BACH CHI LE
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EDUCATION

Lehigh University — Bethlehem, PA
Master of Science in Financial Engineering — Aug 2023 – May 2025
GPA: 3.93/4.0

University of Melbourne — Melbourne, AU
Bachelor of Commerce in Finance and Economics — Aug 2020 – Jul 2023
Grade: H1 – First Class Honors

AWARDS

Graduate Business Life Leadership Award, Lehigh University	2024
Center for Financial Services Research Fellowship, Lehigh University	2024
Director's Scholarship, Lehigh University	2023
Melbourne International Undergraduate Scholarship, University of Melbourne	2022
Bachelor of Commerce Global Scholarship, University of Melbourne	2020

PUBLICATIONS

Preprints

Le, B. C., Dao, T. V., Nguyen, B. T., & Chu, H. T. M. *Tight Robustness Certificates and Wasserstein Distributional Attacks for Deep Neural Networks.* arXiv preprint arXiv:2510.10000.

Working Papers

Moore, O. A., Mchiri, A., Grady-Moreno, A., & Le, B. C. *Identified but Dissatisfied: The Paradoxical Effects of Mixed Team Membership Configurations.* Manuscript in preparation.

Moore, O. A., Gibson, H. O., Henderson, S. J., & Le, B. C. *Modeling the Effects of Multiple Team Membership on Project Delay: The Role of Expertise Diversity and HR Policy.* Manuscript in preparation.

Research in Progress

Chu, H. T. M., Nguyen, B. T., & Le, B. C. *Wasserstein Distributional Robustness in Deep Learning: Lipschitz-Based Guarantees for Transformers.*

Le, B. C., & Nguyen, L. M. *Ensemble Modeling for Time Series Forecasting via Adaptive Distributionally Robust Optimization.*

Lamadrid, A. J., & Le, B. C. *Risk Management in Deregulated Commodity Markets: A Comparative Study of Stochastic, Robust, and Info-Gap Optimization Frameworks.*

Tang, S., & Le, B. C. *On the Optimality of Balanced Pemantle's Min-Plus Binary Trees: A Probabilistic and Inductive Approach.*

PRESENTATIONS

Moore, O. A., Mchiri, A., Grady-Moreno, A., & Le, B. C. (2025, January). *Mixed versus Traditional Multiple Team Membership Configurations: Understanding Team Satisfaction through the Mediating Role of Identity and Moderating Effect of Intra-Team Conflict.* Presented at the INGRoup 2025 Midyear Conference, Virtual.

RESEARCH EXPERIENCE

VinUniversity — Hanoi, VN
Engineering & Computer Science Department — June 2025 – Present

PI: Prof. Hong T. M. Chu

- Conduct comprehensive literature research and summarize relevant findings to support the research objectives, maintain an organized database of literature and references.
- Conduct advanced academic research and scientific computations with a focus on sensitivity analysis, designing algorithms and stabilizing networks.
- Assist teaching optimization topics in undergraduate course.

Lehigh University Bethlehem, PA
Industrial and Systems Engineering Department Sep 2024 – May 2025
PI: Prof. Lam M. Nguyen

- Develop an innovative Ensemble Modeling for Time Series Forecasting using the Adaptive Distributionally Robust Optimization (ADRO) framework, aimed at optimizing ensemble model weights to enhance forecast accuracy in dynamic environments.
- Conduct extensive theoretical formulation and empirical testing to establish the effectiveness of the ADRO framework in time series forecasting, with an emphasis on linear tractability and robust performance in uncertain conditions.
- Provide mathematical proofs to derive a tractable robust counterpart for the original ADRO formulation, ensuring both theoretical soundness and practical applicability of the model.

Economics Department Apr 2024 – May 2025
PI: Prof. Alberto J. Lamadrid

- Conduct research on risk management strategies in deregulated commodity markets, starting with deterministic models and progressively introducing uncertainty in product quantities.
- Implement advanced optimization models, including Stochastic Optimization, Robust Optimization, and Information Gap Decision Theory frameworks, to address risk aversion.
- Perform mathematical and numerical analysis to compare the effectiveness of different models, providing insights for market participants to enhance decision-making under uncertainty.

Mathematics Department
PI: Prof. Si Tang Jan 2024 – May 2025

- Investigate the optimality of balanced Pemantle's Min-Plus binary trees by proving their highest expected values for the root node compared to trees of equal size, using mathematical induction and computational verification to advance tree optimization methodologies.
- Employ R to compute probability density functions and expected values, validating hypotheses crucial for proving the conjecture about the expected value of Pemantle's Min-Plus binary trees.
- Develop induction hypotheses from computational insights to demonstrate that strategically adding leaves according to defined rules results in optimal and balanced tree structures.

Management Department Nov 2023 – May 2025
PI: Prof. Ozias A. Moore

- Engineer datasets by embedding Level 2 variables into a Level 1 dataset using Group Mean Centering and Grand Mean Centering techniques, facilitating comprehensive analysis for Andrew Hayes' PROCESS model 4 to examine the relationship between Leader's ambivalence and qualities like Openness, Listening, Intellectual Curiosity, and Constructive Voice.
- Conduct Monte Carlo simulations to bootstrap data and assess mediation effects in multilevel datasets, ensuring statistical robustness and enhancing insights into complex relationships.
- Support research on Team Configuration (Multiple Team Membership) using Andrew Hayes' PROCESS Model 7, analyzing multi-categorical independent variables and contributing to comprehensive literature reviews on statistical methodologies for research presentations.

PROFESSIONAL EXPERIENCE

Stout Risius Ross New York, NY
Complex Securities & Financial Instruments Intern Jun 2024 – Aug 2024

- Applied option pricing models and conducted Monte Carlo simulations to accurately value complex derivatives, enhancing insights into financial risk management in volatile markets.
- Conducted real options analysis to assess the value of investments in commodities and early-stage companies, providing strategic insights for decision-making under uncertainty.
- Performed portfolio valuations and credit rating regressions using Excel, VBA, and R, contributing to effective portfolio management strategies and risk assessment.

Outlier AI San Francisco, CA
Mathematics Consultant May 2024 – Apr 2025

- Create and refine training prompts and solutions across diverse mathematical fields to train Large Language Models (LLMs), ensure comprehensive coverage of algebra, geometry, precalculus, linear algebra, complex analysis, and combinatorics.
- Formulate innovative mathematical problems and engage in rigorous math-focused conversations to challenge and refine AI model capabilities, enhancing its accuracy and adaptability.
- Evaluate and rate AI-generated responses to mathematical prompts based on rigorous standards of accuracy and precision, collaborating with STEM professionals to refine response generation strategies and improve overall model performance.

WorldQuant Hanoi, VN
Research Consultant Apr 2023 – Apr 2024

- Developed and optimized alpha strategies for USA and China markets using technical indicators, fundamental ratios, and news sentiments on the WorldQuant BRAIN platform.
- Conducted extensive backtesting over a 10-year period to validate performance and refine strategies, achieving competitive returns and Sharpe ratios.

TECHNICAL SKILLS

Programming: Python, R, SPSS, Latex, Pine Script, Excel VBA, SQL, C++, AMPL, MATLAB, Gurobi
Software: SAS, Stata, VS Code, PyCharm, RStudio, MySQL, Microsoft Office, GitHub, QuantConnect