Robert Orlikowski

SOFTWARE ENGINEER

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Education

University of Wrocław **2020 – 2024**

BSc in Individual Studies in Mathematics and Computer Science.

Mathematics Key courses:

- Real Analysis I–III, Probability, Statistics, Stochastic Modeling, Numerical Analysis, Advanced Differential Equations, Abstract Algebra, Advanced Linear Algebra, Linear Algebra, Discrete Mathematics.

Computer Science Key courses:

- Compiler Construction, Operating Systems, Computer Architecture, Linux Device Drivers, Computer Networks, Practical Aspects of Computer Networks, Neural Networks and Natural Language Processing, Machine Learning, Databases, Algorithms and Data Structures, Programming Methodologies, Logic for Informatics.

Experience

Dolby Laboratories

Associate Engineer **April 2025 – Present**

- Implemented features and extended functionality for C++ command-line audio processing tools used in professional encoding workflows.
- Maintained and improved loudness-processing libraries, including CI pipelines, packaging infrastructure, and Conan package distribution.
- Refactored a loudness processing library to improve maintainability, simplify implementation, and reduce complexity.

Software Engineering Intern **March 2024 – April 2025**

- Maintained and extended a Windows based C++ command-line tool used for interoperability testing.
- Ported tooling from Python reference implementations to C++ applications.
- Added PyTorch backend support to a signal-processing library and redesigned backend integration to simplify future extensions.
- Designed and implemented cross-platform build and testing pipelines.

Technical Skills

Languages	C, C++, Python, Go, OCaml
Tools	Git, GitLab CI, Docker, CMake, Conan, Meson

Projects

AliceDB | C++, STL, io_uring, CMake, GTest

- Incremental in process streaming database for C++ supporting relational transformations over change streams.
- Implemented relational operations including joins, aggregation, filtering, projection, set operations, and distinct queries.
- Wrote persistent storage layer with buffer pool management using io_uring for asynchronous I/O.

Inference Engine | Python, PyTorch, Triton, ZeroMQ, FastAPI

- LLM inference serving engine supporting CPU and CUDA backends.
- Implemented continuous batching, chunked prefill, and radix KV cache optimization.
- Designed multiprocess architecture with ZeroMQ based communication and OpenAI-compatible API endpoints.

rpiOS | C, ARMv8-A, Raspberry Pi 3B+, QEMU, GDB

- Hobby operating system targeting the ARMv8-A architecture on Raspberry Pi 3B+.
- Implemented virtual memory management, interrupt handling, process scheduling, and read-only filesystem support.

Xi Compiler | OCaml, Menhir, ocamllex

- Implemented lexer, parser, bidirectional type checker, and intermediate representation generation for a statically typed programming language.
- Developed register allocation and live-variable analysis passes for execution on finite-register architectures.