CHICAGO BOOTH

The University of Chicago Booth School of Business

December 14, 2024

Application: “Digital Economics and AI Tutorial”

Dear Program Committee:

I am writing to express my interest in participating in the upcoming NBER Digital Economics and Artificial Intelligence Tutorial on February 12, 2025, at Stanford University. As a third-year Ph.D. candidate in Accounting at the University of Chicago Booth School of Business, my research explores the intersection of asset pricing, AI, and corporate disclosures.

My early research is on modeling investors’ information processing with large language models and machine learning. In my paper “Context-Based Interpretation of Financial Information” (Kim and Nikolaev, 2024, Journal of Accounting Research), we quantify and measure the value of contextual information in financial reporting. We found that contextualizing numerical information has economic significance, improving stock return prediction accuracy by up to 6 percentage points. Building on this methodology, we recently began a joint project with the IFRS board to quantify its efforts to enhance narrative disclosures, helping investors better understand numerical information. As an extension of the methodology in the asset pricing area, we develop a measure of context-adjusted profitability, which outperforms traditional measures of operating profitability. This paper, titled “Contextualizing Profitability (Kim and Nikolaev, 2024)”, has been invited to submit a revision from the Journal of Financial Economics.

Ever since the advent of generative language models, my research has been focusing on “identifying whether LLMs can improve the information processing of investors” and “identifying the decision-making capabilities of LLMs.” In our recent work, alongside the rapid growth of large language models, we have examined and established the economic usefulness of these technologies for investors. We demonstrated that language models can effectively summarize complex narrative disclosures and produce relevant information for investors (Kim, Muhn, and Nikolaev, 2023a), extract and quantify risk information (Kim, Muhn, and Nikolaev, 2023b), and identify boilerplate languages and interpret their hidden implications (Choi and Kim, 2024). In recent research, we also find that large language models can successfully perform financial statement analysis, surpassing the average performance of human analysts (Kim, Muhn, and Nikolaev, 2024). Lastly, directly adopting the attention mechanism of the Transformer architecture, we identify which information within a firm disclosure receives more attention from investors and thus contributes the most to the corporate valuation (Kim et al. 2024). These studies have been widely cited by major media outlets, won prestigious academic awards, and inspired real-world research by financial analysts and major hedge funds.

Finally, in my ongoing research, using two large-scale experiments, we study some causal effects of AI adoption for individual investors. We find that AI adoption improves information processing

and investment efficiency for retail investors in general, yet it widens the gap between more and less sophisticated investors, thereby increasing inequality among the investor groups (Kim et al. 2024).

Lastly, as my potential dissertation topic, I am working on obtaining optimal narratives that can predict future stock returns from the corporate conference call database. To do so, I integrate an LLM fine-tuning algorithm Proximal Policy Optimization. Using these optimal narratives, I find that fine-tuned summaries indeed better predict future returns and develop time-series textual vectors that move the market-wide returns. Firms that are more exposed to these macro textual factors tend to co-move more with the market returns. I show that such a phenomenon is likely due to the increasing complexity of modern business transactions and accounting numbers not being able to reflect such economic substance in real time. This project is currently being advised by Professor Eugene Fama and Professor Valeri Nikolaev at Chicago Booth.

For more information about my current and ongoing research projects, please see my curriculum vitae attached. I look forward to hearing from you.

Sincerely,



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EDUCATION

University of Chicago, IL, USA *2022 - 2027 (expected)*
Ph.D. in Accounting (Support Area: Economics, Coordinated Sequence: Finance)

Seoul National University, Seoul, South Korea *2019 - 2022*
Master of Science in Business Administration (Concentration in Accounting)

Seoul National University, Seoul, South Korea *2014 - 2019*
Bachelor in Business Administration and Economics, *Summa Cum Laude*

RESEARCH INTERESTS

I am interested in understanding investors' information processing in the capital market. Recently, I research how new tools as AI and large language models can assist investors' economic decisions.

