ROMAN GLAZ

Software engineer, architecture researcher

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EXPERIENCE

OS intelligent scheduling

Huawei RRI

jul 2022 – aug 2024

- International patent ”Computing performance improving method and electronic device”, Google patents.
- Algorithms for linux kernel scheduler, workload-based CPU & memory frequencies scaling, power models for ARM64 mobile platforms.
- Benchmark for kernel schedulers (reproduction of microarchitecture event statistics and thread synchronization patterns for real mobile apps).

Computer system simulation

Sber

sep 2024 – now

- C++20 developer
- NDA

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

Radio engineering and computer technology

Moscow Institute of Physics and Technology

sept. 2020 – now

- Bachelor’s CGPA 9.41/10, top 1 department graduates, top 4 university graduates.
- Bachelor thesis topic: "Memory aware CPU frequency scaling policy in Linux kernel".
- Master’s CGPA 9.47/10.
- Master thesis topic: in progress.

TECHNICAL SKILLS

Programming languages / Architectures

C11, C++20, Python / RISC-V, x86-64, ARM64

Core fields

- Computer system microarchitecture & simulation.
- Linux-API system programming.

Actual fields

- Linux kernel programming (scheduler & concurrency primitives).
- Neural networks hardware-based optimizations.

Other fields

- Machine learning.
- Compilers internals (LLVM).
- Computational maths.

Technologies

Linux API, MPI, OpenMP

Languages

English – upper intermediate

EXTRA INFO

- Cryptocurrency algo-trading average enjoyer
- 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