



Nationality:  
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# Haoye Lu

## Education

Sep. 2021 – Present, University of Waterloo & Vector Institute

Ph.D. in Computer Science (supervised by Yaoliang Yu; CGPA: 98.5/100).

Research focus: diffusion models, stochastic processes, generative modelling.

Jan. 2017 – April 2019, University of Ottawa

Master of Computer Science (supervised by Amiya Nayak, CGPA 10/10, Outstanding Thesis Nomination)  
Thesis: [Function optimization-based schemes for designing continuous action learning automata](#)

Sep. 2013 – Dec. 2016, University of Ottawa

BSc Joint Honors in Computer Science and in Mathematics (CGPA 9.98/10, University Silver Medal)

## Publications

### Conference Papers

- [c1] **Haoye Lu**, Darren Lo, Yaoliang Yu, “[SFBD Flow: A continuous-optimization framework for training diffusion models with noisy samples](#)”, in *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2026
- [c2] **Haoye Lu**, Yaoliang Yu, Darren Lo, “[SFBD-OMNI: Bridge models for lossy measurement restoration with limited clean samples](#)”, in *International Conference on Learning Representations (ICLR)*, 2026
- [c3] **Haoye Lu**, Qifan Wu, Yaoliang Yu, “[Stochastic Forward-Backward Deconvolution: Training diffusion models with finite noisy datasets](#)”, in *International Conference on Machine Learning (ICML)*, 2025
- [c4] **Haoye Lu**, Spencer Szabados, Yaoliang Yu, “[Diffusion models under group transformations](#)”, in *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2025
- [c5] Jiacheng Hou, Tianhao Tao, **Haoye Lu**, Amiya Nayak, “[An optimized GNN-based caching scheme for SDN-based information-centric networks](#)”, in *IEEE Global Communications Conference*, 2023
- [c6] **Haoye Lu**, Daniel Herman, and Yaoliang Yu, “[Multi-objective reinforcement learning: convexity, stationarity and Pareto optimality](#)”, in *International Conference on Learning Representations (ICLR)*, 2023.
- [c7] Jiacheng Hou, Huanzhang Xia, **Haoye Lu**, and Amiya Nayak, “[A GNN-based approach to optimize cache hit ratio in NDN networks](#)”, in *IEEE GLOBECOM*, 2021.
- [c8] **Haoye Lu**, Yongyi Mao, and Amiya Nayak, “[On the dynamics of training attention models](#)”, in *International Conference on Learning Representations (ICLR)*, 2021.
- [c9] Haolong Zhang, Amit Nayak, and **Haoye Lu**, “[Periodic time series data classification by deep neural network](#)”, in *ICT*, 2019.
- [c10] **Haoye Lu**, Anand Srinivasan, and Amiya Nayak, “[Period detection and future trend prediction using machine learning techniques](#)”, in *IEEE SmartData*, 2018.
- [c11] Soom Behera, **Haoye Lu**, and Amiya Nayak, “[Performance evaluation of community detection algorithms based on relationship strength measurement](#)”, in *ICUFN*, 2018.
- [c12] Modhawi Alotaibi, **Haoye Lu**, and Amiya Nayak, “[A hierarchical approach to handle inter-domain mobility in SDN-based networks using mobile IP](#)”, in *ICT*, 2018.
- [c13] **Haoye Lu**, Anand Srinivasan, and Amiya Nayak, “[Learning automata based method for solving demand and supply problem with periodic behaviors](#)”, in *IEEE BigData*, 2017.

### Workshop Papers

- [w1] **Haoye Lu**, Darren Lo, Yaoliang Yu, “[Training diffusion models with noisy data via SFBD flow](#)”, in *Generative Models Workshop: The Bad, the Ugly, and the Greats (DIG-BUGS) at ICML (Oral)*, 2025
- [w2] **Haoye Lu**, Qifan Wu, Yaoliang Yu, “[SFBD: A method for training diffusion models with noisy data](#)”, in *FPI workshop at ICLR*, 2025
- [w3] **Haoye Lu**, Spencer Szabados, Yaoliang Yu, “[Diffusion models with group equivariance](#)”, in *ICML Workshop on Structured Probabilistic Inference & Generative Modeling*, 2024

- [w4] **Haoye Lu**, Yiwei Lu, Dihong Jiang, Spencer Ryan Szabados, Sun Sun, Yaoliang Yu, “[CM-GAN: Stabilizing GAN training with consistency models](#)”, in *ICML Workshop on Structured Probabilistic Inference & Generative Modeling*, 2023
- [w5] Jiacheng Hou, **Haoye Lu**, and Amiya Nayak, “[GNN-GM: A proactive caching scheme for named data networking](#)”, in *ICC Workshops*, 2022.
- [w6] **Haoye Lu**, Michel Barbeau, and Amiya Nayak, “[Economic no-key semi-quantum direct communication protocol](#)”, in *IEEE Globecom Workshops*, 2017.