PUBLICATIONS (FINANCIAL ACCOUNTING)

1. **Vocal Delivery Quality in Earnings Conference Calls**
   - Co-authors: Bok Baik, David Kim, and Sangwon Yoon
   - Forthcoming, ***Journal of Accounting and Economics***
   - Based on my Master's Thesis at Seoul National University

2. **Context-Based Interpretation of Financial Information**
   - Co-author: Valeri Nikolaev
   - Forthcoming, ***Journal of Accounting Research***

PUBLICATIONS (NLP)

1. **Corporate Bankruptcy Prediction with Domain-Adapted BERT**
   - Co-author: Sangwon Yoon
   - ***2021 EMNLP***, Workshop

2. **Detecting Rumor Veracity with Textual Information by Double-Channel Structure**
   - Co-author: Sangwon Yoon
   - ***2022 NACCL***, Workshop

3. **DEBATE: Devil's Advocate-Based Assessment and Text Evaluation**
   - Co-authors: Keonwoo Kim and Sangwon Yoon
   - ***2024 ACL***

WORKING PAPERS

1. **Bloated Disclosures: Does ChatGPT Help Investors Process Information?**
   - Co-authors: Maximilian Muhn and Valeri Nikolaev
   - Revising for 3rd-round review at the ***Journal of Accounting and Economics***

2. **Firm-Level Tax Audits: A Generative AI-Based Measurement**
   - Co-author: Ga-Young Choi
   - Revising for 2nd-round review at the ***The Accounting Review***

3. **Contextualizing Profitability**
   - Co-author: Valeri Nikolaev
   - Revising for 2nd-round review at the ***Journal of Financial Economics***

4. **Financial Statement Analysis with Large Language Models**
   - Co-authors: Maximilian Muhn and Valeri Nikolaev
   - Under review

5. **From Transcripts to Insights: Uncovering Corporate Risks Using Generative AI**
   - Co-authors: Maximilian Muhn and Valeri Nikolaev
   - Under review

6. **Learning Fundamentals from Text**
   - Co-authors: Maximilian Muhn, Valeri Nikolaev, and Yijing Zhang

7. **AI, Investor Expertise, and Investment Decisions**
   - Co-authors: David Kim, Maximilian Muhn, Valeri Nikolaev, and Eric So

SELECT WORK-IN-PROGRESS

1. **Large Language Models and Financial Reporting Oversight**
   - Co-authors: Maximilian Muhn, Valeri Nikolaev, and Irene Tan
   - Selected for presentation at the ***2024 TAR/PCAOB Registered Reports Conference***
   - R&R (proposal) at ***The Accounting Review***

2. **Textual Beta**
   - Solo-Authored (Advisors: Eugene Fama and Valeri Nikolaev)
   - Funded by Fama-Miller Center for Research in Finance ($5,000)

3. **Can LLM Agents Come to Rescue When Quants Fail?**
   - Co-author: Valeri Nikolaev

PROFESSIONAL SERVICE

Conference Referee	AAA (2020-2024), FARS (2020-2024), HARC (2021-2024), FMA (2024), SFA (2024), MFA (2024), ICLR (2024)
Journal Referee	Journal of Accounting Research, The Accounting Review, Management Science, Journal of Banking and Finance, Contemporary Accounting Research, Journal of General Management
Conference Organizer	The 1st Workshop on LLMs and Generative AI for Finance at ICAIF 2024

ACADEMIC PRESENTATIONS

P: Presentation, Co: Presentation by co-authors, D: Discussion

2025: Financial Accounting and Reporting Section, Midyear Meeting (scheduled: P, P, Co, D), Midwest Financial Association Annual Meeting (scheduled: P, Co, Co), Technical University of Munich (scheduled, P), Korean Accounting Standards Board (scheduled, P), Hawaii Accounting Research Conference (scheduled: Co, Co)

