

Heesang Ann

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Citizenship: Korea (Republic of)

Education

- 2019 – Present **Seoul National University** – Korea
PhD in Mathematical Education (Advisor: Yun Joo You)
Coursework Completion.
- 2014 – 2016 **Seoul National University** – Korea
MA in Mathematical Education (Advisor: Yun Joo You)
Thesis: A study of Q-matrix Validation Method of Cognitive Diagnostic Assessment.
- 2011 – 2014 **Korea Advanced Institution of Science and Technology (KAIST)** – Korea
MA in Mathematical Science (Advisor: Sang Geun Han)
Thesis: The report of the current status of korean block cipher algorithm.
- 2007 – 2011 **Korea Advanced Institution of Science and Technology (KAIST)** – Korea
BA in Mathematical Science

Selected coursework

- *Statistics and Data Science:* (Advanced) Statistical Analysis, Measurement Statistics, Time Series Analysis, and Machine Learning and Deep Learning
- *Mathematics:* Real Analysis, LeBesgue Integral Theory, Probabilistic Theory, Graph Theory, and Combinatorics

- 2005 – 2007 **Gyeonggibuk Science High School** – Korea
1 year early graduation, with top honor in Mathematics subject

Research experience

- Sep. 2019 – Present **Bayesian Approaches for Q-matrix of Cognitive Diagnostic Assessment**
Advisor: Yun Joo Yoo (Seoul National University).
Estimate for the Q-matrix under DINA model with hierarchy information in a Bayesian framework. Compare with confirmatory approaches. Summary of findings available [here](#).

- Mar. 2014 – **Q-matrix Validation Method using index AVERSS**
 Aug. 2016 Advisor: Yun Joo Yoo (Seoul National University).
 Develop a confirmatory method of Q-matrix under DINA model using a validation index AVERSS. Conduct simulation study for estimating the distribution of AVERSS. Summary of findings available [here](#).
- Mar. 2011 – **Investigation and Comparison of Korean Block Cipher Algorithms**
 Feb. 2014 Advisor: Sang Geun Han (Korea Advanced Institution of Science and Technology).
 Investigate Korean Block Cipher Algorithms; SEED, ARIA, and HIGHT, in terms of principle, usage, and inconveniences. Compare the efficiency of each algorithms.

Teaching experience

- 2018 – Present **Math teacher (Daechyeong Middle School – Seoul, Korea)**
 Organize math classes, evaluate academic performance, and guide math project club.
- Fall 2016 **Math teacher (Gyeonggibuk Science High School – Gyeonggido, Korea)**
 Teach Calculus, Geometry and Vector, Probability and Statistics.
- 2014 – 2016 **Teaching assistant : Linear Algebra, Probability and Statistics (Seoul National University)**
 Set up classes, and grade assignments
- 2011 – 2013 **Teaching assistant : Calculus, Applied Analysis (Korea Advanced Institution of Science and Technology)**
 Set up classes, organize practicing class, and grade assignments
- 2007 – 2011 **Student assistant (KAIST Center for Gifted Education)**
 Organize classes during the summer camp, and grade assignments

Honors and scholarships

- 2011 – 2014 National Scholarship for Science and Engineering
6,000 dollars per M.A. academic year.
- 2007 – 2011 National Scholarship for Science and Engineering
6,000 dollars per B.S. academic year.
- 2005 Training program of advanced scientific facilities for talented students in science and technology (Gyeonggi TechnoPark Co.)
All-expenses-paid field trip to England and Germany

- 2005 Summer school of Korean Mathematical Olympiad (Korean Mathematical Society)
Training program for top-ranked students in Korean Mathematical Olympiad
- 2003 Korean Mathematical Olympiad Gold Prize (Korean Mathematical Society)
Junior high youth group

Publications

- 2016 **A study of Q-matrix Validation Method of Cognitive Diagnostic Assessment**
Heesang Ann.
- 2014 **The Report of the Current Status of Korean Block Cipher Algorithm**
Heesang Ann.

Leadership experience

- 2009 **Student Conductor of KAIST Chorus**
Organize the annual performance. Lead and conduct chorus practice.
- Fall 2008 **Member of Students Festival Organization**
Proceed and promote events of the festival.

Technical skills and Certificates

Programming languages

Proficient in: R

Familiar with: Python, C

Education

National public school teacher certification (The Korean Ministry of Education), 2018

Teacher license (Seoul National University), 2016

Languages

Korean (fluent), English (advanced)