

# ROMAN GLAZ

Software engineer, architecture researcher

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## EXPERIENCE

Engineer (OS intelligent scheduling)

**Huawei RRI**

📅 july 2022 – now

- Coauthor of international patent (PCT): Computing performance improving method and electronic device (publication hasn't taken place yet).
- Created and took part in creation of algorithms for Linux kernel scheduler, CPU & memory frequencies scaling (hardware dependent performance & power models, workload identification algorithms for ARM64 platforms).
- Took part in creation of synthetic reproducible benchmarks set for operating system schedulers & frequency scaling algorithms with the same behavior like in real scenarios: dynamics of microarchitecture event statistics and thread synchronization patterns reproduction.

## 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 course**), 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 courses in 2021/2022
- Powerlifting enjoyer