

## Chanmin Kim

---

CONTACT INFORMATION	25-2, Sungkyunkwan-ro, Jongno-gu Seoul 03063, Korea	02-760-0495 chanmin.kim@skku.edu
RESEARCH INTERESTS	Bayesian nonparametric methods and Machine learning Causal modeling and Causal mechanism Policy Evaluation, Environmental statistics, and behavioral sciences	
CURRENT POSITION	<b>SungKyunKwan University</b> , Department of Statistics, Seoul, Korea <b>Assistant Professor</b> of Statistics,	Jan 2020 -
	<b>Boston University</b> , Department of Biostatistics, Boston <b>Adjunct Assistant Professor</b> of Biostatistics,	Jan 2020 -
EDUCATION / TRAINING	<b>Harvard University</b> , Department of Biostatistics, Boston, MA Research Associate & Postdoctoral Research Fellow July 2014 - Aug 2017 Project: <i>Developing Bayesian causal inference methods for evaluating air pollution regulatory policies.</i> Mentor: Corwin M. Zigler, Ph.D.	
	<b>University of Florida</b> , Gainesville, FL Ph.D., Statistics Aug 2013 Thesis: <i>Bayesian methods for inference on the causal effects of mediation.</i> Advisor: Michael J. Daniels, Sc.D.	
	<b>Columbia University in the City of New York</b> , New York, NY M.A., Statistics May 2008	
	<b>Sogang University</b> , Seoul, Korea B.B.A., B.A., <b>Business and History</b> (Double Major) Feb 2006 <i>Magna Cum Laude</i> the second highest GPA in the department.	
RESEARCH AND PROFESSIONAL EXPERIENCE	Assistant Professor Sep 2017 - Dec 2019 Department of Biostatistics, Boston University, Boston, MA	
	Advisory Committee Nov 2020 - Feb 2021 Hyundai Motor Group, Seoul, Korea	
	Postdoctoral Research Fellow Aug 2013 - Jul 2014 Department of Integrative Biology, The University of Texas, Austin - Developed Bayesian nonparametric methods for causal mediation in various settings (single, multiple, or longitudinal mediators). Mentor: Michael J. Daniels, Sc.D.	
	Research Assistant Jan 2010 - Jul 2013 Department of Statistics, University of Florida - Causal mediation analysis in the TOURS project (weight management trial) and the Rural LITE project. Supervisor: Michael J. Daniels, Sc.D.	
	Research Assistant Jan 2007 - Dec 2007 Applied Statistics Center, Columbia University	
	Employee, Samsung Electronics, South Korea Jan 2006 - May 2006 - Worked at the HR headquarters of the Tele-Communication Business Division which is in charge of Samsung's cell phone business.	

Internship, Bearing Point Consulting formerly KPMG Korea Jul 2004 - Aug 2004  
 - As a member of PMO, evaluated daily outputs for a project to construct a new banking system for Korean Exchange Bank (KBE). Worked with 600 IT experts.

## AWARDS

### HONORS

Mitchell Prize, honorable mention (2nd place), ISBA Jun 2020  
 - The Mitchell Prize is awarded in recognition of an “outstanding paper” that describes how a Bayesian analysis has solved an important applied problem. The Prize is jointly sponsored by the Section on Bayesian Statistical Science (SBSS) of the ASA, the International Society for Bayesian Analysis (ISBA), and the Mitchell Prize Founders’ Committee.

ASA Biometrics Section Paper Award Aug 2017  
 - Invited to present the paper at the 2017 JSM

Winner (1st place), 2013 IASC data analysis competition Aug 2013  
 - Invited to present the result at the joint meeting of the IASC Satellite Conference for the 59th ISI WSC and the 8th Conference of the Asian regional section of the IASC, Seoul, Korea (22-23 August 2013)

Honorable Mention, NSF research day poster competition, UF Oct 2011

3rd Place, Human Consulting Group case competition, May 2003  
 NEMO Partners, South Korea

### TRAVEL AWARDS

Sackler Travel Award (granted by NSF) Mar 2015  
 for the Sackler Colloquium Drawing Causal Inference from Big Data, D.C.

