

Bowen FANG

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RESEARCH INTERESTS

I develop scalable systems and RL-based agentic reasoning frameworks for stochastic, continuous environments with complex topological constraints.

Keywords: reinforcement learning, agentic AI, multimodal reasoning (LLM/VLM), systems resilience, optimization.

EDUCATION

Columbia University

Ph.D. Candidate

- Advisor: Prof. Xuan (Sharon) Di

New York, NY

Aug. 2024 – Present

Columbia University

M.S. in Operations Research

New York, NY

2022 – 2024

Peking University

B.S. in Big Data Management and Applications (Minor in Economics)

Beijing, China

2018 – 2022

RESEARCH & INDUSTRY EXPERIENCE

AWS AI Labs, Amazon

Applied Scientist Intern (Return) – Post-Training & Agentic RL

Incoming Summer 2026

Santa Clara, CA

AWS AI Labs, Amazon

Applied Scientist Intern – RL post-training

May 2025 – Aug. 2025

New York, NY

- Developed an RL-based post-training framework (RLVR-style) for large language models, improving reasoning accuracy while maintaining capacity.
- Set up VeRL training for math reasoning tasks, handling datasets, configs, checkpoint sync to S3, and profiling rollout performance.

Data Science Institute, Columbia University

Graduate Researcher

2024 – Present

New York, NY

MathWorks

Part-time Data Scientist

Aug. 2022 – Dec. 2022

New York, NY

AI TOPIA

Research Engineer Intern

Sep. 2021 – Jun. 2022

Beijing

Nomura

Data Scientist Intern

Jul. 2021 – Sep. 2021

Shanghai

Deloitte

Data Scientist Intern

Aug. 2020 – Oct. 2020

Beijing

SELECTED PUBLICATIONS

- [1] **B. Fang** and X. Di, "Efficient consistency model training for policy distillation in reinforcement learning," in *ICLR 2025 Workshop on Deep Generative Model in Machine Learning: Theory, Principle and Efficacy*, 2025. 
- [2] **B. Fang**, X. Chen, Z. Pan, and X. Di, "Slamuzero: Plan and learn to map for joint slam and navigation," in *Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS)*, 2024. 
- [3] **B. Fang**, Z. Yang, and X. Di, "Travellm: Could you plan my new public transit route in face of a network disruption?" In *Proceedings of the IEEE Intelligent Transportation Systems Conference (ITSC)*, 2025. 

- [4] **B. Fang**, X. Chen, and X. Di, "Learn to tour: Operator design for solution feasibility mapping in pickup-and-delivery traveling salesman problem," in *Proceedings of the IEEE Intelligent Transportation Systems Conference (ITSC)*, 2025. ↗

PREPRINTS & UNDER REVIEW

- [5] **B. Fang**, H. Pei, and L. Lausen, *Decaying budget forcing: A simple and effective reinforcement learning approach for balancing accuracy and capacity in mathematical reasoning*, In submission to ACL Rolling Review, 2026.
- [6] **B. Fang**, R. Zha, and X. Di, "Do math reasoning LLMs help predict the impact of public transit events?" *arXiv preprint*, 2025, Under review at *Transportation Research Part C (Special Issue: Foundation Models and Large Language Models in Urban Mobility)*. ↗

SELECTED PROJECTS

VeRL-Tune	2025 – Present
Scalable HPO and evaluation pipeline integrating VeRL with Ray Tune for agentic RL/LLM reasoning	
SINA	2024 – Present
Offline indoor AR evacuation system requiring no network, Bluetooth, or stored maps on the Phone	
Muax ↗	2023 – Present
JAX/TF MuZero implementation bridging DeepMind's MCTX with Acme	

TEACHING EXPERIENCE

Columbia University	2023
Teaching Assistant, IEOR E4004 Optimization Models and Methods	New York, NY
• Graduate course on linear, integer, nonlinear, and dynamic programming. ↗	
Columbia University	2025
Teaching Assistant, CIEN E4011 Big Data in Transportation	New York, NY
• Graduate course on large-scale transportation data and modern ML tools (JAX, Google Cloud, etc.). ↗	

HONORS & AWARDS

CS3 VALIDATE Accelerator Winner	2025
NSF I-Corps Travel Grant	2025
Calatrava Family Fellowship	2024

TECHNICAL SKILLS

Languages: Python, C++, SQL, MATLAB.
ML & RL: JAX, PyTorch, TensorFlow, Hugging Face, vLLM; VeRL, Ray/RLlib, Acme, mctx, OpenSpiel.
Data & Infra: NumPy/Pandas, SciPy, scikit-learn, XGBoost, Apache Spark; Docker, Kubernetes, Slurm, Airflow.
Cloud & Tools: AWS, GCP; Linux, Git.

PROFESSIONAL SERVICE

Reviewer: Transportation Research Board; Transportation Research Part C: Emerging Technologies.
Workshop Organization: Urban Mobility AI Workshop, Columbia University (2024).