Mingyu Bian 卞明宇

Undergraduate in Intelligence Science and Technology, Xinjiang University · mybian.cn

Research interests · RNA language models, biomolecular structure and dynamics, and geometric and statistical modeling.

Education

Xinjiang University 2024-2028 (expected)
Undergraduate in Intelligence Science and Technology, School of Future Technology.
Coursework: Advanced Mathematics, Linear Algebra, Probability and Statistics, Algorithms, Python, Machine Learning, Deep Learning, Natural Language Processing, Software Engineering, Microcontrollers and Interface Technology, and Image Signal Processing.
English: CET-4 453; English Test for International Communication (ETIC), CLA-Basic Pass.

Tsinghua Qian Xuesen Program & Shenzhen X-Institute 2024-2028 (expected)
Zero One Scholar in the joint training program. The research training curriculum comprises ESRT, ORIC, and SURF.

AI for Drug Discovery Symposium: From Target to Deal 2026
Attendee · Guangming, Shenzhen.

Fudan University · Summer School in Mathematical Logic 2025
Foundations and applications of recursion theory with Liang Yu, including computable forcing, higher recursion theory, and algorithmic information theory.

Research experience

Institute of Software, Chinese Academy of Sciences 2025-2026
Individual undergraduate project supervised by Junjie Wang. Built MemoDroid, a lightweight plug-in with three-tier memory for LLM-based GUI testing, and evaluated it on at least 200 real applications across 15 categories.

Institute of High Energy Physics, Chinese Academy of Sciences 2025-2026
Individual undergraduate research project supervised by Haiyun Teng. Built a GPU streaming prototype and software framework for data acquisition, experiment-specific image analysis, output debugging, and monitoring on neutron spectrometers. The framework uses direct memory access and concurrent GPU image processing.

Shenzhen Bay Laboratory 2026–Present
Visiting student in Prof. Yaoqi Zhou's group, Institute of Systems and Physical Biology. Applied contrastive learning to RESM for downstream tasks and worked on extending it to multimodal inputs.

Research and engineering projects

Plant counting and replanting decisions from drone imagery 2025-2026
Team lead, Undergraduate Innovation Training Program. Proposed a lightweight detector, aerial imaging, and GIS workflow to count plants and map missing seedlings for replanting.

Open-source processor design · X-Fusion 2025
Primary team lead. Recreated RISC-I and Cray-I architecture designs using open-source EDA tools and built a RISC-V vector arithmetic prototype. Received the X-Fusion Jingrui Award.

Outreach and service

2nd Change Maker Youth Initiative for Agricultural Heritage 2026
Team captain and project lead. Led fieldwork on wheat farming and processing in Shuanghe, Xinjiang.

3rd Movers4Climate Youth Green Action Initiative 2026
Team captain and project lead. Led five climate and sustainability lessons that reached 151 students.

Youth4Rural Digital Rural Development Initiative 2026
Team captain and project lead. Led a 14-day teaching program. One group reached 32 students.

IBM SkillsBuild Rural Education Program 2025
Volunteer in a rural digital-skills education initiative. The team reached over 120 students.

Movers4Climate Youth Green Action Initiative 2025
National UN Community Volunteer, team captain and project lead. Led climate literacy and sustainability classes that reached over 180 rural students.

Publications and manuscripts

Discrete Backbone Elasticity and Curvature-Dependent Torsion Statistics in Proteins
Yiquan Wang, **Mingyu Bian**, Jiayuan Ma · 2026 · arXiv · Preprint · Second author

QDF-NIPT: A Bi-Level Optimization Framework for Precision Prediction and Decision-Making in Prenatal Fetal Concentration Analysis
Wenzhe Chen, **Mingyu Bian**, Xinyu Shu · ICIC 2026 · CCF C · Online 2026, proceedings 2027 · Co-first author

An Integrated Computational Framework for Optimal Timing Decision in Multi-Source Monitoring Scenarios
Wenzhe Chen, **Mingyu Bian**, Guanzhe Wang · 2026 · ABCM · Accepted · EI conference · Co-first author

CoDA-Pipe: An Integrated Computational Pipeline for Classification and Interpretation of Compositional Data
Wenzhe Chen, **Mingyu Bian**, Guanzhe Wang · 2026 · CITSC · Accepted · EI conference · Co-first author

SVDKL: A dual-channel deep kernel framework unites structural-variation dosage and cis-regulatory topology for genomic prediction and network inference
Mingyu Bian†, Yiquan Wang†, Shuming Dong, Liqiong Xie, Dongliang Guo, Kai Wei · 2026 · Horticulture Research · JCR Q1 · IF 9.5 (2025) · Under review · Co-first author

TRIDENT: a three-stage cascade for orthogonal feature deconfounding and dynamic ligand discovery
Mingyu Bian, Yiquan Wang, Kai Wei · 2026 · Horticulture Research · JCR Q1 · IF 9.5 (2025) · Under review · Sole first author

Structured Bilevel Covariance Learning for Shared-Design Multi-Output Regression: Convergence, Complexity, and Empirical Analysis
2026 · AAAI 2027 · Submitted · CCF A · Co-first author

Marginal Fidelity Is Not Enough: A Controlled Study of Synthetic-to-Real Failure in cfDNA Screening
2026 · AAAI 2027 · Submitted · CCF A · Co-first author

† Equal contribution.

Competitions and honors

Provincial First Prize · Xuechuang Cup National College Student Entrepreneurship Simulation Competition
Xinjiang qualifier · Comprehensive Entrepreneurship Simulation, Undergraduate Division · Primary team lead · 2026

National First Prize · 28th China Robot and Artificial Intelligence Competition
Robotics Innovation Track · Core Team Member · 2026

Provincial First Prize · 17th Lanqiao Cup National College Student Software and IT Competition
Python Algorithm Design Track · Individual entrant · 2026

Provincial Gold Award · China International College Students' Innovation Competition
Core Team Member · 2025 • 2026

Provincial First Prize · Contemporary Undergraduate Mathematical Contest in Modeling
Primary team lead · 2025 • 2026

National Second Prize · 7th Global Campus Artificial Intelligence Algorithm Elite Competition
AI + Integrated Circuits Track · Primary team lead · 2025

National First Prize · 13th National Collegiate Business Elite Challenge, Retail Operations Simulation
Primary team lead · 2025

Jingrui Award · X-Fusion Global Innovators' Conference
Open-source computer team project · Primary team lead · 2025

National First Prize · National Collegiate Mathematics Olympiad
Non-Mathematics Division · Individual entrant · 2025

Successful Participant · Mathematical Contest in Modeling (MCM)
Primary team lead · 2025

National Second Prize · 7th Huajiao Cup National College Student Mathematics Competition
Non-Mathematics Division · Individual entrant · 2024

Campus activities · Captain of the university table tennis and debate teams. Recognized as a debater at the provincial level.

WeChat official accounts

BioticAI
AI and biology

浮云半卷
Poetry