Shurygin Anton

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Education

Moscow Institute of Physics and Technology — Moscow, Russia
B.Sc Applied Mathematics and Physics — *Sep. 2019 – June 2023*

Moscow Institute of Physics and Technology — Moscow, Russia
M.Sc Applied Mathematics and Physics — *Sep. 2023 – Present*

Experience

Huawei RRI — July 2021 – Present
MIPT Base Chair — *Moscow, Russia*

- Development of a functional simulator
- Toolkit for profiling and analyzing call graphs for RISC architectures based on program execution traces
- Description of RISC architectures in the internal Architecture Description Language
- Development of a verification toolchain for a functional model of a simulator based on a formal specification of the RISC architecture

Sirius Summer Internship — Aug. 2020
Sirius University — *Sochi, Russia*

- Program "Modern methods of information theory, optimization and management". In direction "Non-linear digital signal processing at base cell stations" by Huawei with Andrey Vorobyev team

Publications

Conference Proceedings

1. A. Shurygin and I. Petushkov. Detailed profile generation and visualization for *RISC* architecture based on program execution trace. In *Proceedings of the 65th All-Russian Scientific Conference of MIPT in honor of the 115th anniversary of L.D. Landau, April 3–8, 2023. Radio engineering and computer technologies.*, pages 23–24, 2023

2. S. Lisitsyn and A. Shurygin. Verification of static binary optimizing translations under *RISC* architecture. In *Proceedings of the 64th All-Russian Scientific Conference of MIPT. November 29 – December 03, 2021 Radio engineering and computer technology*, pages 33–34, 2021

Projects

Functional simulator RISC-V ISA | *C++, AsmJit, Python* — Oct. 2022 – Jan. 2023

- Automatically generated RISC-V decoder based on the specification
- Support for JIT instruction execution mode

JIT and AOT Compiler optimizations | *C++, GTests, Github CI* — Sep. 2023 – May 2024

- IR for custom virtual machine was developed
- Several popular passes and analyses were implemented

GLang | *C++, SFML, LLVM IR, Flex, Bison* — Oct. 2022 – Dec. 2022

- Procedural C-like programming language with native support for computer graphics
- Frontend based on Flex & Bison, backend – LLVM IR

ML-based web service for documents comparison | *Python, Flask, React, Docker* — Apr. 2024

Technical Skills

Languages: C++, C, Python, LaTeX, JavaScript
Frameworks: LLVM IR, Google Test, React, OpenCL
Developer Tools: Git, CMake, make, Linux (Ubuntu/WSL2), Docker/Podman, VS Code
Libraries: Boost, NumPy, Matplotlib and etc.