

Xiaoyu Han

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EDUCATION

Fudan University

Shanghai, China

M.Sc. in Computer Science and Technology

Sep. 2022 – Jun. 2025

- GPA: 3.78/4.00, Prestigious Scholarship (2% Per Major)

Fudan University

Shanghai, China

B.Sc. in Computer Science and Technology

Sep. 2018 – Jun. 2022

- GPA: 3.55/4.00, Rank 20%, Elite Program Graduate

PUBLICATIONS

[1] (**SIGMOD 2024**) **Xiaoyu Han**, Haoran Xiong, Zhenying He, Peng Wang, Chen Wang, and X. Sean Wang. “Akane: Perplexity-Guided Time Series Data Cleaning” In *ACM SIGMOD/PODS International Conference on Management of Data*, 2024.

[2] (**DASFAA 2023**) **Xiaoyu Han**, Fei Ye, Zhenying He, X. Sean Wang, Yingze Song, and Clement Liu. “RpDelta: Supporting UCR-Suite on Multi-versioning Time Series Data” In *International Conference on Database Systems for Advanced Applications* (pp. 205-220), 2023.

RESEARCH EXPERIENCES

Data Cleaning for ML Models [In Submission]

SICS, Dec. 2023 – Present

Research Intern at Shenzhen Institute of Computing Sciences (SICS)

- Explore how to clean data effectively to benefit ML Models hosted by Prof. Wenfei Fan.

Clean the Time Series with Perplexity [SIGMOD 2024]

Fudan, Apr. 2023 – Jan. 2024

- Analogize recurrent patterns in the time series data to the word combinations in the textual data.
- Formalize the data cleaning problem as minimizing the perplexity of the time series.
- Design a four-phase framework Akane to solve the problem, and further propose advanced solutions.

Support UCR-Suite on Multi-Versioning Time Series [DASFAA 2023]

Fudan, Feb. 2022 – Dec. 2022

- Focus on the issues of multi-versioning time series data arising from various cleaning algorithms.
- Design an efficient storage strategy RpDelta, namely raw data plus delta (incremental) data.
- Transplant the subsequence matching algorithm UCR-Suite on RpDelta and accelerate the matching process.

RESEARCH INTERESTS

Data Quality & Data Cleaning for ML: Having devoted over two years to the exploration of data quality and data cleaning and published two conference papers, I’ve come to recognize the paramount importance of data in facilitating various downstream tasks. From my perspective, the essence of data quality and cleaning lies not merely in enhancing simple metrics but rather in optimizing outcomes for specific downstream tasks, especially for ML tasks. Collaborating with senior researchers at SICS, I’ve recently contributed to a submission focusing on this topic.

Emerging Hardware on Database: I have been fascinated by computer architecture since my undergraduate days and have won a prestigious contest. I am very interested in how to design and utilize hardware to manage data better.

CONTEST EXPERIENCES

National Student Computer System Capability Challenge [2nd Prize]

Fudan, Jun. 2020 – Aug. 2020

- Implement an experimental dual-issued MIPS CPU & a five-stage pipelined MIPS CPU using System Verilog.
- Incorporate memory hierarchy design for optimization (~30x faster) with great compatibility.
- Burn the implemented CPU into an FPGA and initiate PMON on it.
- Be a project leader of a four-person team, coordinate the work and make an oral presentation.

SELECTED AWARDS

Scholarship

- Prestigious Scholarship (*Top scholarship for Fudan master students, 2% per major*), Fudan, 2023.
- Elite Program Scholarship (*Top scholarship for Fudan graduates under the Elite Program*), Fudan, 2022.
- Outstanding Student Scholarship (*Merit-based scholarship for Fudan undergraduates*), Fudan, 2022, 2021, 2020.

Contest

- Second Prize (*6th place domestically*) in National Student Computer System Capability Challenge, 2020.

WORK EXPERIENCE

Alibaba Cloud, Network Security

Platform Engineering Intern

Hangzhou, China
Jun. 2021 – Sep. 2021

- Explore high-performance network packet processing techniques for efficient network security.
- Validate the feasibility of incorporating XDP and DPDK into the existing network processing platform.
- Write and integrate technical documents.

TEACHING EXPERIENCE

Teaching Assistant & Lab Instructor

Fudan University

- C Programming (*Undergraduate Course*), Autumn 2023
- Compiler Principles (*Undergraduate Course*), Spring 2022
- Operating System (*Undergraduate Course*), Autumn 2021
- Digital Logic and Component Design (*Undergraduate Course*), Autumn 2021, Autumn 2020
- Introduction to Computer System (*Undergraduate Course*), Spring 2021, Autumn 2020

VOLUNTEER EXPERIENCE

Yongping Accompaniment Growth Program

Project Initiator & Volunteer

Fudan University
Jul. 2019 – Feb. 2020

- Field research on the gap in educational resources between rural areas and large cities.
- Propose specific strategies for online educational support.
- Join the initial phase of the program, which is currently in its tenth iteration, and provide online responses to inquiries regarding learning for high school students in Yongping.