Yuvraj Biswal

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About

A programmer who builds high-performance backend systems in Rust, Go, and Typescript. Works majorly in distributed systems, blockchains, low-level systems programming, and ML infra tooling. I build tools, infra, and ML models focusing on performance, Accuracy, and developer experience.

Experience

Dognosis - Software Engineer July 2025 – Present
Bengaluru, India (Remote) *Rust Backend Engineer*

- Building high-performance backend services in Rust, focusing on reliability, correctness, and low-latency APIs.
- Implemented internal tooling, async workflows, and optimized distributed components.
- Working across infra, backend services, and systems-level integrations.

Systemsway - Software Engineer Aug 2025 – Sept 2025
California, USA (Remote) *Go Backend + Infra*

- Implemented multi-tenant OpenTelemetry observability stack using Go and the OTEL Collector.
- Containerized the observability stack and deployed it to Google Kubernetes Engine (GKE) using Pulumi.
- Added tenant-level isolation and improved monitoring pipelines for metrics and traces.

Solana Fellowship July 2025 – Nov 2025
Remote *Solana + Rust*

- Selected for the Solana Fellowship to build high-performance decentralized systems using Rust.
- Worked on Solana programs, validator tooling, indexing pipelines, and performance optimizations.
- Participated in architecture reviews, mentorship sessions, and protocol-level deep dives.

Projects

Bayronik | Machine Learning, Astrophysics 2025

- Built a field-level baryonic emulator combining a Rust particle–mesh (PM) N-body simulator with a TorchScript U-Net to generate accurate 2D matter maps without full hydrodynamics.
- Implemented numerics for CIC mass assignment, FFT-based Poisson solving, and a symplectic Kick–Drift–Kick integrator with periodic boundaries.
- Developed a high-performance TUI in Rust for heatmap rendering using Unicode Braille with real-time statistics and interactive navigation.

Logical Transformer | Rust, ML, Transformers 2025

- Created a mini transformer-like reasoning engine using symbolic rules instead of embeddings, enabling multi-fact, multi-layer logical inference.
- Implemented a QKV attention mechanism where queries match rule patterns, producing weighted consequents using softmax scoring.
- Built a variable-substitution engine supporting rule chaining, multi-layer inference, and pattern matching across complex contexts.

P2rent | Rust, QUIC, Distributed Systems 2025

- Decentralized peer-to-peer file-transfer system, implemented over the QUIC protocol for encrypted and multiplexed transport.
- Designed a chunk-based transfer protocol with peer discovery, session management, and resumable transfers.

Neurox | Rust, Numerical Computing, ML Framework 2025

- Developed a fast, minimalist tensor library in Rust with multi-dimensional arrays, broadcasting, and numerical ops optimized for CPU.
- Implemented activation functions (ReLU, Sigmoid, Tanh, Softmax, LeakyReLU) and a layer abstraction enabling dense layers with forward-pass evaluation.

Technical Skills

Languages: Rust, Go, Python, TypeScript, Bash, C
Frameworks: Axum, Actix, FastAPI, React, NextJS, NuxtJS, Gin, Fiber, Poem
Tools: Docker, Pulumi, Kubernetes, Git, Redis, Postgres