

# Eduardo Alonso / eddndev

SOFTWARE DEVELOPER · ARCHITECTURE / PERFORMANCE / SYSTEMS

## • FOCUS

Developer working at the intersection of **low-level systems, distributed computing** and **applied cryptography**. Designs language runtimes, bytecode VMs and zero-knowledge proof pipelines in Rust; ships entirely in-browser cryptographic tooling via WebAssembly. Comfortable owning a system end-to-end — from the constraint system up to the deploy pipeline.

## • SELECTED PROJECTS

### Achronyme

2024 – present · [achrony.me](#)

Functional language for zero-knowledge proofs. Compiles to three purpose-built bytecode VMs — Akron (40 opcodes), Artik (25), Lysis (29) — for constraint generation, witness computation and verification. Backends: Groth16, PlonK. Zero-trust pipeline with taint analysis and constraint-system verification.

[Rust](#) · [Custom VMs](#) · [Groth16 / PlonK](#) · [Taint analysis](#)

### crypto.eddn.dev

2026 ·

[github.com/eddndev/crypto](#)

Bilingual (EN/ES) educational cryptography suite: affine cipher, BMP steganography, matrix calculator, RSA hybrid encryption (AES-256-GCM + RSA PKCS#1 v1.5), AES modes of operation. Every algorithm is implemented in Rust, compiled to WASM, and executes 100% in the browser — keys and plaintext never leave the tab.

[Rust](#) · [WebAssembly](#) · [Astro](#) · [React islands](#) · [Tailwind v4](#)

### Syle Studio

2024

Custom streetwear e-commerce on a proprietary CMS — no off-the-shelf platform. Owned schema design, performance budget and deploy pipeline.

[Node.js](#) · [PostgreSQL](#) · [Custom CMS](#)

### Yatagarasu

2025

Zero-JavaScript portfolio site with retro-arcade aesthetic. Static rendering, no client runtime, sub-100ms interaction-to-paint targets.

[Astro](#) · [Zero-JS](#) · [Static rendering](#)

## • ENGINEERING STACK

**LANGUAGES** [Rust](#) (primary) · [TypeScript](#) · [Go](#) · [Dart](#) · [C / C++](#) · [Python](#)

**SYSTEMS** [WebAssembly](#) · [Custom bytecode VMs](#) · [Compiler design](#) · [Memory-safe FFI](#)

**CRYPTO** [Zero-knowledge proofs](#) (Groth16, PlonK) · [AES-GCM](#) · [RSA](#) · [PKCS#1](#) · [Constraint systems](#)

**DISTRIBUTED** [Service architecture](#) · [Async runtimes](#) (Tokio) · [Message-passing](#) · [Containerized deploys](#)

**WEB** [Astro](#) · [React](#) · [TypeScript](#) · [GSAP](#) · [Tailwind](#)

**INFRA** [Docker](#) · [AWS](#) · [Cloudflare Pages](#) · [PostgreSQL](#) · [MongoDB](#)

## • SELECTED ACHIEVEMENTS

- LeetCode **Guardian** — Contest Rating **2,749** (Top 0.05% globally); 160 Hard problems solved, 92.55% acceptance rate.

- Designed and shipped a three-VM bytecode pipeline for zero-knowledge proof generation, with separate VMs for constraint emission, witness solving and verification.
- Implemented a hybrid AES-256-GCM + RSA PKCS#1 v1.5 file-encryption scheme entirely in Rust → WASM, with all keying material confined to the browser tab.
- Built and operate eddndev — an independent digital engineering studio focused on custom infrastructure over template-based solutions.

#### • INTERESTS

Compiler internals

Zero-knowledge proofs

Applied cryptography

Distributed systems

WebAssembly

Competitive programming

VM design