

# JUNQI LU

[GitHub](#) | [Google Scholar](#) | [Personal Blog](#)

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Beijing, China

## EDUCATION

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

- **GPA: 3.2/4.0.** Completed **44.5 credits** of core CS coursework in the first year alone (2024-2025), demonstrating exceptional capability in handling high-intensity academic loads.
- **Selected High Scores:** Linux System Programming (**94**), Machine Learning Fundamentals (**93**), Computer Architecture (**89**), Object-Oriented Programming (**89**), Computer Networks (**86**).
- Ranked **1st** in the final cohort (initial cohort of 27 screened down to 10 with a **63% attrition rate**).

**Beijing Institute of Technology, Beijing, China** 2020.10 - 2024.6  
**Bachelor of Mathematics and Applied Mathematics**

- 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](https://doi.org/10.1016/j.cie.2025.111208) (Published, IF=6.5, JCR Q1)

[2] **Junqi Lu**, Qingan Qiu\*. Deep Reinforcement Learning for Condition-based Termination Decisions with Degradation Modeling. (Working Paper)

[3] **Junqi Lu**, Xin Li\*. A Multi-step Bisimulation Metric Integrating  $\lambda$ -returns and SimSR. (Working Paper)

## RESEARCH EXPERIENCE

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

- Investigating **Bisimulation Metrics** for state representation learning to address credit assignment and double sampling issues in Bellman-based algorithms.
- Completed theoretical derivations for a multi-step bisimulation distance integrating  **$\lambda$ -returns** and SimSR.
- Conducting **pixel-based experiments** on the **DeepMind Control Suite**. Preliminary results show significant performance gains over baselines in capturing long-term behavioral similarity.
- Targeting submission to **ICML 2026** (International Conference on Machine Learning).

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

- Proposed a **Markov Decision Process (MDP)** framework to solve Mission Abort problems for safety-critical systems, balancing task success probability and system safety under hybrid uncertainty.
- Published a **first-author paper in C&IE (JCR Q1)** detailing the discrete optimization method.
- **Ongoing Extension:** Addressing the curse of dimensionality inherent in discrete state spaces by incorporating **Reinforcement Learning**. Currently developing a continuous control framework to optimize maintenance strategies in high-dimensional complex systems. Targeting submission to **RESS 2026** (Reliability Engineering & System Safety).

## HONORS & AWARDS

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<b>Outstanding Student Award</b> , Beijing Institute of Technology	Nov 2025
• Comprehensive university-wide honor awarded to the <b>Top 10%</b> of students based on exceptional academic achievement and outstanding research contributions.	
<b>Academic Excellence Scholarship</b> , Beijing Institute of Technology	Oct 2025
• Awarded to the <b>top-ranking student (Rank 1/10)</b> in the Computer Science Dual Degree program for exceptional academic performance.	
<b>Finalist (Top 2%)</b> , Interdisciplinary Contest in Modeling (ICM)	Feb 2025
• Ranked in the <b>Top 2%</b> (Finalist) out of 27,456 teams globally.	
• <b>Open Source &amp; Reproducibility:</b> Developed a comprehensive, fully reproducible solution repository ( <a href="#">GitHub</a> ), featuring differential equation modeling and step-by-step tutorials, garnering <b>40+ stars</b> .	
<b>University "Excellent Thesis" Prize</b> , Beijing Institute of Technology	Jun 2024
• Awarded for the undergraduate thesis on safety-critical system termination.	
<b>Meritorious Winner (Top 9%)</b> , Mathematical Contest in Modeling (MCM)	Feb 2023
• Constructed a <i>Soil-Water Model</i> and an <i>Improved Lotka-Volterra Model</i> to simulate ecosystem dynamics.	
• <b>Huixian Special Grant (Te Li College):</b> Institutional award granted by Te Li College, BIT, in recognition of the team's outstanding contribution to international competition achievements.	

## RELEVANT COURSEWORK

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- **Computer Science:** Data Structures and Algorithms, Operating Systems, Computer Architecture, Computer Networks, Object-Oriented Programming, Database Principles.
- **Mathematics:** Real Analysis, Functional Analysis, Abstract Algebra, Probability Theory, Mathematical Statistics, Partial Differential Equations (PDE), General Topology, Numerical Analysis.
- **Specialized Topics:** Reinforcement Learning (Graduate-Level), Machine Learning Fundamentals.

## SKILLS

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### Technical Skills

- **Programming Languages:** **Python** (Expert in scientific computing: *PyTorch*, *NumPy*, *Pandas*), **C++** (OOP, Linux system development).
- **ML/DRL Frameworks:** **PyTorch** (Primary for DRL research), TensorFlow/Keras (Familiar).
- **System Project Highlight:** Developed a C++ concurrent BBS & Chat System ([GitHub](#)) on Linux, featuring a **single-threaded, event-driven architecture** powered by **epoll**. Implemented custom binary protocol, file transfer with handshake, and modular C/S design.
- **Tools & Academic Ecosystem:** **Git** for version control, **Linux/Bash**, Proficient with **LaTeX** for academic writing, Familiar with **Lean 4** for formal proof verification.
- **DSA Practice & Outreach:** Maintained a [Chinese blog](#) with **over 20 technical articles** on Data Structures and Algorithms (including **100+ LeetCode solutions**), accumulating **20K+ views**.

## INTERESTS

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- **Marathon Running:** Committed long-distance runner with an annual mileage exceeding **1,000 km** for three consecutive years. Half-Marathon Personal Best: **1:41:34**.
- **Music:** Lead guitarist and bassist for university rock bands. Passionate about classic rock arrangement and performance; active participant in campus music festivals.