

Junfeng Wang

Permanent Address

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OBJECTIVE

applying for PHD

EDUCATION

Civil Aviation University of China (CAUC)
Tianjin, China
Bachelor of engineering
Electronic Information Engineering

September 2014 – July 2018

Paper

- ***co-author of the following papers:***

- FLB: Fine-grained Load Balancing for Lossless Datacenter Networks
Jinbin Hu, Wenxue Li (co-first), Xiangzhou Liu, Junfeng Wang, Bowen Liu, Ping Yin, Jianxin Wang, Jiawei Huang, Kai Chen (accept by USENIX ATC, 2025, **CCF-A**)
link: wait to be added

- ***first/co-first author of the following papers:***

- TH-Bench: Evaluating Evading Attacks via Humanizing AI Text on Machine-Generated Text Detectors
Jingyi Zheng, Junfeng Wang (co-first), Zhen Sun, Wenhan Dong, Yule Liu, Xinlei He (accept by KDD 2025, **CCF-A**)
link: <https://arxiv.org/abs/2503.08708>

- ***author of the following papers that are on submission:***

- MRNIC: A Streamlined RDMA NIC for LLM Training (nsdi 2026 fall, **CCF-A**)
- GasAgent: A Multi-Agent Framework for Automated Gas Optimization in Smart Contracts (icse 2026, **CCF-A**)

COMPUTER SKILLS

System: Windows, Most of Linux Distro and Unix, ESXi...

Language: Assembler, C/C++, shell, python...

Skill:

- high performace software's developing, software optimization and hardware offload.
- linux system related skill, kernel, virtual machine, network, k8s/docker, storage, problem solving.
- hardware development: pcb design, hardware design, embeded development.
- compiler related tool(gcc clang/llvm cmake) and programing, code analysis (cppcheck gcov klockwork) and CICD under linux
- reverse, ghidra and IDA
- RDMA, DPDK, fpga, kernel/userspace driver

PROFESSIONAL EXPERIENCE

HKUST-GZ

April 2025 – present

RA, HKUST-GZ, Guangzhou, China

- focus on LLM and trustworthy AI.

HKUST

April 2024 – April 2025

Engineer, HKUST, HongKong, China

- develop all the user-space and kernel rdma driver, and some simple fpga Development.
- design some rdma hardware implement, the interace of hardawre and software.
- focus on dcn's load-balancer and congestion control's research, develop some ns3 code simulation and P4 programing.

China Telecom Cloud/state cloud

Sep 2023 – Feb 2024

Senior Linux engineer, Research and Development, Shanghai, China

- Develop the user-space network(based on mtcp and dpdk).
- develop rdma/kernel/user-space multi-network stack.
- develop rdma kernel module driver(send recv).

INTEL Asia-pacific Research and Development Ltd

July 2018 - Sep 2023

Linux Open Source Software Engineer, Shanghai, China (long term contract)

- high performance network stack(userspace TCP/IP, RDMA, afXDP/ebpf)
 - developed the DMA feature in vpp's tcp stack, imporve the tcp speed to twice of it's original in nginx's fetch and upload workload
 - Invertigated RDMA's using in distributed computing and training, build the computing group.
- 5G UPF
 - developed the qos module of UPF based on vpp
 - developed the flow classification of UPF based on vpp
- network Ai
 - developed the flow classification and example app
 - developed the build system and the best running path in local machine, can choose the best performance func by the hardware, build once used anywhere.
 - build the CI/CD env for this project, code analysis, auto build, report problem, packaging
- high performance storage
 - the using of userspace network in storage, remote storage and virtual machine storage
 - Invertigated RDMA's using in remote storage.
- Edge computing and SDN
 - Invertigated the control agent of uCPE based on VPP, main contributor and maintainer of this project open source version:
<https://gerrit.fd.io/r/admin/repos/sweetcomb>
<https://wiki.fd.io/view/Sweetcomb>
 - developed BGP vrouter for customer, used in cloud PE router and CE router.
- flow classification and prediction

- Implemented deep packet inspection in VPP , main contributor and maintainer of this project open source version:
<https://gerrit.fd.io/r/admin/repos/udpi>
<https://wiki.fd.io/view/Udpi>
- developed flow table and hash for Encrypted Traffic Analytics, main contributor

