# Yide (Ryan) Bian

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## EDUCATION

**Yuanpei College, Peking University** Beijing, China
Bachelor of Science in Data Science and Big Data Technology 2021/09 – 2025/07
**Cumulative GPA**: 3.74/4.00
**Related Courses**: Machine Learning, Generative Modeling, Probability Theory, Econometrics, Operating Systems
**Awards**: ***Gold Medalist (#46th) & National Training Team Member*** at 34rd Chinese Chemistry Olympiad (2020), School-level Learning Excellence Award (2022)

## PROJECT EXPERIENCE

**Large-Scale Contextual Market Equilibrium Computation through Deep Learning** Beijing, China
Laboratory of Dr. Xiaotie Deng 2023/07 –

- Develops a context-based method for solving large-scale market equilibrium. Traditional methods can only accurately compute the equilibrium of a single market with 400 customers and goods; by exploiting the contextual information of market data, our method extends the equilibrium computation to millions of buyers, or the simultaneous equilibrium computation of multiple markets, which makes the computational cost much lower;
- Propose Nash-GAP, an optimization metric obtained by calculating the allocation results of items together with the equilibrium price;
- Responsible for pre-paper research, codes and experiments, and wrote part of the paper.

**The First Quantitative Finance Competition of Peking University** Beijing, China 2023/05

- Built a decision tree model, analysed stock time series data and made long range forecasts of future stocks, and finally ranked 15th among the contestants

**Application of Neural Networks in Optimal Control** Beijing, China
Laboratory of Dr. E Weinan 2023/05 – 2023/07

- Reproduced and verified the thesis of fitting a value function in a high dimensional space by a neural network and accordingly achieving an analytical solution to the two-point marginals problem (a domain problem of partial differential equations). It is verified that the fuzzy solution obtained by the untrained neural network as an initial value accelerates significantly the computation of the numerical solution, thus speeding up the acquisition of training data;
- Preliminary understanding of the Aiforscience research model through the process of classical numerical simulation - introduction of deep learning - simulation of the problem solution;

**Extension of Spatio-Temporal Prediction Models to Multi-Step Prediction** Beijing, China
Laboratory of Dr. Leye Wang 2023/02 – 2023/04

- Read related literature to understand the common ways of expanding single-step models to multi-step, and add multi-step prediction interfaces to the STMeta spatio-temporal prediction toolbox;
- Learn about mature Github projects from scratch, and get the first exposure to project code and interface management;

## PERSONAL INFORMATION

**Language Skills**: Native Chinese Mandarin, B1 level English (IELTS: 7.0).
**Related Skills**: C, Python (Pytorch /Pandas /Numpy, etc.), latex, game theory and economics.
**Research interests & Hobbies**: Understanding of Deep Learning Algorithms, Data in social science; cycling, tennis, skiing, deutsch and moba games.