ROMAN GLAZ

Architecture researcher, software engineer

@ vokerlee@gmail.com @ glaz.rs@phystech.edu +79254492748 github.com/vokerlee

EXPERIENCE

Engineer (OS intelligent scheduling)

Huawei RRI

july 2022 – now

- Coauthor of international patent (PCT): Computing performance improving method and electronic device (application not published yet).
- Created and took part in creation of hardware dependent (ARM64) performance & power models & workload identification algorithms for Linux kernel scheduler, CPU & memory frequencies scaling.

PET PROJECTS

- RISC-V 64-bit functional simulator – custom simulator with RV64IM instruction set interpretation via threaded-code, MMU & TLB.
- Echo Virtual Machine (EVM) – custom register-based virtual machine with incremental garbage collector.
- Vokerlee SSH – custom secure shell implementation (TCP + UDP with delivery guarantee) with symmetric & asymmetric encryption, linux virtual terminals & PAM & cgroups.
- Incremental $inotify$ daemon-backuper – incremental backup-system (daemon), implemented via $inotify$ Linux kernel subsystem.
- Gem5 & Linux:
  1. Gem5 – added cache PMU events for ARM64, 3-level cache CPU-cluster system.
  2. Linux 6.1 patches for Gem5 – implemented drivers $cpufreq$ & $devfreq$ (+ clk) for DVFS support for all components in Gem5.
- LLVM practise – LLVM front-end of imperative language & own LLVM back-end of RISC-V like architecture with custom graphics extensions (binaries are powered by own RISC-V 64-bit simulator).
- RISC-V 64-bit CPU pipeline simulator – low-level simulator (System Verilog) of in-order CPU core pipeline with support of execution of ELF files with RV64I instruction set.

EDUCATION

Bachelor of Radio engineering and computer technology

Moscow Institute of Physics and Technology

sept. 2020 – june 2024

- CGPA 9.41/10, top 1 department graduates, top 4 university graduates.
- Thesis topic: "Memory aware CPU frequency scaling policy in Linux kernel".

Master of Radio engineering and computer technology

Moscow Institute of Physics and Technology

sept. 2024 – now

TECHNICAL SKILLS

Programming languages / Architectures

C, C++, Python / RISC-V, x86-64, ARM64

Fields

- Core: CPU microarchitecture, linux kernel, computer system simulations.
- Other: compilers (LLVM), machine learning (lecturer: Vorontsov K. V, based on Yandex SDA cource), computer networks, cryptography (basic algorithms), computational maths.

Technologies

Linux API, MPI, OpenMP

Languages

English – upper intermediate

EXTRA INFO

- Member of the national team for the International Physics Olympiad 2020 (cancelled due to Covid19)
- Tutor in introduction to compilers & x86-64 architecture cources in 2021/2022
- Powerlifting enjoyer