

Alexander Shaduri

Senior Software Engineer

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Introduction

Experienced Software Engineer and open-source developer proficient in C++ and Rust, dedicated to creating cross-platform, reliable, and efficient software.

View my latest C++ code samples at github.com/ashaduri/csv-parser.

Skills

Programming Languages: Modern C++, Rust, PHP, ECMAScript, Bash (shell scripting).

Frameworks and Technologies: Qt, Qwt, Gtk+, Gtkmm, OpenGL, OpenMP, Catch2, CMake, GitHub and GitLab CI, GitHub Pages, REST, SQL, XML, JSON, HTML, Yii, Bootstrap Framework, CSS, RBAC.

Technical Skills: Software architecture design, API design, systems and GUI programming, cross-platform and multithreaded development, TDD, webservice development, technical documentation development.

Tools and Operating Systems: GCC, Clang, Intel DPC++, Intel VTune, git, GitHub Project Management, Valgrind, JetBrains CLion, Visual Studio, Doxygen, JSDoc, Linux (openSUSE, Ubuntu, CentOS), Windows.

Soft skills: Customer and client collaboration, attention to detail, solution-focused approach, planning and organization, adaptability, effective communication, presentation skills.

Languages: English (full professional), German (elementary), French (elementary), Georgian (native).

Professional Experience

Senior Software Engineer

Jan 2020 – Present

Clear Signal Solutions, Inc. (CSS)

Remote – Santa Clara, CA, USA

AITT by CSS is a versatile, easy-to-use software for signal integrity analysis and PCB characterization. It is used by many Fortune 100 companies including Intel, Amazon, Meta, Microsoft, and Cisco.

- Designed and implemented the program architecture, a substantial portion of the AITT GUI (using C++17, Qt, and Qwt), a type-safe binary communications protocol, and copy protection mechanisms (file, USB, and network licensing).
- Collaborated with partners and customers, including **Rohde & Schwarz** and **Intel**, to meet their requirements and integrate AITT into their hardware and software solutions, contributing to increased sales.
- Created AITT-FLS, a floating license server software for AITT, using the Rust programming language and a JSON/JSend-based RESTful protocol.
- Built the AITT License Manager, a business-critical, web-based application and RESTful web service leveraging PHP/Yii/SQL, enabling customer license management and license reselling.
- Designed and implemented an ECMAScript-based scripting API to support third-party AITT integration and automated data processing workflows.
- Authored comprehensive technical documentation, including specifications, integration guides, and API references.
- Developed a CMake-based build system, and CI pipelines using GitHub and GitLab for automated building, testing, and packaging of the products.

Contract Software Engineer

Aug 2010 – Present

EMC Lab, Missouri University of Science and Technology

Remote – Rolla, MO, USA

- Collaborated with **Meta Platforms** (formerly Facebook) to develop DCRET, an application predicting electromagnetic emissions of data center buildings and server racks.
- Led the architecture and GUI development for FEMAS, an application solving electrical engineering problems, used by many companies including **Dell, Intel, IBM, and Cisco**.
- Designed and implemented 2D/3D graphical user interfaces using C++/Qt/OpenGL, communication protocols, APIs, undo/redo system, binary storage formats, and license protection features.
- Parallelized and improved performance using OpenMP and microarchitecture-specific engines.

Senior Software Engineer

Jun 2006 – Aug 2010

GREENNET

Tbilisi, Georgia

As a lead developer at GREENNET, a complex IT & telecom systems integrator operating in Central and Eastern Europe, I headed the development of a multitude of projects, including:

- **Green Billing System:** Developed a scalable billing solution for Cisco Unified Communications Manager, deployed on Linux servers in numerous large businesses including banks and hotels.
- **Green Operations:** Created a CRM/PRM, inventory, and warehouse management system used by GREENNET-branded companies across multiple countries.

Notable Open-Source Projects

GSmartControl

2008 - Present

gsmartcontrol.shaduri.dev, github.com/ashaduri/gsmartcontrol

As the creator and lead maintainer of GSmartControl, a cross-platform HDD and SSD health inspection tool, I have achieved significant milestones:

- Developed cross-platform features for Linux, Windows, macOS/Darwin, BSD, QNX, and Solaris.
- Utilized GTK+ and Gtkmm for a unified GUI experience.
- Gradually updated and modernized the codebase from the original C++98 to C++20.
- Established CI pipelines on GitHub and OBS for automated builds, tests, and packaging.
- GSmartControl is widely adopted, featured in major Linux distributions, with over **500,000 downloads** on Windows. It's been praised in c't Magazin, Europe's largest computer magazine.

Csv::Parser

2021 – Present

github.com/ashaduri/csv-parser

Csv::Parser is RFC-4180-compliant CSV parser library written in C++17, developed and maintained by me. It supports compile-time parsing, allowing users to implement resource loading with zero runtime overhead.

Qt-ccTalk

2015

github.com/ashaduri/qt-cctalk

ccTalk is a widely-used binary serial protocol for bill validators and coin acceptors. The Qt-ccTalk Library, developed by me, offers a cross-platform, thread-safe, non-blocking implementation in Modern C++ / Qt.

Education

Master of Computer Science with a major in Programming Technologies (GPA 3.9/4)

2005 - 2007

Ivane Javakhishvili Tbilisi State University. Degree recognized in Germany by ZAB.

Bachelor of Physics with a major in Physical Informatics

2001 - 2005

Ivane Javakhishvili Tbilisi State University. Degree recognized in Germany by ZAB.