

CALEB EUNCHAN BAE

400 S 40th St, Philadelphia, PA 19104
(+1) 617-852-5450 \diamond ecbae@pennmedicine.upenn.edu

EDUCATION

University of Pennsylvania

Expected Ph.D. 2024

Major: Biostatistics

Advisor: Dr. Jinbo Chen

Harvard University

S.M. 2019

Major: Biostatistics

Advisor: Dr. Giovanni Parmigiani

Thesis: "Variant-level Mendelian risk prediction model"

Sungkyunkwan University

B.S. & B.B.A 2017

Major: Mathematics, Global Business Administration

Valedictorian

Advisor: Dr. Kun Chang Lee

Thesis: "Determining Attributes of Suicide Attempts in Korean Elderly People: Emphasis on Attribute Selection Techniques"

RESEARCH INTEREST

Bayesian Statistics, Cancer Genetics, Machine Learnings, Causal Inference

TEACHING EXPERIENCE

Teaching Assistant

August 2018

BST215: Linear and Longitudinal Analysis, Harvard University

Evaluation 4.8/5.0

- Led office hours
- Graded homeworks and final project

Teaching Assistant

July 2011 - May 2012

Decision Making Under Uncertainty, Samsung Electronics

- Taught artificial neural network with business data
- Prepared the course material: Multiple back propagation

RESEARCH EXPERIENCE

Research Assistant

2018 - 2019

BayesMendel Lab, Dana Farber Cancer Institute

- Develop a Mendelian model for variant-level
- Attend and present updates in R01 Monthly Investigator meeting
- Member of Dean's Fund for Scientific Advancement study team
- Perform decision analysis for mastectomy/oophorectomy by incorporating psychological effect
- Conduct statistical analysis for All Syndromes Known to Man Evaluator (Ask2me)
- Advisor: Dr. Giovanni Parmigiani (gp@jimmy.harvard.edu)
- Advisor: Dr. Timothy R. Rebbeck (timothy_rebbeck@dfci.harvard.edu)
- Advisor: Dr. Danielle Braun (dbraun@mail.harvard.edu)

Research Assistant

2014 - 2016

Samsung Advanced Institute for Health Sciences & Technology(SAIHST)

- Analyzed the electronic health record data and conducted a research with attribute selection techniques. (Software: SAS,R, Weka)
- Designed a EEG(electroencephalography), ECG(electrocardiogram) experiment and analyzed the data. (Software: BIOPAC, Laxtha)
- Implemented machine learning methods such as bayesian network, support vector machine, neural network and decision tree in the observational data. (Software: Weka, BayesiaLab, JAVA, SAS)
- Advisor: Dr. Kun Chang Lee (leekc@skku.edu)

Undergraduate Research Assistant

2011- 2012

Department of Interaction Science, Sungkyunkwan University

- Designed and executed a UI/UX experiment regarding Earcon and analyzed the data. (Software: SPSS, E-Prime, Eye-tracker)
- Advisor: Dr. Kwangsu Cho (kwangsu.cho@yonsei.ac.kr)

SCHOLARSHIPS

Kwanjeong Scholarship

2017- 2022

*Kwanjeong Educational Foundation***Talented Students Scholarship**

2015- 2016

*Sungkyunkwan University***PUBLICATIONS**

(In progress) Jinbo Chen, Xinglei Chai, Lingjiao Zhang, Tara M. Friebe, **Caleb Eunchan Bae**, Danielle Braun, Giovanni Parmigiani, Timothy R. Rebbeck, “Absolute Mutation-Specific Risk of Breast and Ovarian Cancer in BRCA1 or BRCA2 Mutation Carriers”.

(In progress) Jinbo Chen, Xinglei Chai, Lingjiao Zhang, Tara M. Friebe, **Caleb Eunchan Bae**, Danielle Braun, Giovanni Parmigiani, Timothy R. Rebbeck, “Penetrance of Breast and Ovarian Cancer in Women who Carry a BRCA1/2 Mutation and Do not Use Risk-Reducing Salpingo-Oophorectomy: An updated Meta-analysis”.

Eun Chan Bae, Kun Chang Lee, “Determining attributes of suicide attempts in Korean elderly people: Emphasis on attribute selection techniques”, Journal of the Korea Society of Computer and Information, 2015, Vol 22, No 9, 11-20.

Eun Chan Bae, Kun Chang Lee, “Predicting Stock Liquidity by Using Ensemble Data Mining Methods”, Journal of the Korea Society of Computer and Information, 2016, Vol 21, No 6, 9-19.

CONFERENCE PRESENTATION

Caleb Eunchan Bae, Jinbo Chen, Lingjiao Zhang, Giovanni Parmigiani. Tim R. Rebbeck, Danielle Braun, “Variant-level BRCA mutations risk prediction model”, DF/HCC Celebration of Early Career Investigators in Cancer Research 2018.

Do Young Choi, Kun Chang Lee, **Eun Chan Bae**, “A physiological approach to investigating cognitive process changes when making decisions under uncertainty”, Cogsci 2015

Seung Eun Lee, **Eun Chan Bae**, Seung Yeon Hwang, Eun Jung Cho, Kwangsu Cho, “Design of Earcon for Effective Working Memory; Focusing on Effectiveness of Changes in Exposure of Variety of Auditory Information”, HCI 2012

TECHNICAL SKILLS

Softwares

R

Related Projects and Courses

- R package update: "BRCA PRO"
- Cluster computing with Unix
- "A neurotoxicity study on maternal exposure to metal pollutant in Bangladesh", Method 1
- "Bayesian inference with Pareto distribution", Method 2
- "Estimation of the Variance of Normal Distribution", Basics of Statistical Inference
- *Bayesian Data Analysis*, STAT 220

Python

Python

- "Network Models for the Study of HIV/AIDS", Introduction to Social and Biological Networks

STATA

- "New Guidance from the American College of Cardiology on Blood Pressure Status: How Does this Change Our Understanding of Risk Factors for Hypertension?", Applied Regression Analysis

SAS

- *Survival Analysis*, Applied Survival Analysis
- *Longitudinal Analysis*, Applied Longitudinal Analysis
- Teaching Assistant: Linear and Longitudinal Analysis

EXTRA-CURRICULAR ACTIVITIES

Vice president

2018 - 2019

Harvard Chan Korean Society, Harvard University

Infantry

2012 - 2014

Republic of Korea Marine Corps

- 42th Six star salute honoree, *USO*

Silver medalist

2009

Korean Mathematics Competition, The Korean Society of Mathematical Education