Hongyu Jia

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EDUCATION

Tsinghua University Sept 2019 - June 2022

Master of Engineering - Software Engineering - **GPA: 3.96 / 4.0 (Top 5%)**

Honors: Glodon First-Class Scholarship 2020 (Top 10%). KDD Cup AutoML Track 4th place 2019.

Dalian University of Technology Sept 2015 - June 2019

Bachelor of Engineering - Software Engineering- **GPA: 4.18 / 5.0 (Top 5%)**

Bachelor of Arts – Japanese (Dual Degree)

Honors: National Scholarship 2015 (Top 1%). School Outstanding Student 2016 (Top 1%).

WORK EXPERIENCE

Baidu, Senior Research Engineer July 2022 - Now

- The main contributor of the AI compiler within Paddle, a leading deep learning framework in China.
- Developed equations between operators to ensure the correctness of operation fusion and loop fusion, aiming to surpass well-established compilers like TVM and Triton.
- In charge of the custom operator mechanism, which helps millions of developers plug in Paddle more freely and quickly.

Alibaba, Intern July 2021 - Sept 2021

- Leveraged Bayesian networks to design an algorithm for constructing probabilistic causality diagrams, enabling analysis of key factors driving fluctuations in advertising sales metrics.

Microsoft Research Asian, Intern Mar 2021 - June 2021

- Designed subscribe-publish parallel training architecture; accelerated inverted index recall model by 32.5 times.
- Optimized the space vector recall model and designed an asymmetric structure of the PolyEncoder algorithm.

Tencent, Intern Apr 2020 - Aug 2020

- Established relations between Wechat Reading's users and books and adopted the GraphSAGE algorithm to optimize the DeepFM-based ranking model; increased the AUC index by 3%.

PUBLICATION

Jia H, Jiang Y, Zhong C, et al. "TTDeep: Time-Triggered Scheduling for Real-Time Ethernet via Deep Reinforcement Learning." 2021 IEEE Global Communications Conference (GLOBECOM). IEEE, 2021.

- Formulated real-time scheduling as a NP-hard combinational optimization problem and designed a resource management algorithm, which achieves the state-of-the-art results under strict timing constraints.
- Developed TTDeep, a novel real-time scheduling framework utilizing reinforcement learning and graph neural network to optimize network bandwidth allocation across different routines.

Sun J, **Jia H**, et al. "Speeding up very fast decision tree with low computational cost." Proceedings of the Twenty-Ninth International Conference on International Joint Conferences on Artificial Intelligence (IJCAI). 2021.

- Designed an online incremental algorithm to accelerate growth of the very fast decision tree, improving accuracy.
- Derived incremental formulas for information entropy and Gini index to enable high-accuracy classifications with theoretical guarantees.

Zhong C, **Jia H**, Wan H, et al. "DRLS: A deep reinforcement learning based scheduler for time-triggered ethernet." 2021 International Conference on Computer Communications and Networks (ICCCN). IEEE, 2021.

- Modeled the time-triggered Ethernet scheduling problem as a reinforcement learning issue in the first-ever paper, achieving superior performance compared to heuristic algorithms.