Rixin Liu

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RESEARCH INTERESTS

I aim to enhance the security, reliability, and performance of current systems (Network System, ML System) through software modification (eBPF, framework customization) or by leveraging emerging hardware (programmable switch, DPU).

EDUCATION

South China University of Technology - Project 985   Sep. 2021 – Jun. 2025
B.Eng. Computer Science and Technology (8/164)   90.07/100 | 3.86/4.00

PUBLICATIONS

Themis: Efficiently Mitigating Congestion-Induced Fairness Disparities in Long-Haul RDMA Networks
Rixin Liu, Menghao Zhang, Zihan Niu, Zili Meng, Xiaohe Hu
SOSP' 24 Poster

PROFESSIONAL EXPERIENCE

Beihang University   Jun. 2024 - Now
Research Assistant (Mentor: Menghao Zhang)

- **Investigated** several papers about providing RNIC performance isolation support in multi-tenant network virtualization schemes.
- **Developed** solution *THEMIS* to efficiently deal with Congestion-Induced Fairness Disparities in Long-Haul Remote Direct Memory Access (RDMA) Networks. *THEMIS* is **a fairness maintenance patch** without modifications to the infrastructures of existing DCs, via proactive notification points and temporary reaction points at external switch which connected datacenter and long-haul links.

MIT-6.828 Graduate Operating System Coursework   Jan. 2024 – Mar. 2024

- **Built** a microkernel operating system by implementing various modules such as bootloader, memory management, interrupt handling, inter-process communication, user-mode file system, etc.
- **Realized** that ensuring malicious users do not disrupt the regular usage of innocent users and developing a management framework that is easy to upgrade and manage is crucial in a multi-tenant scenario.

AWARDS & HONOR

Huawei Scholarship (1/91)
Awarding Institution: Huawei Technologies Co., Ltd.   Date: Dec. 2023

Excellence Award
National Compiler System Design Contest   Date: Aug. 2023

Second-Class Scholarship (7/87)
Awarding Institution: South China University of Technology   Date: Dec. 2022

National Second Prize
National Mathematical Modeling Contest   Date: May. 2022