

Hongjun Ha

CONTACT INFORMATION

Department of Mathematics
College of Arts and Sciences
Saint Joseph's University
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Citizenship: Korean (Permanent Resident)

RESEARCH AND TEACHING INTERESTS

Research: Risk Measures, Pricing of Insurance Products, Computational Methods, Information Economics, Statistical Learning, Option Pricing
Teaching: Actuarial Science, Financial Mathematics, Econometrics, Probability and Statistics, Predictive Analytics

EDUCATION

Georgia State University, Atlanta, Georgia, the USA

Ph.D., Risk Management and Insurance, August 2016

- Advisor: Daniel Bauer

M.S., Mathematical Risk Management, May 2011

Soongsil University, Seoul, Republic of Korea

M.S., Statistics, February 2008

Korea University, Seoul, Republic of Korea

B.A., Business, February 2005

ACADEMIC POSITION

Associate Professor of Mathematics, College of Arts and Sciences, Saint Joseph's University, 8/2022 – present

Co-Director in Actuarial Science, Department of Mathematics, Saint Joseph's University, 1/2021 – 05/2022

Assistant Professor of Mathematics, College of Arts and Sciences, Saint Joseph's University, 8/2016 – 05/2022

PUBLICATIONS

Lee, H., **Ha, H.**, Lee, M. (2022), Piecewise linear boundary crossing probabilities, barrier options, and variable annuities. Forthcoming in *Journal of Futures Markets*

Lee, H., **Ha, H.**, Lee, M. (2022), Foreign Equity Lookback Options with Guarantees. Forthcoming in *Finance Research Letters*. 48, 102963

Ha, H., Bauer, D. (2022), A Least-Squares Monte Carlo Approach to the Estimation of Enterprise Risk. *Finance and Stochastics*. 26 (417-459)

Lee, H., **Ha, H.**, Lee, M. (2022), A Valuation of Piecewise Linear Double Barrier Options. *Journal of Futures Markets*. 42 (125-151)

Lee, H., **Ha, H.**, Lee, M. (2021). A Valuation of Piecewise Linear Barrier Options. *North American Journal of Economics and Finance*. 58, 101470.

Lee, H., **Ha, H.**, Lee, T. (2021). Decrement Rates and a Numerical Method under Competing Risks. *Computational Statistics and Data Analysis*. 156, 107125.

Lee, H., Choi, H., **Ha, H.** (2020). A Sharing Mechanism of Interest-Sensitive Products. *North American Journal of Economics and Finance*. 54, 101237.

Lee, C., Kwon, H., **Ha, H.** (2008). A Study on Weather Insurance Pricing Based on Stochastic Temperature Modeling. *Journal of Insurance and Finance*. 19-2 (55-76).

WORKING PAPERS Lee, H., **Ha, H.**, Kong, B., Lee, M., Pricing multi-step double barrier options by the efficient non-crossing probability (submitted).

Lee, H., **Ha, H.**, Lee, M., Partial quanto lookback options (submitted).

Ha, H., Bauer, D., A Least-squares Monte Carlo Approach to Calculating Risks; Regression-now or Later?.

Lee, H., **Ha, H.**, Lee, G., Valuing variable annuities and American options via rebate options.

Ha, H., Bauer, D., Pricing Guaranteed Minimum Withdrawal Benefits using Machine Learning.

Ha, H., Variance Reduction Method for a Least-Squares Monte Carlo Approach to the Calculation of Risk Measures.

Lee, H., **Ha, H.**, Lee, M., Interest Minimum Guarantee and Insurer's Incentive

CONFERENCE PRESENTATIONS A Least-squares Monte Carlo Approach to Calculating Risks; Regression-now or Later? Informs Annual Meeting in Indianapolis, U.S.A, October, 2022.

Variance Reduction Method for a Least-Squares Monte Carlo Approach to the Calculation of Risk Measures. The American Risk and Insurance Association: 2019 Annual Meeting in San Francisco, U.S.A., August, 2019.

Variance Reduction Method for a Least-Squares Monte Carlo Approach to the Calculation of Risk Measures. The Asia-Pacific Risk and Insurance Association: 2019 Annual Conference in Seoul, Korea, July, 2019.

