JUNQI LU

GitHub | Google Scholar | Personal Blog
Date of Birth: August 24, 2002 | Phone: +86 155-1052-0824 | Email: Junqi_Lu@bit.edu.cn
Beijing, China

EDUCATION

Beijing Institute of Technology, Beijing, China 2024.9 - 2026.6 (expected)
Second Bachelor's Degree in Computer Science | GPA: 3.2/4.0 (**Rank 1/10**)

- Achieved the top rank (**1/10**) in a highly condensed curriculum focused on fundamental CS courses (e.g., Data Structures, Operating Systems, Computer Architecture, Computer Networks).
- Excelled in a high-pressure program defined by a **63% attrition rate** (initial cohort of 27 students reduced to 10), demonstrating high resilience and academic mastery.

Beijing Institute of Technology, Beijing, China 2020.10 - 2024.6
Bachelor of Mathematics and Applied Mathematics | GPA: 2.8/4.0

- Gained a solid theoretical background in mathematics, which underpins my quantitative and analytical skills.

PUBLICATIONS

[1] **Junqi Lu**, Bosen Liu, Cuicui Pei, Qingan Qiu*, and Li Yang*. Learning to optimize termination decisions under hybrid uncertainty of system lifetime and task duration. *Computers & Industrial Engineering*, 2025. DOI: 10.1016/j.cie.2025.111208 (**Published, IF=6.5, JCR Q1**)

[2] **Junqi Lu**, Qingan Qiu*. Learning-driven Condition-based Termination Decisions with Degradation Modeling. (**Manuscript in preparation**).

[3] **Junqi Lu**, Xin Li*. A Multi-step Bisimulation Metric Integrating λ-returns and SimSR. (**In preparation**).

RESEARCH EXPERIENCE

Reinforcement Learning & State Representation 2025.7 - Present
Research Assistant | Advisor: Prof. Xin Li, Deep Reinforcement Learning Lab, Beijing Institute of Technology

- Investigating **Bisimulation metrics** for state representation learning, focusing on improving credit assignment and addressing the **double sampling problem** in Bellman-based algorithms.
- **Completed all theoretical derivations and proofs** for a novel multi-step bisimulation distance , which integrates **λ-returns** with the **SimSR** framework.
- **Currently conducting numerical experiments** to validate the new metric's effectiveness in capturing long-term behavioral similarity and enhancing policy learning.
- This research will form the basis of my undergraduate thesis and is targeted for a **future conference publication** pending positive experimental results.

Reliability Engineering Analysis 2023.6 - 2025.6
Research Assistant | Advisor: Prof. Qingan Qiu, Beijing Institute of Technology

- Developed a **Markov Decision Process (MDP)** framework to model and solve task termination problems for safety-critical systems under hybrid uncertainty.
- Conducted extensive numerical simulations and analyses, leading to a published JCR Q1 paper. The research further served as my undergraduate thesis, which was awarded the **"Excellent Thesis" prize**.
- Currently authoring a second manuscript on Learning-driven Condition-based Termination Decisions with Degradation Modeling, with an expected submission date in late 2025.

HONORS & AWARDS

Academic Scholarship Oct 2025
Beijing Institute of Technology

- Awarded for outstanding academic performance, achieving a **program rank of 1/10** (Top 10%).

Interdisciplinary Contest in Modeling (ICM) Feb 2025
Finalist | **Top 1.96%** (of 27,456 teams worldwide)

- Developed a dynamic Lotka-Volterra and differential equation framework to model nitrogen cycling in forest-to-farmland conversion, providing sustainability recommendations.
- All source code and paper available at: MCM-ICM-2025-E-Nitrogen-Cycling-Model.

"Excellent Thesis" Prize Jun 2024
Beijing Institute of Technology

- Awarded for the undergraduate thesis research which led to a JCR Q1 journal publication.

Mathematical Contest in Modeling (MCM) Feb 2023
Meritorious Winner | **Top 9%** (of 20,858 teams worldwide)

- Developed mathematical models to predict plant community viability under drought conditions, including a *Soil-Water Model* and an *Improved Population Lotka-Volterra Model*.

RELEVANT COURSEWORK

- **Computer Science**: Data Structures and Algorithms, Operating System, Object-Oriented Programming, Machine Learning Fundamentals, Computer Networks.
- **Mathematics**: Real Analysis, Abstract Algebra, Probability Theory, Mathematical Statistics, Partial Differential Equation, General Topology.
- **Advanced Topics**: Reinforcement Learning (Graduate-Level).

SKILLS

Technical Skills

- **Programming**: Extensive experience in **C++**, including Object-Oriented Programming (OOP) and system development on Linux (e.g., a real-time multiplayer chatroom). Skilled in **Python** with expertise in scientific computing (*NumPy, Matplotlib*) and machine learning (*PyTorch*).
- **Tools & Software**: Proficient with **Git** for version control, managing a research portfolio and two personal blogs: an English blog for documenting recent academic work, and a Chinese blog with **over 20 articles** on Data Structures and Algorithms, accumulating **20K+ views**.
- **Academic**: Highly experienced with **LaTeX** for all academic writing. Familiar with **Manim** for visualizations and **Lean 4** for formal proof verification.

INTERESTS

- **Running**: Dedicated long-distance runner with an annual mileage consistently exceeding 1,000 km for three years. My Personal Best(PB) for half-marathon is 1:41:34, demonstrating discipline and perseverance.
- **Music**: Lead guitarist and bassist in two university rock bands. A dedicated rock music enthusiast with a passion for classic rock bands like The Beatles and KISS, showcasing creativity and teamwork.