Yingying Guo

Department of Finance
Louisiana State University
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Baton Rouge, LA 70803

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My LSU Profile
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EDUCATION

Louisiana State University, Baton Rouge, LA, US

Ph.D. in Finance, Minor in Economics — Expected 2026
Advisor: Professor R. Kelley Pace

M.S. in Finance — 2021

M.S. in Petroleum Engineering — 2020
Advisor: Professor Andrew Wojtanowicz
Thesis: *Well Testing of Fracture Corridors in Naturally-Fractured Reservoirs*

MAPST in Applied Statistics — 2020
Advisor: Professor Brian D. Marx

New Mexico Institute of Mining and Technology, Socorro, NM, US

B.S. in Petroleum and Natural Gas Engineering (Highest Honors, Tech Scholar) — 2015

RESEARCH INTERESTS

Household Finance, Asset Pricing, Energy Finance, Corporate Finance

TEACHING INTERESTS

Corporate Finance, Investments, Real Estate Analytics, FinTech, Financial Data Analysis

CITATIONS

Google Scholar (Dec 2025): 122 citations; h-index 4; i10-index 4.

FINANCE AND REAL ESTATE REFEREEING

Journal of Derivatives
The Journal of Real Estate Finance and Economics

FINANCE AND REAL ESTATE PEER-REVIEWED PUBLICATIONS

1. Guo, Y., & Chance, D. (2025). Kernel-Based Machine Learning for Option Pricing. *Journal of Derivatives*, 32(4).

   Traditional option pricing models such as the Black-Scholes-Merton model have certain limitations, which has given rise to research that asks the option price data itself to reveal which factors drive option prices. In this article, we explore the application of kernel-based learning methods, specifically the Kernel Support Vector Machine (KSVM) and Gaussian Process (GP) models. We illustrate the setup and examine the performance of these two models in explaining call option prices for the S&P 500 index between August 31, 2018 and August 31, 2023. The results for this dataset indicate that the Radial Basis KSVM model is superior to other KSVM models; the Radial Basis KSVM model has a slightly lower mean squared error than the GP model. We find that both models provide reasonably accurate predictions of option prices. This investigation contributes to the literature on machine learning techniques in finance by highlighting their potential in option pricing.

FINANCE AND REAL ESTATE WORKING PAPERS

1. *Audit-Ready Option Pricing via Interpretable Kernel Ensembles*
2. *AI-Assisted Verified Computation in Finance Education: A Teaching Toolkit and Classroom Applications*
3. Guo, Y. and Pace, R. K. *Natural Language Interfaces for Empirical Finance: Evidence from FHFA Housing Price Index Data*
4. Guo, Y. and Pace, R. K. *How do Property and Neighborhood Characteristics Affect Appraisal Bias?*
5. Guo, Y., Narayanan, R., Pace, R. K., and Ratnadiwakara, D. *Appraisal Accuracy and its Effect on Loan Collateral*

FINANCE AND REAL ESTATE CONFERENCE PRESENTATIONS

1. 2024 FSU-UF Critical Issues in Real Estate Symposium

FINANCE AND REAL ESTATE TEACHING EXPERIENCE

Department of Finance, Louisiana State University

Instructor

FIN 3826 – Fundamentals of Asset Management (Instructor rating: 4.0/4.0) Summer 2025
FIN 3351 – Principles of Real Estate (Instructor rating: 3.9/4.0) Summer 2024
Note:
Department teaching evaluation average: 3.4/4.0 (Summer 2024),
College teaching evaluation average: 3.5/4.0 (Summer 2024),
Department teaching evaluation average: 3.7/4.0 (Summer 2025),
College teaching evaluation average: 3.6/4.0 (Summer 2025)

Teaching Assistant

FIN 7720 – Introduction to Financial Modeling with MATLAB Fall 2025
FIN 3716 – Principles of Finance Fall 2024, 2025
FIN 4820 & FIN 7709 – Financial Modeling and Analytics 2022–2024, Spring 2025
FIN 4910 – Real Estate Analytics 2022–2025

OTHER REFEREEING

Fuel
ACS Omega
Scientific Reports
Petroleum Research
Journal of Petroleum Science and Engineering
International Journal of Greenhouse Gas Control
Journal of Petroleum Exploration and Production Technology
Journal of Energy Resources Technology, Part B: Subsurface Energy and Carbon Capture

OTHER PUBLICATIONS (PEER-REVIEWED, ENGINEERING & INTERDISCIPLINARY)

1. You, F., Wu, Y., Guo, Y., & Zheng, Y. (2026). Green dissolution of waxy corn starch in water-rich deep eutectic solvents: Urea-mediated hydrogen bond disruption for non-derivatizing processing. *Food Hydrocolloids*, 172(Part 2), 111997.