An Evaluation of Withdrawal Benefits in Variable Annuities via Machine Learning. The 31st International Congress of Actuaries Congress Program, Berlin, Germany, June 2018.

The Principal-based Reserve, The first Insurance Seminar at the Korean Insurance Deposit, Seoul, Korean, May 2018.

A Neural Network Monte Carlo Evaluation of Withdrawal Benefits in Variable Annuities. Advances in Predictive Analytics in University of Waterloo, Ontario, Canada, December 2017.

A Neural Network Monte Carlo Evaluation of Withdrawal Benefits in Variable Annuities. The 52nd Actuarial Research Conference, Atlanta, U.S.A, July 2017.

Pricing Guaranteed Minimum Withdrawal Benefits using Least-Squares Monte Carlo Simulation.

World Risk and Insurance Economics Congress, Munich, Germany, August 2015.

A Least-Squares Monte Carlo Approach to the Calculation of Capital Requirements. World Risk and Insurance Economics Congress, Munich, Germany, August 2015.

A Least-Squares Monte Carlo Approach to the Calculation of Capital Requirements. 8th World Congress of the Bachelier Finance Society, Brussels, Belgium, June 2014.

HONORS, GRANTS
AND AWARDS

Summer Research Grant (Saint Joseph's University, 2018)

Georgia State University – Ph.D. Fellowship (2011-2016)

Helen C. Leith Scholarship (2011-2016)

Huebner Foundation Scholarship (2011-2016)

Georgia State University – Outstanding Mathematical Risk Management Student of the Year Award, 2011

TEACHING
EXPERIENCE

Saint Joseph's University, Philadelphia, PA, USA

August, 2016 - Present

- Financial Mathematics
- Financial Economics/ Investment Mathematics
- Freshmen Actuarial Seminar
- Mathematical Statistics
- Applied Statistical Modeling
- Applied Statistics
- Introduction to Statistics

Georgia State University, Atlanta, Georgia, USA

January, 2015 - May, 2015

- Probability and Statistics, Spring 2015

Dankook University, Yongin, Republic of Korea

March 2008 - December 2008

- Life Contingencies, Spring 2008
- Financial Mathematics, Fall 2008
- Probability and Statistics, Fall 2008

Soongsil University, Seoul, Republic of Korea *Teaching Assistant*

March 2005 - December 2006

- Regression Analysis, Spring 2006
- Time Series Analysis, Fall 2006

PROFESSIONAL
EXPERIENCE

Chatham Financial, Denver, the USA

Instructor

May 22nd – 23rd, 2018

Gave special lectures to junior actuaries about basic actuarial present value calculations and capital requirements using Python

The First Seminar at the Korean Deposit Insurance Corporation, Seoul, the Republic of Korea

Organizer/Presenter

May 15th

organized the seminar. In this seminar, the Korean insurance commissioners asked me to contact possible presenters in the USA and collected papers. Delivered requests from the KDIC to the presenter. Managed other miscellaneous works.

Samsung Fire and Marine Insurance and Samsung Life Insurance, Seoul, Republic of Korea

Instructor

December 2014, May 2017

Gave lectures on Models for Financial Economics (Exam MFE) and Actuarial Construction and Evaluation (Exam C) for employees

PASSING
EXAMINATION

Exam P (Probability), May 2005
Exam FM (Financial Mathematics), November 2005
Exam M (Actuarial Models), November 2005
Exam C (Construction and Evaluation of Actuarial Models), May 2006
VEE (Economics, Corporate Finance, Statistics)

REFERENCES

Daniel Bauer (Dissertation Committee Chair)
Professor, Hickman-Larson Chair in Actuarial Science
Risk and Insurance
University of Wisconsin-Madison
Grainger Hall, 975 University Ave.
Phone: 608-262-1550
Email: daniel.bauer@wisc.edu

Ajay Subramanian
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Georgia State University
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Hangsuck Lee
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Department of Actuarial Science & Mathematics
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Tetyana Berezovski
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ADDITIONAL
INFORMATION

Language: Korean (first), English (second)
Computer Skills: R, Python, L^AT_EX, Excel