

Erik Ziegenbalg

COMPUTER SCIENTIST

CONTACT

-  San Francisco, CA
-  github.com/ziegenbalg

EDUCATION

Computer Science
University of California,
Santa Cruz

2010 - 2014

SKILLS

// Programming Languages

- C [packet programming, forwarding planes]
- Rust [axum, tokio, serde, rayon, crossbeam]
- Python/Perl/Bash/GO

// Operating Systems & Architectures

- Linux
- Fuchsia
- X86 / ARM

// Data Processing

- Intel SPDK
- HP DAOS
- SLURM workload manager (HPC scheduling)

// AI, LLM & Foundation Models

- Claude API / Anthropic SDK
- Agentic workflows & MCP
- RAG & retrieval pipelines
- LLM application architecture
- Prompt engineering & evals

// Machine Learning

- PyTorch & TensorFlow
- CNN/RNN/PPO architectures
- End-to-end ML pipelines

PROFILE

Principal Software Engineer with 10+ years building distributed infrastructure, from network operating systems at AT&T/Brocade to AI-powered platforms. I specialize in taking ambiguous technical problems in complex environments and making them tractable. Currently focused on foundation model integration, agentic development workflows, and production AI systems.

WORK EXPERIENCE

Principal Engineer

EZTHINKING LLC | 2020 - Present

openFactory

Full-stack AI platform that translates natural language into production-ready custom Linux ISO images — originated as J&J Manufacturing Labs' AI-enabled build pipeline and productized as a standalone enterprise SaaS supporting Debian, Ubuntu, Fedora, openSUSE, Proxmox, and SONiC across 140+ configurable features.

- **Architected end-to-end LLM integration** using Claude API with FastAPI backend, multi-phase build planning (Explore + Plan agents), and MCP server for Claude tool exposure
- **Engineered multi-distribution build system** using Worker Factory pattern—live-build for Debian, custom squashfs for Ubuntu, mock for Fedora, KIWI for openSUSE—with git worktree isolation per build
- **Hosted RAG-retrieval and recipe-classification models on AWS SageMaker**; Next.js frontends on App Runner, FastAPI backends, Lambda, DynamoDB, SQS, and KVM/libvirt for automated ISO testing

GoldenGoose

Algorithmic trading platform using topological data analysis and machine learning to predict market movements and execute automated trades across multiple brokerages, backed by Intel DAOS for high-performance data storage.

- **Built hybrid ML prediction pipeline** combining Linformer-based vision transformers for geometric pattern classification with PPO reinforcement learning for environmental condition filtering, running 40+ model variants
- **Built market-data ingest and order-routing acceleration on NVIDIA BlueField-2 DPU SmartNIC** — DOCA SDK with kernel-bypass RDMA and ASAP² hardware offloads delivering L1 quote feeds directly into the inference GPU's memory via GPUDirect RDMA

Linux Operating System Service Owner (Contract)

Johnson & Johnson | 2024 - 2025

- **Owned the Ubuntu-based Linux platform-as-a-service** end-to-end for J&J's Manufacturing Labs & Logistics division — reporting to three senior directors and directing a tiered L1–L3 technical support organization across global manufacturing sites
- **Defined product vision and multi-year roadmap** balancing reliability, security, cost efficiency, and GxP / 21 CFR Part 11 compliance
- **Pioneered the AI-enabled Linux image build pipeline** — LLM-driven, RAG-backed recipe-to-ISO workflow with automated GxP verification, productized as openFactory
- **Architected ServiceNow enterprise integration** for change management, CMDB, GRC, and Incident Management — OAuth 2.0, bidirectional webhook sync, drift-to-priority mapping (P1–P4) for 21 CFR Part 11 auditability

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SKILLS

// Cloud & Networking

- AWS (EKS, Lambda, DynamoDB, SQS, Terraform)
- AWS App Runner, VPC, Site-to-Site VPN
- Azure, GCP
- Kubernetes, Docker, Containerization
- Microservices, REST APIs, event streaming (Kafka)
- Observability (Prometheus, Grafana, OTel, DataDog)
- PKI's, L2/L3 VPN's, BGP, IPSEC
- Intel DPDK, Linux cgroups
- 5G/LTE/RF, Delay Tolerant Networks
- NVIDIA BlueField-2 DPU SmartNIC, DOCA SDK
- RDMA / RoCE, ASAP², GPUDirect
- SONiC, ONIE (whitebox switching)

// Config Systems

- Vyatta's in house golang/dbus component interface VCI (Yang based)
- Shift Left, Simulation/Test Driven Development

WORK EXPERIENCE (CONTINUED)

Senior Software Engineer

ViaSat | 2022 – 2024

- **Built customer-facing networking-configuration services** as containerized microservices on AWS (EKS, Lambda, DynamoDB, SQS) — horizontal scale, multi-tenant deployment
- **Operated the services in production end-to-end** — Kubernetes (EKS), Terraform, CI/CD, observability (Prometheus, Grafana, OpenTelemetry, DataDog), and on-call
- **Drove technical-design reviews and cross-team alignment** with networking, platform, and product teams to ship features that expanded the enterprise-customer configuration toolkit

Sr. Member of Technical Staff

AT&T | 2017 – 2022

- **Engineered PPPoE and OCSP+stapling data-plane acceleration modules** in Intel DPDK on AT&T's carrier-grade network OS, accelerating the authentication-handshake hot path
- **Developed RFC7950 YANG-based data models** for critical system utilities (RAID, disk encryption), unifying the configuration interface across system components
- **Architected standalone system services** on Vyatta's component interface (VCI), enabling seamless dbus communication across Go, Python, and C++ components in the same dataplane
- **Managed technical continuity through the Brocade-to-AT&T acquisition**, keeping network OS development on track during the transition

Sr. Software Engineer

Brocade Communications Systems | 2014 – 2017

- **Engineered BPF packet load balancing and filtering** across distributed forwarding planes — optimizing traffic distribution at carrier-grade throughput
- **Implemented SDN, DMVPN, and MPLS switched distributed forwarding planes**, modernizing the legacy carrier networking stack
- **Developed glibc NSS extensions and Linux OS integration layers**, embedding Network OS functionality into a standard Linux distribution
- **Implemented modern build systems** for the network OS toolchain, streamlining the dev-test-deploy workflow

REFERENCES

Jim Gosnell

VP of Programs
ViaSat

Rob Smets

MLL Workstation Service Owner
Johnson & Johnson

Dan Winterburn

Lead DevSecOps Engineer
Johnson & Johnson

Jason Sirju

L3 Technician, MLL Factory & Labs
Johnson & Johnson

Tony Malott

Global Service Owner
Johnson & Johnson

Michael Palomino

IT Manager, MLL Factory & Labs
Johnson & Johnson

Sean Meacher

Lead DevSecOps Engineer
Johnson & Johnson