VINCENT ESCHE

STAFF SOFTWARE ENGINEER

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PROFILE

Staff-level software engineer with 12+ years of experience architecting high-performance, user-centric systems across mobile, embedded, and cross-platform domains. Specialized in Rust and Swift since 2014, with a deep focus on efficient, maintainable software and a passion for algorithms and data structures.

Proven leader in technical projects, mentoring, and system design — from privacy-first mobile apps to real-time communication SDKs and compiler infrastructure.

WORK EXPERIENCE

PROTON AG (02/2025 – 04/2025)

CONTRACTOR REMOTE / BERLIN

Proton AG is a Swiss technology (500+ employees) company offering privacy-focused online services, such as mail, VPN and more.

- Architected and delivered a cross-platform iOS prototype for a Rust-based service using the experimental Crux framework.
- Extended Crux in collaboration with another team to support Rust side-effect handlers in non-Rust shells, enabling broader production use.
- Delivered the prototype in half the expected time, then took over key backend responsibilities to maintain momentum during a critical transition.
- Conducted in-depth performance analysis, providing mitigation strategies and final recommendations to address scaling bottlenecks.
- Diagnosed and resolved data quality issues, significantly improving result accuracy and system reliability.
- Contributed across the stack—architecture, implementation, and debugging—under tight deadlines and shifting priorities.

crux ffi rust search-engine swift

SKILLS

LANGUAGES

Rust, Swift, Objective-C, C, TypeScript, C++, Postgres, …

FRAMEWORKS / TOOLS

UIKit, SwiftUI, Embedded, Svelte, Tauri, Salsa, LayerChart, D3js, Vapor/Fluent, CoreBluetooth, VSCode, Xcode, Git, Jira, Linear, …

PLATFORMS

macOS, iOS, Linux, …

DOMAINS

- Cross-platform SDKs
- Data-oriented Programming
- FFI
- Real-time DSP
- Algorithm Design
- High-performance Optimization
- Data-oriented Programming
- Logic & Constraint Programming
- Compiler & Language Tooling
- Bluetooth LE
- Machine Learning

INTERESTS

- Advanced data structures & algorithms
- High-performance optimization.
- Recently: Logic programming (e.g. Datalog), formal methods & verification (e.g. Alloy).

EDUCATION

FUNCTIONAL CORE UG (12/2022 – …)

FOUNDER / OWNER REMOTE / BERLIN

Functional Core is my personal company entity focused on freelance contracting and the development of commercial "indie"-software.

- Founded Functional Core as a personal contracting entity focused on freelance and independent product development.
- Architected, designed and built a full-stack, multi-platform developer tool from scratch—spanning frontend (TypeScript/Svelte), backend (Rust/Axum), data visualization (D3.js), and domain logic (Rust-Analyzer, Salsa, Ascent).

axum backend d3js frontend fullstack json-rpc layerchart rust rust-analyzer svelte tauri typescript

CHAANZ UG (09/2024 – 09/2024)

CONTRACTOR REMOTE / BERLIN

Chaanz (<10 employees) is a software agency providing modular white-label web/mobile apps for events/conferences/festivals with integrated networking and match-making.

- Contracted as lead engineer to design and deliver a critical match-making system — a make-or-break feature required by investors for the company's next funding round.
- Delivered a fully functioning fuzzy-logic-based match-making engine in Postgres, tailored for profile-based scoring across categorical and numerical dimensions.
- Developed and shipped the system to full client satisfaction, directly contributing to Chaanz securing new investment.
- Built a configurable, web-based internal dashboard allowing non-developers to experiment with and tune profile, search, and match parameters in real time.
- Re-hired to expand the match-making engine's feature set after the initial delivery.

fluent fuzzy-logic pl/sql postgres sql swift vapor

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Frankfurt University of Applied Sciences, 2014

SPOKEN LANGUAGES

German (native), English (fluent)

DAILY CO. (01/2021 – 11/2023)

STAFF ENGINEER / CONTRACTOR REMOTE / BERLIN

Daily (~60 employees) is a developer-first WebRTC API platform delivering real-time voice, video, and AI for developers for both, web and native. I was part of their fully remote 11-member engineering core team.