2024: Financial Accounting and Reporting Section, Midyear Meeting (P, Co), AI Community of Practice Seminar at the SEC (Co), European Accounting Association Annual Congress (with discussant) (Co), Bretton Woods Accounting and Finance Conference (Co), Annual Conference on Financial Market Regulation by the SEC (P), University of Chicago (Co) , City, University of London (Co), University of Minnesota (Co), University of North Carolina at Chapel Hill (Co), Public Company Accounting Oversight Board (Co), Korean-American Accounting Professors Association (P), FMA Applied Finance Conference (P), Tuck Accounting Spring Camp (Co), PCAOB/TAR Registered Report Conference (Co), FMA Asia-Pacific Conference (P, D), RiskLab/BoF/ESRB Conference on AI and Systemic Risk Analytics (Co), International Risk Management Conference at Bocconi University (Co), Finance and Accounting Annual Research Symposium (Co), IESE Barcelona Tax Conference (Co), EIASM Current Research in Taxation (P), Seoul National University (P), Bloomberg Seminar (P), Balyasny Asset Management Group Seminar (P), JNE Quant Investing Group Seminar (P), Hankuk University of Foreign Studies (P), American Accounting Association Annual Meeting (P, Co, Co, D), 5th Analyst Research Conference (P), University of Oregon (P), European Finance Association Annual Meeting (Co), Annual Meeting of the Association for Computational Linguistics (P), Harvard Business School (Co), Q-Group Finance Conference (Co), UIC Business Accounting Research Conference (Co), Washington University St. Louis Accounting Conference (Co), Burton Accounting Conference (Co), Frontier in Machine Learning and Economics Conference by Fed (P), FMA Annual Meeting (Co, Co), INSEAD (Co), University of Pennsylvania, Wharton (Co), University of Maryland (Co), Southern Finance Association Annual Meeting (Co), The 34th Conference for Financial Economics and Accounting (Co, Co), National Tax Association Annual Conference (Co), Chapman University Finance Conference (Co)

2023: University of Chicago (P, Co), University of Arkansas (Co), Boston College (Co), Texas A&M Conference (Co), Hong Kong University of Science and Technology (Co), Stanford University (Co), American Accounting Association Annual Meeting (Co, Co, Co), Korean Accounting Association Annual Meeting (P, Co), University of Calgary (Co), S&P Quant Investing Conference (Co), University of Michigan (Co), Bochum University (Co), RFS-GSU Fintech Conference (Co), NYU Big Apple Accounting Conference (Co), Council for Institutional Investors Conference (Co), CFA Institute (Co), Tilburg Winter Accounting Symposium (Co), University of Liverpool (Co), University of Seoul (Co), University of Melbourne (Co), University of New South Wales (Co), QES Quant Investing Conference (P), Early Career Accounting Scholars Conference (Co)

2022:Hawaii Accounting Research Conference (P), MIT Asia Accounting Conference (Co), North American Chapter of the Association for Computational Linguistics (P), National University of Singapore (Co), Seoul National University (Co), Korea University (Co), Korean Accounting Association Annual Meeting (P), Hong Kong University of Science and Technology (Co), Yonsei University (Co), Korea Institute of Advanced Technologies (Co), University of Chicago (P)

2021: Korean Accounting Association Annual Meeting (P), Empirical Methods in Natural Language Processing Annual Meeting (P), Seoul National University (P)

TEACHING

Instructor *2024*
I developed a Ph.D seminar "Large Language Models, AI, and Accounting Research" and taught at the following institutions by invitation:

- University of Oregon (Oregon, USA)
- Hankuk University of Foreign Studies (South Korea)
- Korean-American Accounting Professor Association (Webinar, USA)
- Chicago Booth Center for Applied Artificial Intelligence (Chicago, USA)
- Korean Accounting Standards Board (South Korea, scheduled)

Teaching Assistant, Chicago Booth *2023 - 2024*
Financial Accounting (MBA), Professor Valeri Nikolaev

Teaching Assistant, Chicago Booth *2023 - 2024*
Financial Accounting (EMBA), Professor Valeri Nikolaev (Rating 4.91/5.00)

Teaching Assistant, Chicago Booth *2024*
Corporate Finance I (Ph.D.), Professor Douglas Diamond

Teaching Assistant, Seoul National University *2017 - 2022*
Accounting Principles & Advanced Accounting (UG, EMBA), Professor Bok Baik

Instructor, Samsung Electronics *2019*
Financial Statement Analysis

QUALIFICATIONS

Languages	English (professional fluency), Spanish (professional fluency), Korean (native)
Computer	Python, SAS, STATA, LaTeX(advanced), R, MATLAB (intermediate)