Red Hat Software (Beijing) Co.Ltd

August 2017 – June 2018

Intern, Beijing, China (Internship Assignment)

- Develop the Automation of Linux's virtualization Validation (Linux on VMware and Hyper-v).
- Focus on KVM and nested virtualization, Docker and CUDA/tensorflow on Linux.
- Linux kernel module Development, virtualization network and storage(virtio-net and virtio-blk)

PROJECT IN LAB

Principles of Auto-control

Sep 2017 – Jan 2018

Head of team and worked on client computer, CAUC

- developed the client computer's main system
- developed the feature of encoding and decoding picture in client computer
- developed transmission of compressed picture data to the NIC, didn't use cpu interrupt, but DMA

This project designed and implemented a system that included upper computer and lower computer. collected picture, did compression, transferred data from lower computer to upper computer and did the recognition (used matlab and tensorflow).

Surveillance and Control of Civil Aircraft

Sep 2017 – Oct 2017

Individual project, CAUC This project implemented a system that can control the unmanned aerial vehicle, made it stable. Most of my work is processing information from the unmanned aerial vehicle and designing feedback control system base on modeling and simulation.

Design of onboard Avionics Troubleshooting Technology Module

Feb 2017 – June 2017

Head of team and worked on system design, CAUC

- designed the Troubleshooting system, implemented the whole software system
- designed the hardware system

This project designed and implemented a system that can troubleshoot the hardware when started the hardware and told people where is wrong.

The primary project

Sep 2016 – Jan 2017

member of team, CAUC

- modeling and simulation

This project was about magnetic suspension, we designed a hardware (no software) that can make iron suspended in the air and dancing or doing action. But this project didn't achieve all the feature, for the reason that hardware made by hand caused lots of error. We should implement it by software, and make hardware use stand pcb machine, so we can avoid most of the error.

Detection and control of Project

Sep 2016 – Jan 2017

Head of team and worked on main control algorithm, CAUC

- developed the control algorithm
- detection design

This project can auto control the sail according to the wind, and stay in the fixed angle.

Information transmission and processing

Feb 2016 – June 2016

Head of team and work on processing sound, CAUC

- designed the whole system
- developed the feature of processing sound, included noise reduction, voice changer, fast playing and slow playing, sound higher and lower, voice recognition

This project designed and implemented a system that can processing sound and video (included picture), noise reduction, recognition of sound and picture.

Intelligent car

Sep 2015 – Jan 2016

member of team and worked on vision, CAUC

- collected the vision data and transmission to computer
- designed the obstacle avoidance

This project designed and implemented a car that can be control by computer and auto driving (visual navigation and obstacle avoidance).

Integrated Electronic Technique

Sep 2015 – Jan 2016

member of team, CAUC

- modeling and simulation

This project designed and implemented a music player.

MEMBERSHIPS IN OPEN SOURCE

Committer of Sweetcomb

Contributor of VPP

Committer of UDPI

Patent

- Adaptively Detecting Applications for Network Traffic (wait for approval)
- A Method to Accelerate Stream Multiplexing and Encrypting by Hardware (wait for approval)
- An Architecture for Application Agnostic Service Function Chaining in Cloud (wait for approved)
- A Hierarchy Rx Scheduler in NIC for Latency-aware Packet Processing in 5G (wait for approval)

CONFERENCE ATTENDED

- Member of Intel Group @ Open Source Summit North America 2020
- Member of Intel Group @ DPDK Summit China 2019
- Speaker of LF Networking DDF + Plugfest 2019
- Member of Intel Group @KubeCon + CloudNativeCon + Open Source Summit China 2019

HONORS

- Q2'20 PCP Fail Fast award winner of *INTEL Asia-Pacific Research and Development Ltd.* Taking informed risks to try uncertain/unknown area for team and sharing the learning with team
- Q1'20 PCP OpX Star of *INTEL Asia-Pacific Research and Development Ltd.* Achieving the highest standards of excellence is greatly appreciated by leadership team
- Award by Customer Orientation - Listen And Respond, outstanding efforts in enabling IA capabilities in FD.io
- Award by college students' innovative entrepreneurship
- Outstanding Member Award by CDIO innovation lab, CAUC

INTERESTS

Linux and the creative work, after my five years of engineering, I would like to do more reasearch and creative work, I have both hardware and sotware skill , and I am a self-motivated learner and engineer