Dmitry Sviridkin, Software Engineer

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Professional Summary

Experienced Systems and Embedded Software Engineer with over 8 years of experience in C, C++, and Rust. Specialized in low-level development, system programming, and static code analysis. Author of "C++ Programmer's Guide to Undefined Behavior", a collection of the intricacies of C++. Former instructor in Linux system programming at Saint Petersburg State University and C++ programming at the Higher School of Economics. Passionate about robust software design and educating the next generation of developers.

Skills

– Programming languages: C, C++, Rust, Python

– OS: Linux, Unix

– Tools: CMake, Git, Docker, Perf, eBPF, Intel VTune, GDB, ptrace, Jupyter Notebooks, LaTeX

– Frameworks & Libraries: Qt, Boost, OpenCV, IPP, SRILM, OpenFST, Kaldi ASR, Pybind11, Numpy, Tokio (Rust), Hyper, Axum

– Mentoring, Code Reviews, Profiling & Optimizations

– Math Modeling, Statistics, Graph Theory, Digital Signal Processing, Algorithms and Data Structures

Experience

Software Engineer II, CloudFront, Amazon Web Services

London, The United Kingdom   **Oct 2022 – Present**

– Leading the team on core optimization projects. Achieved 20% latency improvement for P90, P99 & P100

– Built the backend for CloudFront KeyValueStore feature with sub millisecond latency

– Conducted code quality and safety reviews for CloudFront Functions Origin Selection Feature

– Extended the JavaScript runtime engine to introduce CloudFront KeyValueStore module

– Found, root-caused and mitigated the DDoS vectors in core components

– Maintaining a secure sandboxed environment for JavaScript code via low-level Linux facilities: seccomp, eBPF, cgroups, memory hardening

– Mentoring team on Rust adoption

– On-boarding customer's tech teams to the new features

Visiting Lecturer, Saint-Petersburg State University (SPbU)

Saint-Petersburg, Russia   **Feb 2021 – Jun 2022**

– Taught Linux system programming courses, covering topics such as process management, inter-process communication, system calls, virtual file systems, seccomp, eBPF, ptrace and other

– Designed and delivered comprehensive course materials and practical assignments to undergraduate students

Senior Software Engineer, Arrival

Saint-Petersburg, Russia   **Jun 2021 − Oct 2022**

– Built factory orchestrating service for the robot cell. Operation with KUKA robots and Gocator snapshot sensors.

– Developed hand-to-eye calibration algorithms for a 3D vision sensor

– Developed computer vision algorithms for feature detection & refinement on the 3D point clouds with CUDA and OpenCV

Assistant Lecturer, Higher School of Economics (HSE)

Saint-Petersburg, Russia   **Sep 2019 − Jun 2020**

– Conducted C++ programming courses, emphasizing modern C++ standards and best practices

– Guided students through core C++ concepts and facilitated project-based learning

Software Engineer, Speech Technology Center

Saint-Petersburg, Russia   **Aug 2019 − Jun 2021**

– Built the FST-decoder for hybrid speech recognition system with tight memory and runtime restrictions

– Developed the method to store and construct on-the-fly extension for FST-language model to support topic-specific tuning for the speech recognition system

– Worked on optimizations for models built via Kaldi framework

– Developed keyword search algorithms on word lattices

Software Engineer, Research institute of radio communication

Rostov-on-Don, Russia   **Jun 2017 − Aug 2019**

– Developed signal processing algorithms for UAV detection and triangulation

– Built backend to synchronize and process trajectory results for multi radar system

– Built software for portable UAV-detector based on USRP and HackRF kits. Used Qt for UI

– Developed a decoder for intercepted video signals

– Built a Linux kernel module with DMA for high bandwidth receivers

ML Engineer, STEL Computer Systems

Rostov-on-Don, Russia   **May 2016 − May 2017**

– Prepared data pipelines for speech recognition system

– Trained models (HMM + FST) via Kaldi ASR Toolkit

Education

Master of Science in Computer Science

Southern Federal University, Rostov-on-Don, Russia   **2017 − 2019**
    Conducted optional Digital Signal Processing and Algorithms & Data Structures courses for first-year students

Bachelor of Science in Applied Mathematics

Southern Federal University, Rostov-on-Don, Russia   **2013 − 2017**
    Participated in ACM ICPC competitions. Reached semi-finals.

Projects

Personal Visit Card

nekrolm.github.io

Built as a static HTML page with injected WASM modules. WASM generated from Rust code, with Bevy engine for the Minesweeper game.

UBBook, C++ Programmer's Guide to Undefined Behavior

github.com/Nekrolm/ubbook

Languages

Russian (native), English (professional proficiency)