### Journal Papers

- [j1] Cassandra Trottier, Laurent Ramos Cheret, **Haoye Lu**, Anthony Allard, Maia Fraser, Leandro FM Sanchez, “[Enhancing efficiency in evaluating alkali-silica reaction \(ASR\) damage: an automated approach to point-count microscopy](#)”, in *Cement*, 2025
- [j2] **Haoye Lu**, Haolong Zhang, and Amit Nayak, “[A deep neural network for audio classification with a classifier attention mechanism](#)”, *preprint*.
- [j3] Jiacheng Hou, Tianhao Tao, **Haoye Lu**, and Amiya Nayak, “[Intelligent caching with graph neural network-based deep reinforcement learning on SDN-based ICN](#)”, in *Future Internet*, 2023.
- [j4] Jiacheng Hou, **Haoye Lu**, and Amiya Nayak, “[A GNN-based proactive caching strategy in NDN networks](#)”, in *Peer-to-Peer Networking and Applications*, 2023.
- [j5] Jiacheng Hou, Huanzhang Xia, **Haoye Lu**, and Amiya Nayak, “[A graph neural network approach for caching performance optimization in NDN networks](#)”, in *IEEE Access*, 2022.
- [j6] Xiaoxu Liu, **Haoye Lu**, and Amiya Nayak, “[A spam transformer model for SMS spam detection](#)”, in *IEEE Access*, 2021.
- [j7] Haolong Zhang, **Haoye Lu**, and Amiya Nayak, “[Periodic time series data analysis by deep learning methodology](#)”, in *IEEE Access*, 2020.
- [j8] **Haoye Lu**, Michel Barbeau, and Amiya Nayak, “[Keyless semi-quantum point-to-point communication protocol with low resource requirements](#)”, in *Scientific Reports*, 2019.
- [j9] **Haoye Lu** and Amiya Nayak, “[A scheme to design community detection algorithms in various networks](#)”, in *Future Internet*, 2019.

### Experience

#### May 2025 – Present, Research Scientist Internship, Skyfall AI, Toronto

- Accelerate planning in complex interactive environments using discrete diffusion models.

#### May 2022 – Aug. 2022, Research Internship, National Research Council Canada

- Focus on representation learning on graphs.

#### May 2019 – Aug. 2021, Research Associate, University of Ottawa

- Develop crack detection-related algorithms using machine learning techniques.

#### Sep. 2017 – April 2019, Teaching Assistant, University of Ottawa

- TA for a Java programming course (Winter 2019)
- TA for a Python programming course (Fall 2017 and Fall 2018)
- Head TA for an Operating System course (Winter 2018)

#### May 2015 – Dec. 2016, Research Assistant, University of Ottawa, EECS

- Doing research related to networks and community detections

#### May 2014 – Aug. 2014, Research Assistant, University of Ottawa, Dept. of Math. & Stat.

- Programming on Maplesoft computing system (mathematical computing software)

### Selected Awards

1. 2025, Ontario Graduate Scholarship (OGS), Government of Ontario
2. 2025, President’s Graduate Scholarship, University of Waterloo
3. 2023, David R. Cheriton Graduate Scholarship (Renewal), University of Waterloo

4. 2022, Canada Graduate Scholarships - Doctoral, Natural Sciences and Engineering Research Council of Canada (NSERC)
5. 2022, President's Graduate Scholarship, University of Waterloo
6. 2022, Ontario Graduate Scholarship (OGS), Government of Ontario, declined
7. 2021, GO-Bell Scholarships, University of Waterloo
8. 2021, David R. Cheriton Graduate Scholarship, University of Waterloo
9. 2019, Outstanding Master's Thesis Nomination, University of Ottawa
  - The only thesis nominated by the Faculty of Engineering.
10. 2017–2018, Full International Admission Scholarship, University of Ottawa
11. 2017, University Silver Medal, University of Ottawa
  - For the 2nd-highest academic standing in an honors bachelor program in the Faculty of Science

### **Services**

1. Top 10% reviewer of ICML 2022
2. Reviewer of ICLR 2026, Neurips 2025, ICML 2025, Neurips 2024, ICML 2024, ICLR 2024, Neurips 2023, ICML 2023, Neurips 2022, AISTATS 2022
3. Reviewer of IEEE Transactions on Cybernetics