texas A&M University, College Station, TX — 06/2017 − Present

P.I: Prof. Raymond J. Carroll, Mentor: Prof. Tanya P. Garcia

- Propose a location-shift marker model under the shape constraints to estimate individual longitudinal trajectories and their inflection points as a new measure of disease onset.
- Compare three different methods for determining the expected number of individuals who will have Huntington disease onset in the next 10 years with developing an R shiny software.
- Joint work with Prof. Guoyao Wu's lab in the Department of Animal Science, Texas A&M University.
  - **Statistical Consultant:** Analysis of factor effects on mean concentrations of amino acids of chickens to understand if heat stress is associated with chicken growth over time.
  - Tutorial report about how to capture biological variations among steers over time when the concentrations of amino acids are repeatedly measured at each time point.
  - Developing a new method to analyze infants rats data to see if air pollution during pregnancy would affect fetal growth.

Research Assistant, University of North Carolina at Charlotte, Charlotte, NC — Fall 2015, Summer 2014

Fall 2012

Adviser: Prof. Yanqing Sun

- Adopt an augmented inverse probability weighted of complete case method to improve efficiency of the inverse probability weighted of complete case (IPW) estimators.
- Develop estimating equations for the semiparametric regression model for cumulative incidence function based on competing risks data under the case-cohort/two phase sampling design. Adopt an IPW method to our problem.
- Local test for cox regression model and its goodness of fit statistic with data application.

Professional Activities

Served as Session Chair

5. The 20th Meeting of New Researchers in Statistics and Probability, Simon Fraser University, Burnaby, Canada — 07/2018

Attended Workshops

4. P.O.W.E.R Academic Writing Workshop, Texas A&M University, College Station, TX — 06/2019
3. International Symposium on Nutrition & Human Health, Tohoku University (Sendia, Japan) and Texas A&M University, Texas A&M University, College Station, TX, — 11/2018
2. NISS Writing Workshop for Junior Researchers at Joint Statistical Meetings, Vancouver, Canada — 07/2018
1. Jump-Start Your Writing Productivity, Texas A&M University, College Station, TX — 01/2018

Volunteers Work

The Student Research Week

The Student Research Week (SRW) is the largest student run research symposium in the nation. This is four day competition highlights student research occurring on the Texas A&M campus. Volunteering as a judge for the PhD students' oral presentation session in public health research work. — 03/ 2019

National Math and Science Competition

The Korean-American Scientists & Engineers Association (KSEA) offers the National Mathematics and Science Competition to challenge and inspire students. Working as a staff organizer at Charlotte, N.C Chapter in April, every year. — 2012-2016

Julia Robinson Mathematics and Computing Festival

Volunteering as a activity leader for Grade 6, helping middle school students with math activities to learn and explore diverse subjects in mathematics. 03/2013

Memberships

ENAR

Skills

Computer Software

Windows, Linux, MS office

Programming Languages, Proficiency

R, MATLAB, C, LaTeX

Programming Languages, Basic

SAS, SPSS

References

Raymond J. Carroll

Texas A&M University
Department of Statistics
Distinguished Professor
Professor of Statistics
Professor of Nutrition and Toxicology
Director, Bioinformatics Training Program
E-mail: carroll@stat.tamu.edu

Tanya P. Garcia

University of North Carolina at Chapel Hill
Department of Biostatistics
Associate Professor of Biostatistics
E-mail: tpgarcia@email.unc.edu

Guoyao Wu

Texas A&M University
Department of Animal Science
Distinguished Professor
E-mail: g-wu@tamu.edu

Yanqing Sun

University of North Carolina at Charlotte
Department of Mathematics and Statistics
Professor of Statistics
E-mail: yasun@uncc.edu