2. Guo, Y., & Wojtanowicz, A. (2025). Well Testing of Fracture Corridors in Naturally Fractured Reservoirs for an Improved Recovery Strategy. *Energies*, 18(14), 3827.

3. You, F., Zheng, Y., Wu, Y., Guo, Y., Xu, Z., & Leng, L. (2025). Influence of corn starch acid hydrolysate on reservoir damage: The key role of molecular structure. *International Journal of Biological Macromolecules*, 308, 142358.

4. You, F., Wu, Y., Guo, Y., & Zheng, Y. (2025). Rheological aspects of xanthan gum: Governing factors and applications in water-based drilling fluids and enhanced oil recovery. *Carbohydrate Polymers*, 123579.

5. Yin, Q., Zhu, Q., Song, Z., Guo, Y., Yang, J., Xu, Z., ... & Tyagi, M. (2025). Deep learning based early warning methodology for gas kick of deepwater drilling using pilot-scale rig data. *Process Safety and Environmental Protection*, 196, 106844.

6. Tang, Y., Zhang, X., Lv, B., Lv, H., Zheng, L., Yang, H., ... & Xu, Z. (2025). Investigation of micro-nano fluid formulated from highly mineralized formation water and its oil displacement mechanisms. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 709, 136103.

7. Yin, Q., Xue, Q., Guo, Y., Gao, B., Li, X., & Zhu, H. (2025). Simulation and Optimization of Coupling Dynamic Response of Steel Catenary Riser for a Semi-Submersible Platform Under Harsh Conditions in the South China Sea. *China Ocean Engineering*, Advance online publication. https://doi.org/10.1007/s13344-025-0071-0.

8. Yin, Q., Yan, X., Zhu, H., Chen, K., Yang, J., Liu, L., Gao, B., Guo, Y., & Ma, Y. (2025). Strength and fatigue analysis of mudline wellhead and its tie-back system in offshore drilling. *Petroleum Science and Technology*, 1–28.

9. Cao, B., Yin, Q., Guo, Y., Yang, J., Zhang, L., Wang, Z., ... & Zhou, X. (2023). Field data analysis and risk assessment of shallow gas hazards based on neural networks during industrial deepwater drilling. *Reliability Engineering & System Safety*, 232, 109079.

10. Zhao, X., Yin, Q., Yang, J., Long, Y., Liu, H., & Guo, Y. (2022). Risk assessment of surface conductor jetting installation during deep-water drilling in sloping seabed. *Ocean Engineering*, 266, 113057.

11. Li, Z., Yin, Q., Guo, Y., Long, Y., Li, M., Zhou, X., ... & Meng, F. (2022, June). A Special Thread Design Based on TC4 Titanium Alloy and its Successful Application in Offshore Extended-Reach Drilling. In *International Conference on Offshore Mechanics and Arctic Engineering* (Vol. 85956, p. V010T11A091). American Society of Mechanical Engineers.

12. Wang, K., Liu, G., Guo, Y., Yang, H., Chen, Z., Su, G., ... & Yu, X. (2022). Preparation and properties of degradable hydrogels as a temporary plugging agent used for acidizing treatments to enhance oil recovery. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 637, 128218.

13. Guo, Y., & Wojtanowicz, A. (2021, June). Well Testing of Fracture Corridors in Naturally-Fractured Reservoirs (NFR). In *International Conference on Offshore Mechanics and Arctic Engineering* (Vol. 85208, p. V010T11A018). American Society of Mechanical Engineers.

14. Peng, Y., Yao, X., Guo, Y., Huang, L., & He, Y. (2012). Development of measuring instrument for evaluating volume stability of HTHP cement slurry. *Petroleum Drilling Techniques*, 40(4), 115–118.

OTHER CONFERENCE PRESENTATIONS (ENGINEERING)

1. ASME 2022 41st International Conference on Ocean, Offshore and Arctic Engineering

2. ASME 2021 40th International Conference on Ocean, Offshore and Arctic Engineering

Note: I was the presenter at both conferences.

