Dávid Juhász | Software Consultant | Software Platforms for Custom Hardware

+36 20 930 92 20 | hello@davidjuhasz.dev | davidjuhasz.dev | linkedin.com/in/juhaszdavid | Hungary

Summary

I am a Software Consultant working at the intersection of hardware and software, focusing on the 0-to-1 phase of complex systems. I build compilers, tools, and firmware — the software platforms that make custom embedded compute architectures and System-on-Chip designs usable. I believe that engineering efficiency and technical leadership emerge from choosing clarity and aligning efforts to build unified, high-impact ecosystems.

Skills

- Compilers & Tool Development: LLVM, TVM, code optimization, scheduling, code generation, static analysis
- Embedded & Systems Engineering: Hardware bring-up, bare-metal, firmware, RTOS, PCB- and IC-level understanding
- Communication Protocols: UART, SPI, I2C, CAN, Ethernet, TCP, UDP, sockets, custom protocol stacks
- Programming Languages: C, C++, Python, Rust, Assembly
- Toolchains & Build Systems: LLVM, Clang, GCC, Make, CMake
- Debugging & Optimization: GDB, LLDB, hardware probes, waveform analysis, performance profiling and tuning
- Software Architecture: Resource-constrained, multi-threaded, real-time systems, interpreters, virtual machines
- Modeling & Simulation: Performance modeling, system simulation, hardware-software interaction
- Hardware-Software Co-Design: FPGA integration, hardware acceleration, edge architectures, heterogeneous systems
- Machine Learning & AI Acceleration: PyTorch, Tensorflow, ONNX, interpretation and compilation-based deployment
- AI-Assisted Development: LLM-based coding and review workflows; sandboxed AI tooling for privacy
- Neuromorphic Computing: SNNs, Hybrid Neural Architectures, Event-based Sensors and Processing
- Technical Leadership & Mentorship: Guiding engineers, fostering knowledge sharing, driving architectural decisions
- Cross-Functional Collaboration: Strategic goal alignment, bridging engineering, product, and leadership teams

Experience

Senior Software Engineer | *Frontgrade Gaisler* | *Gothenburg, Sweden (Remote)* | *June 2025 – ongoing*
- Enabled neuromorphic edge AI on space-grade RISC-V platforms via Akida runtime integration and benchmarking.
- Contributed to FPGA verification and RTL reviews for custom SoC designs, aligning hardware and software teams.

Senior Architectural Modeling Engineer | *FlexAI* | *Paris, France (Remote)* | *July 2024 – October 2024*
- Shaped team vision, roadmap, and modeling strategies to support next-generation AI accelerator development.
- Led profiling of PyTorch-based LLMs to assess execution time, memory usage, and optimization opportunities.

Expert Software Engineer — Edge AI Systems | *Imsys* | *Stockholm, Sweden (Hybrid)* | *November 2022 – May 2024*
- Directed embedded software and AI toolchain development, aligning technical execution with strategic goals.
- Delivered runtime libraries, simulation frameworks, and code generation pipelines for a custom edge AI accelerator.
- Contributed to system architecture design for RISC-V integration and evaluated accelerator-software interfaces.

Head of Software Engineering | *Imsys* | *Stockholm, Sweden (Hybrid)* | *March 2021 – October 2022*
- Led software department strategy, team growth, and cross-functional coordination across edge AI projects.
- Defined system architecture for a scalable edge AI platform, guiding execution model and system co-design.
- Contributed to code generation and simulation tools enabling early-stage validation of accelerator architectures.

Software Architect | *Imsys* | *Stockholm, Sweden (Hybrid)* | *January 2018 – March 2021*
- Spearheaded LLVM-based toolchain and embedded software stack development for custom processor platforms.
- Delivered full toolchain solutions, including compiler, linker, debugger, and integrated VSCode extensions.
- Supervised system architecture, board bring-up, FreeRTOS porting, and hardware driver development.

Software Engineer | *Imsys* | *Stockholm, Sweden* | *October 2013 – January 2018*
- Authored the custom ISA specification and the LLVM-based code generator for a proprietary processor.
- Built low-level debugger, simulator, and assembler in modern C++ to enhance embedded system development.

Education

MSc and BSc in Computer Science | *Eötvös Loránd University* | *Budapest, Hungary* | *2007 – 2012*
- Specialized in compilers, formal methods, and programming languages; graduated with distinction for both degrees.

PhD Graduate Work (Industry-Based, Unfinished) | *Vienna University of Technology* | *Vienna, Austria* | *2016 – 2020*
- Conducted research at the intersection of compiler optimization, machine learning, and embedded systems.
