

CHENG, Qinchuan

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EDUCATION BACKGROUND

Xi'an Jiaotong University (XJTU) 2023.09-2027.06 (Expected)

Major: B.Eng in Automation **GPA:** 3.7/4.3

- The Elite Program Scholarship (China's highest single scholarship amount, 35/3500)
- Outstanding individuals at the university level for contributions to society
- Outstanding student leader at the university level

PROJECT EXPERIENCES

Lightweight Conditional World Model & Planning for Autonomous Driving, Core Research Member 2026.04-Present

- Conduct research on conditional world models for autonomous driving planning with multi-camera BEV perception modeling.
- Designed an explicit dynamic world-state representation based on the Bench2Drive dataset, unifying vehicle/pedestrian occupancy, velocity fields, and ego trajectory conditioning.
- Built an end-to-end pipeline covering data parsing, state rasterization, future-state supervision construction, and model I/O definition.
- Advanced model architecture by integrating BEVFormer perception with ConvLSTM-based conditional world models, exploring transition from staged training to end-to-end joint optimization.

EGO2WORLD, Core Developer, First author 2026.03-Present

- Collaborated with the A*STAR Singapore research team on task understanding and embodied planning in HD-EPIC environments.
- Developed a text-based state environment for high-level planning and action sequence generation.
- Built Ego2World, a belief-state planning benchmark that compiles real kitchen video annotations into executable symbolic worlds.

LAW MASTER: Legal Q&A Large Language Model, Lead Developer 2025.10-Present

- Led the development of an LLM-based legal assistant integrating Graph-RAG, reinforcement learning, and multi-agent collaboration.
- Coordinated multiple specialized language models to improve domain expertise and system-level performance.
- Introduced complexity-reduction training with PPO reinforcement learning to enhance reasoning across symbolic and natural language domains.
- Supported by Huawei Kunpeng hardware; awarded Silver Prize (Northeast Region) in Huawei Ascend & Kunpeng Innovation Competition.
- Also awarded First Prize (University Level) in innovation and entrepreneurship competitions (Tengfei Cup, Internet+).

Rubber Large Language Model, Researcher (led independent subproject: LLM Agent construction) 2025.09-Present

- Participating in a multi-university collaboration (BUCT, SCUT, XJTU) on molecular design and formulation-performance prediction.
- Designed an LLM-based agent for rubber material R&D using D-RAG and Physics-Informed Networks (PINs) for autonomous design and validation.
- Built a memory-feedback loop to iteratively refine material design strategies.
- Replaced traditional NEMD simulations with LLM-driven design heads, significantly reducing R&D cost and accelerating high-dimensional material optimization.
- Co-authored a paper (first-author under review at npj Computational Materials, Q1 Top).

Electric Vehicle Infrastructure Siting & Mechanism Design, Researcher 2025.07-Present

- Worked with Prof. Yang Qingyu's group (Xi'an Jiaotong University) on EV charging infrastructure planning and multi-agent mechanism design.
- Proposed a Multilevel Joint Auction (MJA) framework integrating LLM-based semantic parsing, mixed-integer programming, and mechanism design.
- Designed a semantic transformation layer to convert natural language user preferences into spatial demand distributions and candidate site sets.
- Conducted large-scale experiments on real-world Xi'an data, significantly improving social welfare, coverage, and fairness over baseline methods.

- Co-authored paper (second author, under second-round review at Applied Energy, Q1 Top).

SIAN Large Language Model Research Group (SIAN LLM), Research & Development Engineer 2025.04-2025.09

- Contributed to fine-tuning vertical-domain large language model components.
- Led a subproject on problem-solving and automated grading, designing a multi-agent workflow to enhance complex reasoning.
- Developed the AIIC Joint Homework-Grading Agent, integrating OCR, intent recognition, and LLM-based evaluation into a full-stack system.
- Built and deployed an end-to-end pipeline on Xi'an Jiaotong University's Mathematics Education Platform.
- Independently designed system architecture and implemented a multi-agent collaboration algorithm.
- Awarded Grand Prize at the ByteDance Volcano Engine AI Competition.

