

Ben Pilger

Systems & Security Engineer | IT Trainer

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Core Competencies

Languages: Rust, C++, C, Erlang, TypeScript, x86-64 Assembly, Python, SQL

Domains: Zero-Trust Architecture, Privileged Access Management (PAM), IAM, Cryptography, PKI, Windows Internals, Kernel Debugging & Development (Rust/C++), Systems Security, Reverse Engineering

Frameworks & Networking: Tokio, Actix, gRPC, REST, TCP/IP, TLS, AWS, Cloudflare

Tooling: x64dbg, IDA Pro, Ghidra, WinDbg, WDK, CMake, Visual Studio, Docker, CI/CD

Professional Experience

Freelance Engineering & IT Training

Independent Consultant & Technical Trainer

Stuttgart, Germany

06/2026 – Present

- **Systems Engineering Consultancy:** Provide freelance research, architectural auditing, and development services specializing in backend scalability, high-concurrency tooling, and security hardening.
- **Infrastructure Hosting:** Provision and manage secure, high-availability web hosting environments and custom deployment pipelines for local small-to-medium businesses (SMBs) on an ongoing basis.

AnyDesk Software GmbH

Backend Engineer

Stuttgart, Germany

04/2025 – 06/2026

- **Decentralized PAM Architecture:** Pioneered a novel Privileged Access Management (PAM) infrastructure by conceptualising a peer-to-peer trust model that completely eliminated architectural Single Points of Failure (SPOFs).
- **Cryptographic Protocol Engineering:** Designed and implemented the cryptographic backbone for the decentralized PAM ecosystem; developed a custom asymmetric key-based configuration protocol and a decentralized PKI-service to enforce end-to-end integrity and tamper-proof state synchronization.
- **System Modernization & Stability:** Contributed to the migration of legacy C++, Erlang, and TypeScript services to a high-performance Rust-based microservice architecture, optimizing for high-concurrency environments (>200K RPS) and strict sub-100ms latency guarantees.
- **Enterprise Product Leadership:** Acted as a technical lead for complex enterprise requirements, managing the full lifecycle from requirement engineering and protocol specification to the delivery of scalable IAM and fraud mitigation services.

Freelance R&D / Self-Employed

Systems & Security Engineer

Stuttgart, Germany

2024 – 2025

- **Low-Level Kernel Engineering:** Developed system-level drivers and modules interacting with the Windows kernel using Rust and C++. Performed deep-dive binary analysis and low-level debugging of core operating system architectures.
- **Enterprise Platforms:** Architected a highly scalable sales, user, and license management infrastructure with integrated international payment gateways and automated client software lifecycle deployment.

Sparx.Foundation

Founder & Lead of Research and Development

Global
09/2024 - Present

- **Open-Source R&D Leadership:** Established an open-source research group focusing on low-level systems programming, secure system design, and advanced architectural analysis.
- **Threat Emulation Framework:** Architected and engineered an advanced network resilience and threat emulation platform ("Actrax") in Rust and C++ to evaluate detection engineering capabilities and endpoint defense mechanisms.
- **Security Research & Publication:** Oversee the lifecycle of open-source security tools and publish in-depth technical documentation covering kernel-level security and hardware-assisted mitigations.

Independent Security Researcher

Offensive Tooling & Compatibility Engineering

Remote
2022 - 2023

- **Reverse Engineering & Integrity Bypasses:** Analyzed complex security mechanisms and runtime protections using IDA Pro and WinDbg to evaluate functional software integrity and binary execution flows.
- **Aviation Infrastructure Utilities:** Engineered a custom suite of infrastructure utilities and configuration verification tools (including [uptimeMon](#)) designed to validate environment states and ensure high availability.
- **Mass Deployment & Compatibility:** Deployed and maintained custom software for a global user base, ensuring continuous runtime stability across hundreds of volatile Windows OS builds and custom hardware environments.

Side Projects & Community

Creative & Cultural Event Operations

Co-Organizer & Creative Coordinator

Stuttgart, Germany
2025 - Present

- **Talent Booking & Management:** Handled independent artist management, contractual bookings, and oversaw compliance with complex technical and hospitality riders.
- **Event Safety & Awareness:** Managed active awareness team operations during cultural club events, focusing on guest well-being, safe environments, and proactive conflict de-escalation.
- **Creative Production & Hospitality:** Planned and executed promotional photoshoots for artists, coordinated private post-event networking hospitality, and executed independent editorial modeling assignments.

Research & Open Source Projects

Systems & Security Research Platform

Technical Author

[arteii.net](#)
Ongoing

- **Windows Kernel Security Research:** Published low-level technical documentation and analysis covering Ring-0 driver architecture, exception handling routines, and hardware-assisted mitigations (IOMMU, Virtualization-Based Security).
- **Low-Level Systems Analysis:** Authored mathematical and technical references targeting x86-64 assembly conventions and machine-level instruction sets.

GitHub Ecosystem

Core Contributor & Maintainer

- **lychee:** Optimized engine performance and connection handling for the widely used asynchronous link-checking engine written in Rust.
- **zenity:** Maintained and scaled a CLI UI framework in Rust, backed by JetBrains OSS sponsoring.
- **RegistryHelper / RegistryGuard:** Authored a C++ helper tool designed for Windows registry configuration access and real-time modification tracking via thread-based background callbacks.
- **limitr:** Built a high-throughput rate-limiting and resource management utility for concurrent systems.
- **web_client_lib:** Implemented a modular network library for streamlined, secure HTTP communications.