Graduate Student Council (GSC) at UF May 2013  
 for 2013 Atlantic Causal Inference Conference, Boston, MA

College of Liberal Arts and Sciences (CLAS) at UF May 2013  
 for 2013 Atlantic Causal Inference Conference, Boston, MA

Boyd Harshbarger Travel Award (granted by NSF) Jun 2012  
 for SRCOS 2012 Summer Research Conference, GA

College of Liberal Arts and Sciences (CLAS) at UF May 2012  
 for 2012 Atlantic Causal Inference Conference, Baltimore, MD

Centre de recherches mathématiques (CRM) at University of Montreal May 2011  
 for Workshop on Causal Inference in Health Research, Canada

Graduate Student Council (GSC) at UF May 2011  
 for Workshop on Causal Inference in Health Research, Canada

## REFEREED

### JOURNAL PUBLICATIONS

### Publication in Statistical Methodology

**Kim, C.**, Lin, X., Nelson, K., Measuring Rater Bias in Diagnostic Tests with Ordinal Ratings, *Statistics in Medicine*, 2021, in print.

**Kim, C.**, Henneman, L., Choirat, C. Zigler, C. M., Health Effects of Power Plant Emissions through Ambient Air Quality, *Journal of the Royal Statistical Society: Series A*, 183(4), 1677-1703, 2020.

**Kim, C.**, Daniels, M. J., Hogan, J. W., Choirat, C., Zigler, C. M. Bayesian Methods for Multiple Mediators: Relating Principal Stratification and Causal Mediation in the Analysis of Power Plant Emission Controls, *awarded ASA 2017 Biometrics section travel award; and awarded an honorable mention for the Mitchell Prize 2019, ISBA, The Annals of Applied Statistics*, 13(3), 1927-1956, 2019.

**Kim, C.**, Deviance Information Criteria for Mixtures of Distributions, *Communications in Statistics - Simulation and Computation*, 2019, DOI:10.1080/03610918.2019.1617878.

Liu, Y., **Kim, C.**, Wu, A. D., Gustafson, P., Zumbo, B. D. Investigating Causal Differential Item Functioning (DIF) via Propensity Scores Methods, *Journal of Modern Applied Statistical Methods*, 18(1), 2-26, 2019.

**Kim, C.**, Daniels, M. J., Li, Y., Milbury, K., Cohen, L., A Bayesian Semiparametric Latent Variable Approach to Causal Mediation, *Statistics in Medicine*, 37(7), 1149-1161, 2018.

**Kim, C.**, Daniels, M.J., Marcus, B., Roy, J., A framework for Bayesian nonparametric inference for causal effects of mediation, *Biometrics*, 73(2), 401-409, 2017.

Zigler, C. M., **Kim, C.**, Choirat, C. Hansen, J. B., Wang, Y., Hund, L., Samet, J., King, G., Dominici, F., Causal Inference Methods for Estimating Long-Term Health Effects of Air Quality Regulations, *Health Effects Institute Research Report*, 187, 5-49, 2016 (peer-reviewed).

Daniels, M. J., Roy, J., **Kim, C.**, Hogan, J. W., Perri, M., Bayesian Inference for the Causal Effects of Mediation, *Biometrics*, 68(4), 1028-1036, 2012.

### **Collaborative Publications**

Peer, K., Adams W. G., Legler, A., Sandel, M., Levy, J., Boynton-Jarrett, R., **Kim, C.**, Leibler, J. H., Fabian, M. P., Developing and evaluating a pediatric asthma severity computable phenotype derived from electronic health records, *The Journal of Allergy and Clinical Immunology*, In print.

Nguyen, M., Feeney, T., **Kim, C.**, Drake, T., Mitchell, S., Bednarczyk, M., Sanchez, S., Patient-Level Factors Influencing Palliative Care Consultation at a Safety-Net Urban Hospital, *American Journal of Hospice and Palliative Medicine*, In print.

Liu, Y., Beliveau, A., Besche, H., Wu, A., Zhang, X., Stefan, M., Gutlerner, J., **Kim, C.**, Bayesian Mixed Effects Model and Data Visualization for Understanding Item Response Time and Response Order in Open Online Assessment, *Frontiers in Education, section Assessment, Testing and Applied Measurement*, In print.

Nguyen, M., Feeney, T., **Kim, C.**, Drake, T., Mitchell, S., Bednarczyk, M., Sanchez, S., Differential Utilization of Palliative Care Consultation between Medical and Surgical Services, *American Journal of Hospice and Palliative Medicine*, 37(4), 250-257, 2020.

