Albert Gafiyatullin

Compiler Engineer
Open for relocation (visa sponsorship)

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Summary

Software Engineer with 2 years of experience specializing in the development of JVM JIT compiler and runtime for VLIW CPU. Looking for Compiler Engineer positions, passionate about programming language runtimes and compiler technologies.

Education

- **Novosibirsk State University** — Novosibirsk, Russia
  Master's degree in Computer Science — *Sep. 2021 - Aug. 2023 (Present)*
- **Novosibirsk State University** — Novosibirsk, Russia
  Bachelor's degree in Computer Science — *Sep. 2017 - Aug. 2021*
  - **Thesis**: Development of a computational module for the simulation of fast-neutron reactor core destruction.
    - Developed an eutectic interaction model;
    - Optimized calculation time to 250% for IO-intensive tasks.
  - **GPA**: 4.8/5.0, graduated with honors

Experience

- **UNIPRO/MCST** — Novosibirsk, Russia
  Compiler Engineer, Java Virtual Machine team — *Mar. 2021 - Present*
  C++ | JVM | Assembly Language | JIT Compilers Design | Garbage Collection | GNU Debugger

  JVM Runtime and JIT Compiler development for Elbrus VLIW processor by MCST.
  Mainly worked with code generation phase and runtime support, e.g.:
  - Reduced applications startup time to 100% by tiered compilation;
  - Increased performance for some string and XML tasks to 8% by intrinsics;
  - Reduced runtime overhead by platform-dependent improvements for implicit null checks.

Projects & Courses

- **COOL Compiler** — *Sep. 2021 - Present*
  C++ | LLVM | Garbage Collection | Compilers Design | GNU Debugger

  Implementation of COOL compiler and runtime with LLVM:
  - AArch64 and x86-64 as target architectures;
  - Shadow Stack and Stack Maps for call-stack traversal;
  - Stop-The-World Garbage Collectors:
    - Mark-and-Sweep GC;
    - Jonkers's threaded compaction (Mark-and-Compact) GC.
    - Kermany and Petrank's compressor (Mark-and-Compact) GC.
    - Semispace Copying GC.

- **SOE.YCSCS1: Compilers** — *Oct. 2021*
  C++ | MIPS | Compilers Design | Assembly Language

  Implementation of COOL compiler for SPIM emulator.

Achievements

- **Huawei Scholarship Winner** — Novosibirsk, Russia
  C | C++ | OpenMP — *2020 - 2021*

  Awarded by Huawei for academic achievements.

Programming Skills

- **Languages**: C++, C, Assembly Languages, Java, Python.
- **Technologies**: JVM internals, Compilers Design, CPU Architecture.
- **Tools**: GNU Debugger, Bash, Perf, Intel VTune Profiler.