PUBLICATIONS

- **Ego2World: Compiling Egocentric Cooking Videos into Executable Worlds for Belief-State Planning**
First Author. Under review at NeurIPS 2026.
- **Optimal EV Charging Station Location through a Dominant-Strategy Incentive-Compatible and LLM-Assisted Multilevel Auction.**
Second Author, second-round review at Applied Energy (Q1 Top)
- **TransRheo: A Physics-Informed Multi-Task Numeric Transformer for Polymer Nanocomposite Rheology**
First Author, under review at npj Computational Materials (Q1 Top)

EXTRACURRICULAR ACTIVITIES

University of California, Berkeley - Summer Session, Visiting Student 2025.07-2025.09

- Completed courses: Application of AI and Science & Engineering, Academic English (A+).
- Attended courses without credits: Cybersecurity (CS161), Introduction to Business Analytics.
- Gained exposure to advanced AI applications and interdisciplinary approaches in engineering and business contexts.

Bi-Talk Simultaneous Translation Agent (Berkeley Exchange), Team Leader 2025.07

- Developed a simultaneous translation agent with international students to address language barriers, providing real-time course translation, terminology explanation, and note-taking.
- Code published on GitHub; project recognized as an excellent course project.

Qian Xuesen College Student Union, Xi'an Jiaotong University, Deputy Secretary 2024.09-Present

- Managed student party membership applications and teaching assistance duties as Deputy Secretary.
- Served as class monitor; edited and published posts for the New Media Center, awarded "Outstanding Officer."

Campus Ambassador Social Practice, Xi'an Jiaotong University, Team Leader 2024.02

- Conducted university promotion and subject tutoring for high school seniors; wrote promotional posts.
- Recognized as Outstanding Individual.

Xi'an Jiaotong University Aerial Model Club, Deputy Leader 2023.06-2024.10

- Designed solar-powered carrier aircraft, including technical drawings and battery power algorithm design.
- Achievements: 2nd Prize in Southwest Division of CUADC University Aircraft Design Competition; aircraft design won 3rd Prize nationally.

Qinchuangyuan University Innovation & Entrepreneurship Competition, Volunteer 2025.02

- Assisted judges at the high-speed rail station and answered queries during the competition.
- Awarded Outstanding Individual recognition.

Xi'an Jiaotong University Yuejie Sports Meet, Participant 2024.10

- Competed in basketball and badminton events.
- Awarded First Prize (University Level) in the rope skipping.

AWARDS & HONORS

- **Finalist Award, 2026 Mathematical Contest in Modeling (MCM/ICM)** Team Leader, Top 1%
- **CUADC University Aircraft Design Competition - Provincial Award, Oct 2024**
- **Volcano Cup AI Competition - Grand Prize, May 2025**
- **Invention Patent (Pending) - USB-Based Internal/External Network Data Exchanger, Third Author**
- **Huawei Ascend AI Intelligent Competition, Ranked 4th, Nov 2025, Team Leader**

- **Huawei Kunpeng AI Intelligent Competition (Northwest China Region), Silver Award**, Nov 2025, Team Leader
- **Software Copyrights (Pending)** - *Reinforcement Learning-Driven Multi-Agent Interaction Software; Multi-Agent Academic Tutoring Assistant*, First Author
- **Elite Program Scholarship**, XJTU, Sept 2023 (Top individual university-level award, 35/3500 recipients)
- **Qingying Scholarship**, XJTU, Feb 2024 (Outstanding Volunteer, 15/300 recipients)
- **Outstanding Social Work Individual**, XJTU, Top 1/35

ADDITIONAL INFORMATION

Language: Mandarin (Native), English (Fluent; TOEFL:94)

Computer & Software Skills:

- Programming & Database Skills: C, Python, Java, MATLAB, SQL
- Engineering & Design Tools: CAD Software, Altium Designer
- Multimedia & Creative Tools: Adobe Creative Suite (AI, AE, PR, PS, AU)