Mahalingaiah, S., Lane, K.J., **Kim, C.**, Cheng, J., Hart, J., Impacts of Air Pollution on Gynecologic Disease: Infertility, Menstrual Irregularity, Uterine Fibroids, and Endometriosis: a Systematic Review and Commentary, *Current Epidemiology*

*Reports*, 5(3), 197-204, 2018.

Zhang, Z., Zheng, C., **Kim, C.**, Van Poucke, S., Lin, S., Lan, P., Causal Mediation Analysis in the Context of Clinical Research, *Annals of Translational Medicine*, 4(21), 1-20, 2016.

Perri, M., Limacher, M., von Castel-Roberts, K., Daniels, M., Durning, P., Janicke, D., Bobroff, L., Radcliff, T., Milsom, V., **Kim, C.**, Martin, A., Comparative Effectiveness of Three Doses of Weight Loss Counseling: Two-Year Findings from the Rural LITE Trial, *Obesity*, 22, 2293-2300, 2014.

#### Manuscripts Submitted or Under Revision

Peer, K., Adams W. G., Legler, A., Sandel, M., Levy, J., Boynton-Jarrett, R., **Kim, C.**, Leibler, J. H., Fabian, M. P., Beyond a reductionist approach to residential mobility definitions in the health literature: opportunities and challenges using electronic health record address data, submitted.

Lee, K.J., **Kim, C.**, Chen, R.B., Lee, K., Robust Probit Linear Mixed Models for Longitudinal Binary Data, submitted.

**Kim, C.**, Zigler, C. M., Daniels, M. J., Choirat, C., Roy, J. A., Bayesian Longitudinal Causal Inference in the Analysis of the Public Health Impact of Pollutant Emissions [[arXiv](#)].

**Kim, C.**, Bayesian Additive Regression Trees in Spatial Data Analysis with Sparse Observations, under revision.

Cummiskey, K., **Kim, C.**, Choirat, C., Schwartz, J., Zigler, C. A Source-Oriented Approach to Coal Combustion PM<sub>2.5</sub> Health Effects [[arXiv](#)], under revision.

#### PAPERS IN PREPARATION

**Kim, C.**, Hogan, J. W., Marcus, B., Daniels, M. J., A Framework for Causal Inference for Multiple Mediators, In preparation (draft available upon request).

**Kim, C.**, Daniels, M. J., Bayesian Nonparametric Method for Causal Effect Heterogeneity, In preparation

**Kim, C.**, Li, Y., Bayesian Nonparametric Method for Causal Mediation Analysis in Zero-inflated Data, In preparation

**Kim, C.**, Nelson, K., Enhanced Method for Measuring Rater Bias in Diagnostic Tests with Ordinal Ratings, In preparation

**Kim, C.**, Zigler, C., Confounder Selection via Bayesian Additive Regression Trees, In preparation

#### UNREFEREED PUBLICATIONS

**Kim, C.**, Choi, S. *Marginal Structural Models for the Causal Effects of Higher Education Rates on Cancer Mortality*, Proceedings of Joint Meeting of the IASC Satellite Conference and the 8th Conference of the Asian Regional Section of the IASC, 424-428, 2013.

PACKAGE /  
SOFTWARE

**BNPMediation**, an R package. Implements Bayesian nonparametric methods to estimate the causal effects of mediation. Available in CRAN.

**BayesODT**, an R package. Implements Bayesian hierarchical model to measure rater bias for ordinal classification processes. Available in [lit777.github.io](https://github.com/lit777).

PRESENTATIONS INVITED TALKS

Working Group on Causal Inference and Machine Learning, Harvard University, Jan 2021

Invited Section for Bayesian Statistics, The Korean Statistical Society, Dec 2020

Department of Statistics, SungKyunKwan University, South Korea Oct 2020

Department of Statistics, Ewha University, South Korea Aug 2020

10th Bernoulli-IMS World Congress in Probability and Statistics, Seoul, Korea, Aug 2020 (postponed)

4th International Conference on Econometrics and Statistics, Seoul, Korea, Jul 2020 (postponed)

Bayesian Causal Inference Workshop, Ohio State University, OH (Cancelled) Jun 2019

