Kehan Luo (Genghis)

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Education

2022 – 2026 **BS, New York University Shanghai**, Honors Mathematics and Data Science(AI track).
- Overall GPA: **3.97**; Honors Mathematics/Data Science(AI) GPA: **4.00**
- Researching on Machine Learning Theory & Applications (diffusion models, high-dimensional sampling, and algorithm sample complexity bounds, etc.)
- Work as **Research Assistant** for Prof. Joan Bruna and Dr. Jiequn Han, and jointly for Prof. Mathieu Lauriere. **Learning Assistant** for NYUSH Fall 2023 Linear Algebra.
- Taken **PhD-level math and CS/DS courses** at NYU Courant and CDS, learned theoretical/practical knowledge on Generative Models, Markov Chain Monte Carlo, Log-concave Sampling, Reinforcement Learning, Graphical Models, Deep Neural Networks, Online Learning, SVM, Decision Trees, Random Forests, Kernel Methods, Boosting, Maxent Models, Game Theory, Bandit Problem, Active Learning, Time Series, Regression, Classification, Theoretical&Numerical Optimization, etc.
- Completed a **Dean Undergraduate Research Fund (DURF)** project on Modern Optimization Theories, and a guided research on Linear Algebra Theories presented at NYUSH Spring 2024 Academic Symposium.
- Attended **Mathematical Contest in Modeling** continuously for 5 years from high school to undergraduate junior year. Won Meritorious prize for 2023 Winter Mathematical Contest in Modeling.

Skills

Languages	Strong reading, writing and speaking competencies for English and Native in Mandarin Chinese.
Coding & Databases	Python, Matlab, R, LaTeX, C++, Mysql, Sqlite.
Misc.	Academic research, teaching, LaTeX typesetting and publishing.

Serious Projects

2025 Jan. – Present **Course Project**, Hamiltonian Monte Carlo: Algorithm, Theory, and Experiments
- Instructor: Prof. Joan Bruna
- High-dimensional sampling
- Hamiltonian Monte Carlo (HMC), No-U-Turn Sampler (NUTS), Riemannian Manifold HMC. (link) (github)

Course Project, Stochastic Convex Optimization: Learnability, Stability and Gradient Descent
- Instructor: Prof. Meyhar Mohri
- Stochastic convex optimization (SCO)
- Learnability, stability, sample complexity of (stochastic) gradient descent. (link)

2024 Sep. – 2025 Dec. **Course Project**, Adversarial Robustness Theory and Algorithms
- Instructor: Prof. Meyhar Mohri
- Adversarial robustness theory
- TRADES model by Zhang et al. (2019), theoretical framework by Awasthi et al. (2023), classification-calibrated surrogate losses, H-consistency. (link)

2024 May. – 2024 Sep. **Dean Undergraduate Research Fund**, Modern Optimization Theory and Applications in Optimal Control
- Instructor: Prof. Vahagn Nersesyan
- Optimal control theory, game theory, stochastic analysis, partial differential equations.
- First and second variation methods, controllability, bang-bang Principle, linear-time optimal control, Pontryagin maximum principle, and dynamic programming. (link)

Leadership Activities

2024 Oct. – 2025 Jan. **Kaggle Competition** 2025 JaneStreet Real-time Market Data Forecasting
- Leader | Top 500 Team
- Developed an **autoencoder combined with a multilayer perceptron model** to forecast six months of market data using five years of historical data, achieving a ranking of **475 out of 3,757**.

2023 Feb. **Mathematical Contest in Modeling** 2023 Winter
- Team Leader | Meritorious prize
- Set up **mathematical and machine learning models** to solve data-driven real-life problems.
- Wrote complete **30-pages formal essay** to present models and results **within 5 days**. (link)

2023 May. – 2024 Jun. **Math Club**, NYUSH
- President of Math Society at 2023-2024 Academic Year
- **Organized 9 club events** throughout the year, including designing and executing a unique college math competition "Mathodology". **Developed the club's social media presence**, including WeChat official account, official website, Instagram, etc.
- **Established networks** with students, professors, and other clubs within and beyond the school, including at University of Pennsylvania. **Oversaw the club's overall budget**, ensuring optimal allocation of funds to maximize the effectiveness of each expenditure. (link)

Professional Experience

2023 Jun. – 2023 Aug. **Private Equity TMT Group Summer Intern** New Alliance Capital
- Generated in-depth and data-based industry analysis reports on Biomaterials, Thermal Materials, and New Energy Materials based on financial data to identify both **long-term** and **short-term** growth opportunities.
- Analyzed financial data to segment the thermal materials market, **pinpointed key growth factors**, crafted a **company filter** based on quantitive and qualitative factors and identified out around 20 candidate companies.
- Evaluated over 20 listed and unlisted companies, ranging from industry giants to startups, culminating in the construction of **one diversified portfolio** for an investment proposal as the final project.

Miscellaneous Experience

Awards and Achievements

2024 **Baosteel Scholarship**, Baosteel Education Foundation.

2022 – 2024 **Term Honor**, Dean's List for Academic Year.

Certification

2023 **Machine Learning Specialization**, Awarded by DeepLearning.AI.

Interests

Reading, Travelling (15 countries visited), Chinese GO, , Jazz, Basketball, Golf, Chess.