HONORS AND GRANTS

Blackrock Research Award, Australian Banking and Finance Conference *2024*
- Awarded to "*Financial Statement Analysis with Large Language Models*"

Seoul National University America-Chicago Scholarship *2024*

FMA Annual Conference Best Paper in Corporate Finance, FMA *2024*
- Awarded to "*Bloated Disclosures: Can ChatGPT Help Investors Process Information?*"

FMA Asia-Pacific Conference Best Paper Award in Corporate Finance, FMA *2024*
- Awarded to "*From Transcripts to Insights: Uncovering Corporate Risks Using Generative AI*"

FMA Applied Finance Conference Best Paper Award, FMA *2024*
- Awarded to "*From Transcripts to Insights: Uncovering Corporate Risks Using Generative AI*"

FARS Midyear Best Paper Award, American Accounting Association (AAA) *2024*
- Awarded to "*Bloated Disclosures: Can ChatGPT Help Investors Process Information?*"

Stevens Doctoral Program Research Funding, Chicago Booth *2023 - 2024*

Fama-Miller Center Research Funding, Chicago Booth *2023 - 2024*

Ernest R. Wish Ph.D. Fellowship, Chicago Booth *2022 - 2027*

Doctoral Fellowship, Korea Foundation of Advanced Studies (KFAS) *2021 - 2027*

Deloitte Best Paper Award, Korean Accounting Association *2023*
- Awarded to "*Bloated Disclosures: Does ChatGPT Help Investors Process Information?*"

Master Program Full Scholarship, Kwanjeong Educational Foundation *2019 - 2022*

Undergraduate Full Scholarship, Kwanjeong Educational Foundation *2016 - 2018*

Undergraduate Full Scholarship, Korean Foundation of Social Science *2014 - 2015*

SELECT PRESS

1. **Vocal Delivery Quality in Earnings Conference Calls**
   - Columbia Law School Blue Sky Blog (June 6, 2023) (Link)
   - Chicago Booth Review (February 26, 2024) (Link)

2. **Context-Based Interpretation of Financial Information**
   - Columbia Law School Blue Sky Blog (October 25, 2023) (Link)
   - Chicago Booth Review (December 5, 2023) (Link)

3. **Bloated Disclosures: Can ChatGPT Help Investors Process Information?**
   - Becker Friedman Institute for Economics (May 4, 2023) (Link), Podcast (Link)
   - Alpha Architect (May 30, 2023) (Link)
   - Bloomberg (May 31, 2023) (Link)
   - Columbia Law School Blue Sky Blog (June 19, 2023) (Link)
   - Chicago Booth Review (June 20, 2023) (Link)
   - Marginal Revolution (August 2, 2023) (Link)
   - Investor Choice Advocates Network Podcast (Aug 16, 2023) (Link)

4. **Firm-Level Tax Audits: A Generative AI-Based Measurement**
   - The FinReg Blog (March 4, 2024) (Link)
   - ProMarket (March 8, 2024) (Link)

5. **Contextualizing Profitability**
   - Becker Friedman Institute for Economics (June 20, 2023) (Link)
   - Columbia Law School Blue Sky Blog (October 25, 2023) (Link)
   - Chicago Booth Review (December 5, 2023) (Link)

6. **From Transcripts to Insights: Uncovering Corporate Risks Using Generative AI**
   - Becker Friedman Institute for Economics (October 23, 2023) (Link)
   - Harvard Law School Forum on Corporate Governance (November 1, 2023) (Link)
   - Chicago Booth Review (December 13, 2023) (Link)

7. **Financial Statement Analysis with Large Language Models**
   - Wall Street Journal (Aug 2, 2024) (Link)
   - Bloomberg (June 14, 2024) (Link)
   - Financial Times (June 5, 2024) (Link)
   - Financial Times (June 4, 2024) (Link)
   - Forbes (May 28, 2024) (Link)
   - Marginal Revolution (May 28, 2024) (Link)
   - Business Insider (May 28, 2024) (Link)

OTHERS

Passed Korean CPA Exams *2018*

Served as Korean Augmentation to the United States Army *2019 - 2021*
- Awarded *Army Commendation Medal* by the Scretary of the United States Army.