Atlantic Causal Inference Conference, McGill University, Canada May 2019

Institute for Computational and Experimental Research in Mathematics, Brown University, RI Jan 2019

Graduate School of Future Strategy, KAIST, Daejeon, Korea Aug 2018

2018 Joint Statistical Meeting, Vancouver, Canada Aug 2018

The 3rd ISBA-EAC Conference , Seoul, Korea Jul 2018

2018 ICSA China Conference with the Focus on Data Science, Qingdao, Shangdong, China Jul 2018

2018 IISA International Conference on Statistics, Gainesville, FL May 2018

Statistics and Probability Seminar Series, Boston University, MA Apr 2018

Biostatistics Student Association (BSA) Seminar, Boston University, MA Nov 2017

Global Health Research Seminar Series, Boston University, MA Oct 2017

Environmental Statistics Seminar, Harvard University, MA May 2017

The 31st New England Statistics Symposium, Univ. of Connecticut, CT Apr 2017

Department of Biostatistics, Boston University, MA Feb 2017

Department of Biostatistics and Bioinformatics, Duke University, NC	Jan 2017
Department of Biostatistics, Indiana University, Indianapolis, IN	Jan 2017
Div. of Sleep and Circadian Disorders, Brigham and Women's Hospital	Nov 2016
P01 Retreat, Harvard University	Oct 2016
Department of Statistics, SungKyunKwan University, South Korea	Apr 2016
Environmental Statistics Seminar at Harvard Biostatistics	Sep 2015
2015 Atlantic Causal Inference Conference, Philadelphia, PA	May 2015
Department of Biostatistics, Harvard School of Public Health	Dec 2013
Joint meeting of the IASC satellite conference for the 59th ISI WSC and the 8th conference of the ARS of the IASC, South Korea	Aug 2013

#### TOPIC-CONTRIBUTED TALKS

2017 Joint Statistical Meeting, Baltimore, MD (Missed)	Aug 2017
- Biometrics Section Award Presentation : <i>Bayesian Methods for Multiple Intermediate Variables: Principal Stratification and Causal Mediation Analysis</i>	
2016 Joint Statistical Meeting, Chicago, IL	Aug 2016
2014 Joint Statistical Meeting, Boston, MA	Aug 2014

#### CONTRIBUTED TALKS

2017 ENAR Meeting, DC	Mar 2017
2016 ENAR Meeting, Austin, TX	Mar 2016
P01 retreat at Harvard Biostatistics	Oct 2015
Bayesian Causal Inference Group Seminar at Harvard Biostatistics	Jun 2015
Bayesian Causal Inference Group Seminar at Harvard Biostatistics	Jan 2015
Bayesian Causal Inference Group Seminar at Harvard Biostatistics	Sep 2014
Acid Rain Program Group Seminar at Harvard	Sep 2014, Feb 2015
2015 ENAR Meeting, Miami, FL	Mar 2015
2014 ENAR Meeting, Baltimore, MD	Mar 2014
2013 Joint Statistical Meeting, Montreal, Canada	Aug 2013

#### POSTER PRESENTATIONS

2015 International Health Policy Statistics Conference, Providence, RI	Oct 2015
--	----------

2015 Atlantic Causal Inference Conference, Philadelphia, PA	May 2015
2013 Atlantic Causal Inference Conference, Boston, MA	May 2013
2012 SRCOS Summer Research Conference, GA	Jun 2012
2012 Atlantic Causal Inference Conference, Baltimore, MD	May 2012
Workshop on Causal Inference and Graphical Models, Winter Workshop 2012, University of Florida	Jan 2012
NSF Research Day, University of Florida	Oct 2011
Workshop on Causal Inference in Health Research, CRM, University of Montreal, Canada	May 2011

#### PROFESSIONAL SERVICE

##### REVIEWER (Publons)

*Journal of American Statistical Association (theory and methods; applications and case studies), Biometrics, Statistics in Medicine, Bayesian Analysis, Journal of Royal Statistical Society: Series C, Journal of Causal Inference, Statistica Sinica, Annals of Applied Statistics, Biostatistics, Epidemiologic Methods, BMJ Open, BMC Medical Research Methodology, Computational Statistics and Data Analysis, The Canadian Journal of Statistics, BMC Public Health, The International Journal of Biostatistics, MRC grant proposal, HEI grant proposal*