- Helped evolve Daily's web-only API into a truly cross-platform solution, supporting iOS, Android, macOS, Linux, and the Web (via WASM), increasing platform coverage by 5×.
- Re-implemented the SDK from scratch using a shared, platform-agnostic business core in Rust, wrapped with native SDKs (Swift, Kotlin, etc.).
- Led architecture and development of the public iOS/macOS SDK in Swift.
- Designed and implemented the internal FFI layer enabling safe, efficient communication between the Rust core and platform-specific SDKs (C, Rust).
- Built a custom multi-language build system integrating and coordinating artifacts across Rust, Swift, Kotlin, C/C++, Objective-C(++), JavaScript, WebAssembly, and Python.
- Involved from inception to release, including regular release cycles, long-term maintenance, and cross-team collaboration.

c c++ cbindgen ffi libwebrtc rust swift webrtc

BYTON GMBH (11/2019 – 12/2020)

SENIOR SPECIALIST MOBILE DEVELOPER REMOTE / BERLIN

Byton (~1600 employees) is a Chinese-German all-electric vehicle automotive brand.

- Served as technical lead for a 4-engineer sub-team, architecting and delivering a production-grade iOS keyless-access SDK and control-center app via Bluetooth LE.
- Successfully completed SDK development well ahead of schedule, delivering a robust, production-grade system used for secure keyless vehicle entry via Bluetooth LE.
- Temporarily reassigned to resolve critical issues in an embedded IMU gesture recognition system — rewrote and stabilized the system in Rust, eliminating crashes entirely.
- Contributed from project inception to full production readiness.
- Development concluded shortly before the company missed a funding round and went into administration, despite the vehicle entering serial production.

core-bluetooth dynamic-time-warping rust swift

RUNVI / NWTN BERLIN GMBH (09/2016 – 01/2019)

SENIOR SOFTWARE ENGINEER / ARCHITECT — BERLIN

NWTN Berlin (~15 employees) is a startup developing a smart insole wearable that tracks running metrics and gives real-time feedback.

- Collaborated within a 7-member interdisciplinary team (firmware, software, hardware) to deliver a smart wearable product from prototype to production.
- Took over and re-architected a previously unstable, crash-prone embedded DSP engine for real-time gait and performance analysis using IMU/force sensors (Rust).
- Independently rewrote the engine in Rust, tripling its feature set and achieving full stability — all in half the time of the original C implementation.
- Led development of the companion iOS app using Core Bluetooth and Core Data, supporting real-time sensor data collection and visualization.
- Responsible for both embedded system design and mobile architecture.
- Delivered all systems from initial concept to production-ready code.
- The company folded shortly before market entry due to missed funding, despite full product readiness.

core-bluetooth digital-signal-processing gait-analysis rust swift

NAMICS GMBH (04/2013 – 04/2016)

MID-LEVEL SOFTWARE ENGINEER — FRANKFURT AM MAIN

Namics (~450 employees) is an IT agency working with companies on tasks ranging from strategy and concept creation to implementation, as well as operations and marketing.

- Contributed as a mid-level software engineer within a cross-location 20-member mobile team. Delivered production-grade mobile applications for major enterprise clients (e.g., Boehringer Ingelheim, Commerzbank). Focused on business logic, CI tooling, testing, and Bluetooth LE-based apps across iOS and Android.

core-bluetooth java javascript objective-c swift

GOETHE UNIVERSITY (03/2011 – 04/2013)

RESEARCH SOFTWARE ENGINEER — FRANKFURT AM MAIN

- Collaborated with PhD students, post-docs, and professors to design and implement advanced ML/NLP libraries for academic research.
- Architected, implemented, and delivered production-grade algorithms including a directed graph-based feature expansion tool and a hierarchical SVM classifier trained on Wikipedia data.

c++ machine-learning natural-language-processing qt support-vector-machine

INDEPENDENT DEVELOPER (01/2005 – 11/2012)

SOFTWARE ENGINEER / INDEPENDENT FRANKFURT AM MAIN

– Designed, developed, and independently marketed macOS shareware applications (TEXTreme, iTunify), managing the full product lifecycle — from concept and architecture to UX, release, and support. Built real-world tools used by end-users, gaining hands-on experience in solo product development.

applescript objective-c regular-expression scripting-bridge