OTHER TEACHING EXPERIENCE (ENGINEERING & INTERDISCIPLINARY)

Department of Experimental Statistics, Louisiana State University

Teaching Assistant

EXST 7014 – Experimental Statistics II — Fall 2020–2021

EXST 2201 – Introduction to Statistical Analysis — Spring 2020–2021

Craft & Hawkins Department of Petroleum Engineering, Louisiana State University

Teaching Assistant

PETE 4059 – Drilling Fluid Lab — Fall 2017–2019

PETE 4086 – Well Design-Drilling — Spring 2017–2019

Note: For EXST 7014, EXST 2201, and PETE 4059, my responsibilities included instructing students in laboratory sessions, which involved programming, data analysis, and conducting chemistry-related experiments.

OTHER PROFESSIONAL EXPERIENCE

Craft & Hawkins Department of Petroleum Engineering, Louisiana State University

Student Worker

Drilling Fluid Lab — Summer 2020

Research Assistant

Reservoir Simulation — 2018

High Performance Computing, Louisiana State University

Graduate Assistant

Computer Lab — 2015–2017

ONLINE ACADEMIC PROFILES

- ORCID: 0000-0002-9615-9424
- Scopus Author ID: 57947678500
- Web of Science ResearcherID: MVX-9352-2025
- Google Scholar: s7qsEBsAAAAJ
- SSRN Author ID: 6388148
- ResearchGate: Yingying Guo

PATENTS

US11674887B2 – Apparatus and method for testing dynamic sealability of fluid in the downhole minor leaks — June 2023

Co-inventor. Developed a high-pressure, high-temperature apparatus to evaluate the dynamic sealing performance of wellbore fluids under simulated downhole leak conditions with real-time monitoring and visualization.

CN101825424B – High-temperature and high-pressure small-size length measuring device — June 2011

First inventor. Designed a small high-pressure, high-temperature device to accurately measure cement slurry expansion and stability, enabling evaluation of gas-generating additives under realistic well conditions.

SERVICE AND OUTREACH

SPE Chevron Mentorship Program Team

Louisiana State University, Baton Rouge, LA, USA — 2018

Mentor: Advising freshman and first-year graduate students in the Petroleum Engineering Department

Magdalena Ridge Observatory Volunteer Team

Magdalena Ridge Observatory, Socorro, NM, USA — 2014–2015

Gave tours of the observatory to the public. Educated guests about instrumentation, the capabilities of the different telescopes and equipment, and the goals of the observatory as a whole.

AWARDS AND FELLOWSHIPS

Nominated by the Department Chair for the College's Best Teaching Award	2025
Startup LSU Competition, Second Place (Team Award)	2025
Keith and Evie Katz Superior Graduate Student Scholarship	2024–2025
NMIMT Honor Roll	2013–2015
Jereh Scholarship	2012–2013
Drilling 821 Scholarship	2011–2012
First-Class Academic Scholarship	2011–2012

PROFESSIONAL MEMBERSHIPS

Member of Pi Epsilon Tau
Member of Institute of Mathematical Statistics
Member of Society of Petroleum Engineers (Member ID: 5288111)
Secretary of Graduate Students Association in Petroleum Engineering Department

SKILLS

- **Programming and Data Analysis:** Python, R, Matlab, Stata, SAS, SQL
- **AI & Machine Learning:** Supervised/Unsupervised Learning, Ensemble Methods, Neural Networks (Deep Learning: DNN, LSTM, GRU), NLP, LLMs
- **Statistical and Financial Modeling:** Time Series, Panel, Bayesian Methods, Data Mining, Nonparametric Methods, Multivariate & Categorical Analysis
- **Mathematical Modeling:** Optimization, Numerical Methods, Stochastic Processes, Simulation
- **Technical Writing and Typesetting:** LaTeX, Microsoft Office Suite
- **Visualization and Presentation:** ggplot2, matplotlib, Tableau, Excel
- **Additional:** Skilled in DSLR photography, image editing, and video production, used in academic presentations, educational content, and social events

LANGUAGES

Native Chinese speaker; Fluent in spoken and written English.

REFERENCES

Professor R. Kelley Pace (Dissertation Advisor)
Boyd Professor, Department of Finance
Director, Real Estate Research Institute
Louisiana State University
2937 Business Education Complex North
Email: kpace@lsu.edu

Professor Don Chance (Professor)
Professor, Department of Finance
Norman V. Kinsey Distinguished Chair in Finance
Louisiana State University
2909 Business Education Complex North
Email: dchance@lsu.edu

Professor V. Carlos Slawson Jr. (Professor)
Professor, Department of Finance
Associate Director, Real Estate Research Institute
Louisiana State University
2927 Business Education Complex North
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