##### PROFESSIONAL SOCIETY

Elected Member of ENAR Council for Emerging and New Statisticians. 2014 - 2016  
Members of ENAR, ASA, ISBA

##### CONFERENCE ORGANIZATION

**Session Organizer** : Invited Session at ENAR (2019), Invited Session at JSM (2018), Invited Session at ACIC (2018), Topic-contributed sessions at JSM (2016, 2017)

**Session Chair** : ENAR (2015), JSM (2016), Invited Session at ENAR (2020)

Others: Judge of 2014 ENAR spring meeting RAB poster competition.

#### DEPARTMENTAL SERVICE

##### MS STUDENTS

Youngho Bae (SKKU), expected Winter 2021  
Doyoung Kim (SKKU), expected Winter 2021  
Sangho Park (SKKU), expected Winter 2021

##### PHD COMMITTEES

Kevin Cummiskey (Harvard Biostatistics, 2018). Advisor: Corwin M. Zigler  
Aya Mitani (Boston Univ. Biostatistics, 2019). Advisor: Kerrie Nelson  
Daniel Nguyen (Boston Univ. Environmental Health). Advisor: Junenette Peters  
Komal Basra (Boston Univ. Environmental Health). Advisor: Patricia Fabian  
Xiaoyan Liu (Boston Univ. Biostatistics). Advisor: Gheorghe Doros

##### MS COMMITTEES

Amelia Williams (Boston University Epidemiology, 2018). Advisor: Kimberly Shea

##### QUAL EXAMINER

Chloe Kim (Boston University Environmental Health, In progress). Advisor: Michael McClean

Komal Basra (Boston University Environmental Health, 2019). Advisor: Patricia Fabian

#### OTHER SERVICES

Co-Organizer, Epidemiology+Biostatistics Joint Seminar Series, Boston University 2018  
 Co-Organizer, Seminar Series, Department of Biostatistics, Boston University 2017 - 2019  
 Co-Chair, Course Development Task Force (Topics in Causal Inference), Department of Biostatistics, Boston University 2018 - 2019  
 Convener, PhD Program Review Committee, Department of Biostatistics, Boston University 2018  
 Faculty Search Committee, Department of Biostatistics, Boston University 2018 - 2019  
 Co-Organizer, Causal Inference Seminar Series, Departments of Biostatistics + Mathematics and Statistics, Boston University 2018-  
 Biostatistics Program Advisory Committee (BPAC), Departments of Biostatistics, Boston University 2019-  
 MA/PhD Admission Committee, Departments of Biostatistics, Boston University 2019-

#### TEACHING EXPERIENCE

##### INSTRUCTOR

STA2016 - Intro. to Statistical Programming (Undergrad) Fall 2020  
 Department of Statistics, SungKyunKwan University

STA5004 - Advanced Categorical Data Analysis (Grad) Fall 2020  
 Department of Statistics, SungKyunKwan University

STA5030 - Bayesian Statistics (Grad) Spring 2020  
 Department of Statistics, SungKyunKwan University

BS730 - Introduction to Statistical Computing Spring 2018, Spring 2019  
 Teaching core statistical concepts and computing skills with R  
 Department of Biostatistics, Boston University

BS901 - Directed Studies in Biostatistics Summer 2019  
 Analyzing datasets using nonparametric methods  
 Department of Biostatistics, Boston University

##### POSTDOC MENTOR

Summer 2017

6 weeks mentoring of summer project participants (Pipelines into Biostatistics)  
 Department of Biostatistics, Harvard T. H. Chan School of Public Health

##### POSTDOC MENTOR

Summer 2016

6 weeks mentoring of summer project participants (Pipelines into Biostatistics)  
 Department of Biostatistics, Harvard T. H. Chan School of Public Health

##### GUEST LECTURER

Fall 2018, Spring 2019, Fall 2019

Causal Mediation Analysis (3 hours) in BS852 (Bayesian Methodology in Biostatistics)  
 Department of Biostatistics, Boston University School of Public Health

##### GUEST LECTURER

Fall 2014

Causal Mediation Analysis (2 hours) in BIO 249 (Bayesian Methodology in Biostatistics)  
 Department of Biostatistics, Harvard T. H. Chan School of Public Health



