Haolin (Dinok) Li

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EDUCATION

Harbin Institute of Technology, Harbin, P.R. China

Master of Electronic and Information Engineering in Computer Technology Sep. 2021 - Sep. 2023

- Weighted Average Score: 85.7/100; GPA: 3.63/4.00; Percentile Rank: Top 25%
- Thesis: "Scaling and Scheduling Techniques for Stream Processing Systems in Edge computing"
- Core Modules: High-Performance Computer Architecture (95), Advanced Database System (89), Embedded Computing (86), Computer System Performance Evaluation (85)

Bachelor of Engineering in Artificial Intelligence(Minor) Jul. 2019 - Jul. 2022

- Weighted Average Score: 88.7/100; GPA: 3.85/4.00;
- Thesis: "Scaling with Model-based Reinforcement Learning for Stream Processing Systems"
- Core Modules: Python Programming (94), Intelligentie Visual Computing (92), Computer systems Fundamentals (91.5), Essentials of Computer Algorithms (92), Graduation Design (88)

Bachelor of Engineering in Engineering Management Aug. 2017 - Jun. 2021

- Weighted Average Score: 79.3/100; GPA: 3.10/4.00
- Core Modules: Graduation Design (91/100, Top 15%)

RESEARCH INTEREST

I am particularly interested in the following areas of study:

- **Distributed Computing & Resource System:** Specializing in resource allocation and task scheduling on streaming systems, machine learning systems, and the cloud. Utilize tools such as Reinforcement Learning for performance tuning and problem-solving in these domains.

PUBLICATIONS

- Zhang, Z., Li, H., & et al. (2023). "Flink: Multi-level Collaborative Reconfiguration Strategy". Preprint available at arXiv: [insert arXiv link here].

RESEARCH EXPERIENCE

Mobility-aware Elastic Strategy in Mobile Stream Computing | *Thesis* Sep. 2022 - Sep. 2023

Supervisor: Hongwei Liu, Professor at the School of Computing, Harbin Institute of Technology

- Most of the traditional method can't ensure QoS enforcements when stream processing systems are deployed in edge environment, with limited resources and network fluctuations.
- Propose a in a mobile computing environment and design a reinforcement learning algorithm to resolve the problem.
- Propose a hierarchical control strategy to allocate resources in a mobile stream environment and implement both the algorithm and control strategy in a real environment.
- Our experiments show that EES adapts a learned autoscaling policy to new workloads 5.5× faster than the existing transfer-learning-based approach and provides stable online policy-serving performance with less than 3.6% reward degradation.

Flink: Resource Resilient Scheduling with Reinforcement Learning | *Thesis* Nov. 2021 – Jun. 2022

Supervisor: Zhan Zhang, Professor at the School of Computing, Harbin Institute of Technology

- Investigated reinforcement learning methods to solve the elastic parallelism configuration problem and modeled the problem as a Markov Decision Process for DSPS.
- Reduced the problem model with Queueing Theory and proposed a Model-based learning approach.
- Evaluated the proposed method through both simulation and real testbed experiments. The experiment results demonstrated the method's effectiveness in terms of cumulative reward and.

HONORS AND AWARDS

Award Level	*Award Name*	*Date Received*
School Level	Outstanding Student	Nov. 2022
2nd Class	Graduate Academic Scholarship	Sep. 2022
3rd Class	Graduate Academic Scholarship	Sep. 2021
N/A	People's Scholarship Prominent Individual Award	Mar. 2021
1st Prize (top 5%)	The Chinese Mathematics Competitions in Heilongjiang	Sep. 2021

TEACHING EXPERIENCE

Harbin Institute of Technology, Harbin, P.R. China

Computer System | *Teaching Assistant* Mar. 2022 – Jul. 2022

- Directed hands-on labs for elite undergraduates, encompassing classic Bomb Lab, Attack Lab, Shell Lab, and more, fostering their practical skills.
- Conducted review sessions on integral topics like x86-64 instructions, dynamic memory allocation, and various processes and signals, reinforcing their foundational knowledge.
- Assessed student performance through grading term papers, final examinations, and lab reports, contributing to the fair and effective evaluation of their progress.

College Computer-Introduction to Computing Thinking | *Teaching Assistant* Sep. 2021 – Dec. 2021

- Clarified complex concepts to first-year students, spanning basic computer knowledge, fundamental algorithms, and rudimentary database language, enhancing their understanding.
- Monitored and maintained the MOOC platform for this course, ensuring smooth course operations and prompt student support.

SKILLS AND LANGUAGES

- **Programming Languages:** Java, Python, C, JavaScript
- **Tools:** Linux, Docker, Kubernetes, GDB, TensorFlow.
- **Languages:** Mandarin (native), English (fluent), Cantonese (beginner)

REFEREES

Department of Electrical and Computer Engineering,
University of Toronto
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