


CURRICULUM VITAE

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1 Education

Yonsei University

Master of Arts in Statistics and Data Science in progress

Sep. 2022 – Present

Seoul, South Korea

- Thesis: “Make HIstory”
- Total GPA of —/4.30

Yonsei University

Bachelor of Arts in Mathematics(Minor in Statistics)

Feb. 2021 – Aug. 2022

Seoul, South Korea

- Thesis: “Quantum Algorithms for the Hidden Shift Problem”
- Math and Statistics GPA of 4.03/4.30

Yonsei University

Bachelor of Arts in Economics

Feb. 2016 – Aug. 2022

Seoul, South Korea

- Thesis: “Heterogeneous Responses to Monetary Policy Shock in Industry Levels and Responses of Equity Market : Case of Korea”
- Economics GPA of 4.03/4.30, Total GPA of 3.97/4.30

University of California, Berkeley

Undergraduate Exchange Program

Jan. 2019 – Dec. 2019

Berkeley, California, USA

(*Grades are not included in the Undergraduate GPA in the transcript.)

Leave of Absence

2017

2 Fields of Interests

Robustness of Machine Learning, Theoretical Computer Science, Spline Theory, Functional Analysis, Harmonic Analysis, Microeconomics, Applications to machine learning, inverse problem in medical imaging, and finance.

3 Honors / Awards

Honorable Mention, Qiskit Hackerton Korea 2022

2022

- Proved the Quantum Algorithm for the Hidden Shift Problem of bent functions works with significant time speed up.

Honors, Yonsei University

2016

The Minister of Economy and Finance Award

2014

- Conducted the Korean ODA policy, which was selected as the best proposal in the Economic Policy Proposal Contest held by the Korean Ministry of Economy and Finance

Math Award, Waterloo University

2010

- Best Grade(1st Place) in Canada

4 Scholarships

Brain Korea 21 Scholarships, National Research Foundation of Korea
(Merit-based)

2022 – present

National Merit Scholarship, Republic of Korea
(Merit-based) Full Tuition Scholarship for four years of University

2016 – 2020

5 Research Experience

[1] Quantum Algorithms for the Hidden Shift Problem

2022

(Co-authored with Boseong Kim, Sekang Kwon, Sehoon Bahng, Inhyuk Oh, Adel Sohbi, Hyukjoon Kwon)

- Abstract : The hidden shift problem is defined over an unknown function f and a hidden element s that shifts the input of the function. Provided an oracle that can compute the function with and without the shift, the problem asks to recover s . One of the most remarkable cases is when f is highly nonlinear, whereas best known classical algorithms take exponentially many oracle queries to retrieve. In particular, the hidden shift problem over maximally nonlinear Boolean functions (bent functions) reduces to the abelian hidden subgroup problem, or equivalently, the factorization problem. In this talk, we walk through two examples of quantum algorithms on the hidden shift problem over bent functions, namely the Roetteler's and the Gavinsky's algorithms which provide an exponential speedup compared to known classical algorithms. We show their implementation on quantum computers and address their impacts and limitations in the noisy-intermediate scale quantum era.

[2] Best Strategy for Malaria Eradication

2021

(Written in Korean, Co-authored with Minhyuk Seo, Sangwon Choi)

- Abstract : In this paper, we conduct both deterministic model and stochastic model of malaria infection. The former represents where the disease is pervasive, whereas the latter depicts where it newly prevails. We found that in the deterministic model, using both drug control and vector control with mid-intensity is economically optimal strategy to eradicate malaria infection. In stochastic model, there is no one absolute optimal strategy and therefore, additional case studies should be accompanied to find the best strategy.

[3] Heterogeneous Responses to Monetary Policy Shock in Industry Levels and Responses of Equity Market : Case in Korea

2020

- Abstract: This paper empirically studies the dynamic amongst monetary policy, output, and equity market in Korea. More specifically, it shows the heterogeneous responses of output in industry level to monetary policy shocks using Structural Vector Autoregression model. The study further examines whether equity market responds to monetary policy shock with respect to output changes. I find that industry sectors have different responses to monetary policy shocks in Korea, to which equity market does not react with respect to expected output changes.

6 Other Academic Experience

Basic Statistics Lab

Jan. 2022 – Present

Director : Prof. Yongho Jeon, Prof. Jongho Im, Prof. Ilmun Kim, Prof. Kibok Lee

Yonsei University

- Presented at the seminar on “Banach Space Representer Theorems for Neural Networks and Ridge Splines” (Parhi & Nowak, 2020)

Junior Scholar Club, Economics Chapter

Sep. 2018 – June. 2022

An honor society at Yonsei University for undergraduate students seeking a doctoral degree

Yonsei University

Advisor: Prof. Youngse Kim, Jaek Park, Semin Kim, Sangyup Choi, MyungKyu Shim, JinYeub Kim

Leader of Microeconomics reading group (Jan. 2021 – Jun. 2021, Jan. 2022 – Jun. 2022)

- Presented at the weekly discussion on “Homotopy Methods to compute Equilibriums” (P. Jean-Jacques Herings · Ronald Peeters, 2010, Econ Theory)
- Presented at the weekly discussion on “Two-sided markets” (Rochet, Tirole, 2003, Oxford Journals)
- Presented at the weekly discussion on “Bayesian Persuasion” (Kamenica, Gentzkow, 2011, AER) and ‘Beeps’ (Ely, 2017)

Knowledge Fusion and Artificial Intelligence Lab

Dec. 2021 – Aug. 2022

A laboratory in department of industrial engineering researching in statistical machine learning.

Yonsei University

Advisor: Prof. Hyunsoo Yoon

- Led a project to integrate high-fidelity medical simulated EEG data using finite element method and low-fidelity medical simulated EEG data using finite difference method based on "Ko and Kim(2022)"
- Presented on “Kernel and Gaussian Process” at the weekly seminar
- Presented on “Gaussian Process & Variational Inference Deep Gaussian Process & Stochastic Variational Inference” at the weekly seminar

Study and Conference for Creative research

Aug. 2021 – June. 2022

Society at Yonsei University for students interested in Physics

Yonsei University

Advisor: Prof. Kwon, Young Joon

- Presented at the weekly discussion on Quantum walk, Quantum Game Theory and Black-Scholes Equations.
- Participated in Quantum Mechanics study

Junior Scholar Club, Preparatory Chapter

Mar. 2016 – Dec. 2016

A Book Club at Yonsei University for freshman students with academic pursuits

Yonsei University

Advisor: Prof. BongHwan Han, Prof. Doh

- Participated and organized weekly discussions

7 Teaching Experiences

Regression Analysis, Teaching Assistant (Undergraduate)

Spring 2023

Mathematical Statistics 1, Teaching Assistant (Undergraduate)

Fall 2022

Introduction to Statistics, Teaching Assistant

Fall 2022

Real Analysis 1 Tutoring

Summer 2022

8 Skills and Other Info

8.1 Languages

Korean (*native*)

English (*fluent*)

- IBT TOEFL(August 27, 2022) : Total 108 (Reading: 30, Listening: 30, Speaking: 22, Writing: 26)
- GRE(August 26, 2022) Verbal : 157/170 (74%), Quantitative : 170/170(96%), Analytical Writing : 4.0/6.0(54%)

Deutsch (*elementary*)

8.2 Programming Skills

MATLAB, R, Python, Julia, LaTeX

9 Community Service

Journal Reviewer

2022

IEEE Transactions on Automation Science and Engineering

English and Math Tutoring for high school students

2017

Basketball Club

10 References

Yongho Jeon

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