

GUNSU (MATTHEW) SON

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ACADEMIC APPOINTMENT

Assistant Professor of Finance

2023–Present

Kate Tiedemann School of Business and Finance, University of South Florida

RESEARCH INTERESTS

AI/Machine Learning · Big Data
Market Microstructure · Asset Pricing
Derivatives · Cryptocurrencies · Fixed Income · ETFs & Mutual Funds
High-Performance Computing · Network Analysis

RESEARCH

[1] High-Frequency Traders in the Options Market: Cream Skimming and Toxic Order Flow

with Mahendrajah Nimalendran

Develops theory-based economic model of toxic/non-toxic arbitrage examining illiquidity and information asymmetry; empirical analysis using high-frequency data

[2] What If Option Closing Prices Were Trustworthy? A Machine Learning Approach

with Alejandro Lopez-Lira and Mahendrajah Nimalendran

ASX Best Derivatives Paper Award (2023)

Comprehensive state-of-the-art ML approach for derivative pricing using elastic net, distributed random forest, gradient boosting, XGBoost, and neural networks with economic applications on determining options closing prices

[3] Macho CEOs! Unveiling the Detrimental Impact of Masculinity on Corporate Innovation

with Jongchul Park, Jung Chul Park, Kiyoung Chang, Steve Sauerwald

Applies deep face neural network models to analyze biometric data from comprehensive CEO portraits; examines relationship between facial masculinity, leadership characteristics, and corporate innovation

[4] It is Better to be Yourself: A Network Analysis on Mutual Fund Distinctiveness and Performance

Novel network theory-based approach examining mutual fund herding and distinctiveness across comprehensive universe of US mutual funds; analyzes relationship between distinctiveness and performance

[5] Bond Price Discovery with Machine Learning

with Mahendrarajah Nimalendran, Yuehua Tang, and Yuan Wang

Novel ML approach to bond pricing and liquidity in OTC dealer markets; analyzes price discovery mechanisms, bid-ask spreads, and pricing inefficiencies

TEXTBOOKS

Programming for FinTech: From Fundamentals to AI-Driven Finance

In Progress

Comprehensive textbook from lecture materials. Covering Python, R, and Unix Shells for programming fundamentals to advanced quantitative computing for finance; includes applications of machine learning and LLMs in asset management, derivatives pricing, insurance, portfolio optimization, and payment systems

SOFTWARE DEVELOPMENT

[quantpolars](#)

High-performance Python package for quantitative finance using Polars; provides vectorized option pricing models (Black-Scholes, CRR, BAW), implied volatility calculation, Greeks computation, and out-of-core data processing for large-scale financial analysis

fintechtools

Containerized HPC environment for financial computing with GPU support; Docker/Apptainer/Singularity container with automated build pipeline for deployment on high-performance computing systems; includes R, Python, QuantLib, H2O, and SSH remote development capabilities

pypushover

Python package for Pushover notification API integration; supports configurable message priorities, emergency alerts with acknowledgment requirements, and flexible configuration management for automated notification workflows

EDUCATION

Ph.D. in Finance 2023

University of Florida, Warrington College of Business

Doctoral Fellowship (2018–2023)

M.A. in Economics and Finance 2018

University of Alberta

Graduate Fellowship & Multiple Merit-Based Awards

B.A. in Economics & B.Sc. in Public Health 2011

Korea University

Top of the Class — Full-Ride & Multiple Merit-Based Awards

TEACHING

FIN4770 Programming for FinTech 2025

Kate Tiedemann School of Business and Finance, University of South Florida

Comprehensive introduction to programming (R, Python, Unix Shell) for finance and FinTech; covers fundamentals to advanced concepts including object-oriented programming, version control, and leveraging Generative AI for programming efficiency

[Sample Course Material](#)

FIN4773/6776 Big Data and Machine Learning in Finance (Undergraduate/Graduate) 2023–2025

Kate Tiedemann School of Business and Finance, University of South Florida

Rigorous exploration of big data analytics and ML applications in finance; covers financial big data manipulation, cloud computing, ML algorithm implementation, model validation, and technical documentation

[Sample Course Material 1](#), [Sample Course Material 2](#)

FIN 4453 Financial Modeling 2021

Eugene F. Brigham Finance, Insurance & Real Estate, University of Florida

Excellence in Teaching Award

Financial modeling with spreadsheets and object-oriented programming; introduction to machine learning and data analysis with Python and Excel

TECHNICAL PROFICIENCIES

Programming Languages: Python, R, Unix Shells, Rust, C/C++

Containerization: Docker, Podman, Apptainer, Singularity

Cluster/Cloud Computing: SLURM, Univa Grid Engine, Posit Cloud, Google BigQuery

Database/Distributed Computing: DuckDB, PostgreSQL, Dask, PySpark, Sparklyr

Machine Learning Frameworks: H2O.ai, PyTorch, Keras, LightGBM, TensorFlow, Tidymodels, Scikit-learn

Network/Text Analysis: igraph, Spacy, NLTK, TextBlob

Others: Quarto, Markdowns, REST APIs, Selenium, Apache Arrow, Git/GitHub

FELLOWSHIPS, AWARDS & HONORS

Research Fellowship, University of South Florida 2023–2027

ASX Best Paper Award in Derivatives 2023

Warrington College Excellence in Teaching Award, University of Florida 2022

Doctoral Fellowship, Warrington College of Business, University of Florida 2018–2023

Maurice, Mary, and Max Stewart Scholarship in Economics, University of Alberta 2017–2018

Queen Elizabeth II Graduate Scholarship, University of Alberta 2017

Northern Alberta Scholarship in Economics, University of Alberta 2017–2018

Graduate Assistant Fellowship, University of Alberta 2016–2018

Multiple Undergraduate Scholarships, Korea University 2007–2010

PROFESSIONAL SERVICE & ACTIVITIES

Conference Program Committee: Financial Management Association (FMA) Asia/Pacific Conference (2024)

Journal Referee: Journal of Corporate Finance, Financial Review

Conference Participation: FinTech Conference at University of South Florida (2024), Financial Management Association (FMA) Asia/Pacific Conference (2022, 2024), Eastern Finance Association (EFA) Annual Meeting (2024), Northern Finance Association (NFA) Annual Meeting (2025), NYU Stern Market Microstructure Conference (2025), Crypto and Blockchain Economics Research (CBER) Conference (2024), Cardiff FinTech Conference (2023), Australasian Finance and Banking Conference (2023), Financial Management Association (FMA) Global Conference (2022)

Invited Seminars & Guest Lectures: Special Lecture in FinTech with Sungkyunkwan University (SKKU), South Korea (2025), University of Florida, University of Denver, University of South Florida, Texas Christian University, Baylor University, Northern Illinois University

Professional Memberships: American Finance Association (AFA), Financial Management Association (FMA), Korea-America Finance Association (KAFA), Crypto and Blockchain Economics Research (CBER)

MEDIA COVERAGE

“LLM’s Impact on Financial Efficiency, Security, and Customer-Friendliness”

July 2024

Financial News, Korea-America Finance Association (KAFA) Scholar Interview Series

Featured interview discussing AI and large language models in finance, covering applications in customer service, regulatory compliance, fraud detection, and ethical considerations in financial technology

[Article Link \(in Korean\)](#)

PRIOR WORK EXPERIENCE

1st Lieutenant, Financial Management Officer

2011–2014

Republic of Korea Air Force, U.S. Air Base at Osan

LANGUAGES & CITIZENSHIP

Languages: English (Fluent), Korean (Native)

Citizenship: Canada (Permanent Resident), Korea (Citizen)