

## Chanmin Kim

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CONTACT INFORMATION	801 Massachusetts Ave. CT303 Boston, MA 02118	617-638-5126 chanmink@bu.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, MA <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 Department of Biostatistics, Boston University, Boston, MA	Sep 2017 - Dec 2019
	Postdoctoral Research Fellow 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.	Aug 2013 - Jul 2014
	Research Assistant 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.	Jan 2010 - Jul 2013
	Research Assistant Applied Statistics Center, Columbia University	Jan 2007 - Dec 2007
	Employee, Samsung Electronics, South Korea - Worked at the HR headquarters of the Tele-Communication Business Division which is in charge of Samsung's cell phone business.	Jan 2006 - May 2006
	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.**, 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*, To appear.

**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

Nguyen, M., Feeney, T., **Kim, C.**, Drake, F., 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

**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.**, Lin, X., Nelson, K., Measuring Rater Bias in Diagnostic Tests with Ordinal Ratings, under revision.

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

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.

Liu, Y., Wu, A. D., Hubley, A. M., **Kim, C.**, Chen, Y., Beliveau, A., Zumbo, B. D., Understanding Item Response Processes of CES-D from a Social-Cognitive Perspective via Bayesian Mixed Effects Models, submitted

Liu, Y., Beliveau, A., Besche, H., Zhang, X., Stefan, M., Gutlerner, J., **Kim, C.**, Analytical Strategies for Modeling Open Online Formative Assessment Data, submitted

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, submitted

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

Nguyen, M., Feeney, T., **Kim, C.**, Drake, F., Mitchell, S., Bednarczyk, M., Sanchez, S., Race as a Determinant of Palliative Care Consultation at a Safety-Net Urban Hospital, 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](#).

PRESENTATIONS INVITED TALKS

10th Bernoulli-IMS World Congress in Probability and Statistics, Seoul, Korea, Aug 2020 (postponed)	
4th International Conference on Econometrics and Statistics, Seoul, Korea, 2020 (postponed)	Jul
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	Aug 2013

and the 8th conference of the ARS of the IASC, South Korea

#### 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

PHD COMMITTEES

Kevin Cummiskey (Harvard Biostatistics, 2018). Advisor: Corwin M. Zigler

Aya Mitani (Boston Univ. Biostatistics, 2019). Advisor: Kerrie Nelson

Mandy Du (Boston Univ. Biostatistics). Advisor: Paola Sebastiani

Daniel Nguyen (Boston Univ. Environmental Health). Advisor: Junenette Peters

Komal Basra (Boston Univ. Environmental Health). Advisor: Patricia Fabian

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	
	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	
	6 weeks mentoring of summer project participants (Pipelines into Biostatistics)	Summer 2017
	Department of Biostatistics, Harvard T. H. Chan School of Public Health	
	POSTDOC MENTOR	
	6 weeks mentoring of summer project participants (Pipelines into Biostatistics)	Summer 2016
	Department of Biostatistics, Harvard T. H. Chan School of Public Health	
	GUEST LECTURER	
	Causal Mediation Analysis (3 hours) in BS852 (Bayesian Methodology in Biostatistics)	Fall 2018, Spring 2019, Fall 2019
	Department of Biostatistics, Boston University School of Public Health	
	GUEST LECTURER	
	Causal Mediation Analysis (2 hours) in BIO 249 (Bayesian Methodology in Biostatistics)	Fall 2014
	Department of Biostatistics, Harvard T. H. Chan School of Public Health	
	GUEST LECTURER	
	2 hour BUGS tutorial in the course SSC 384.7 (spring)	Spring, Fall 2013
	1 hour BUGS tutorial in the course SSC 383C (Fall)	
	Division of Statistics and Scientific Computation, The University of Texas at Austin	
	LAB-INSTRUCTOR	
	STA 2023 - Introduction to Statistics	Fall 2008, Spring 2009
	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	
	STA 3032 - Engineering Statistics	Spring, Fall 2009
	STA 4210 - Regression Analysis	
	STA 4183 - Theory of Interest	
	ESI 6546 - Stochastic Modeling and Analysis (Grader)	
	TEACHING ASSISTANT AT COLUMBIA UNIVERSITY	
	W1211 - Introduction to Statistics (with Calculus)	Spring 2007
GRANT FUNDING	ACTIVE	
	NRF (PI: Chanmin Kim)	Jun 2020 - Feb 2023
	Bayesian non-parametric methods for estimating causal effect heterogeneity.	
	Role: <b>Principal Investigator</b>	



## 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 Air Quality 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

Department of Biostatistics

Harvard T. H. Chan School of Public Health

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Michael Daniels

Professor and Chair

Andrew Banks Family Endowed Chair

Department of Statistics

University of Florida

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Jason Roy

Professor of Biostatistics

Chair of Biostatistics and Epidemiology

Co-Director, Center for Causal Inference

Rutgers School of Public Health

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