GUEST LECTURER Spring, Fall 2013  
 2 hour BUGS tutorial in the course SSC 384.7 (spring)  
 1 hour BUGS tutorial in the course SSC 383C (Fall)  
 Division of Statistics and Scientific Computation, The University of Texas at Austin

LAB-INSTRUCTOR Fall 2008, Spring 2009  
 STA 2023 - Introduction to Statistics  
 Teaching lab sessions of the course 3 hours a week  
 Evaluation: 4.31/5 (Spring 2009), 4.38/5, 4.26/5, 4.35/5 (Fall 2008)  
 Department of Statistics, University of Florida

TEACHING ASSISTANT AT UF Spring, Fall 2009  
 STA 3032 - Engineering Statistics  
 STA 4210 - Regression Analysis  
 STA 4183 - Theory of Interest  
 ESI 6546 - Stochastic Modeling and Analysis (Grader)

TEACHING ASSISTANT AT COLUMBIA UNIVERSITY Spring 2007  
 W1211 - Introduction to Statistics (with Calculus)

#### GRANT FUNDING ACTIVE

NRF (PI: Chanmin Kim) Jun 2020 - Feb 2023  
 Bayesian non-parametric methods for estimating causal effect heterogeneity.  
 Role: **Principal Investigator**

#### COMPLETED

US-EPA (PI: Corwin Zigler) Sep 2016 - Aug 2020  
 Air Climate and Energy Center: Regional Air Pollution Mixtures: The Past and Future Impacts of Emission Controls and Climate Change on AirQuality and Health, Project 4: A Causal Inference Framework to Support Policy Decisions by Evaluating the Effectiveness of Past Air Pollution Control Strategies for the Entire United States.  
 Role: **PI on subcontract**, subcontract from Harvard University

NIH (PI: Kerrie Nelson) Feb 2018 - Aug 2022  
 Improving Accuracy and Reliability in Cancer Screening Tests  
 Role: **Biostatistician**

NIH (PI: David Sherr) Sep 2012 - Aug 2020  
 Superfund Research Program at Boston University  
 Role: **Biostatistician**

NIH (PI: Lauren Wise and Elizabeth Hatch) Jan 2019 - Oct 2023  
 A Preconception Cohort Study of Environmental Chemicals, Fertility, and Miscarriage  
 Role: **Biostatistician**

NIH (PI: Debbie Cheng) Sep 2016 - Aug 2021  
 Biostatistics and Data Management (BDM) Core - URBAN ARCH Consortium  
 Role: **Biostatistician**

NIH (PI: Jason Roy) Sep 2014 - Aug 2018  
 Non-Parametric Bayesian Methods of Causal Inference.

Role: **PI on subcontract**, subcontract from University of Pennsylvania

NIH (PI: Corwin Zigler) Sep 2015 - Aug 2020  
Causal Inference with Interference for Evaluating Air Quality Policies  
Role: **Investigator**

NIH (PI: Kerrie Nelson) Jan 2014 - Dec 2019  
Modeling Agreement in Cancer Diagnostic Tests  
Role: **Biostatistician**

## COMPUTING

### STATISTICAL PROGRAMS (PACKAGES)

R, SAS, Stan, BUGS (WinBUGS, OpenBUGS), MATLAB  
- SAS Certified Base Programmer for SAS 9 Credential May 2012  
- SAS Certified Advanced Programmer for SAS 9 Credential Sep 2012

### PROGRAMMING LANGUAGES

Some experience in Python, C++

### OPERATING SYSTEM

Unix, Linux, Windows

MISCELLANEOUS Exam P pass, Society of Actuaries Mar 2011

## REFERENCES

Corwin Zigler  
Associate Professor Phone: 617-432-5014  
Department of Biostatistics E-mail: czigler@hsph.harvard.edu  
Harvard T. H. Chan School of Public Health

Michael Daniels  
Professor and Chair Phone: 352-262-9892  
Andrew Banks Family Endowed Chair E-mail: daniels@ufl.edu  
Department of Statistics  
University of Florida

Jason Roy  
Professor of Biostatistics Phone: 732-235-9168  
Chair of Biostatistics and Epidemiology E-mail: jason.roy@rutgers.edu  
Co-Director, Center for Causal Inference  
Rutgers School of Public Health