ITSUB ALEMAYEHU

SENIOR FULL-STACK & DISTRIBUTED SYSTEMS ENGINEER

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EXECUTIVE SUMMARY

High-velocity Full-Stack & Distributed Systems Engineer with deep expertise in Python, TypeScript, React, Go, and cloud infrastructure (AWS/GCP/Docker/K8s). Founder & Lead Architect of **Bartholomew (btp-guard)**, an open-source, sub-50 microsecond execution runtime with live packages on PyPI and npm. Awarded competitive non-dilutive hyperscaler cloud grants, architected high-throughput client-side sandboxes, and scaled full-stack architectures passing 100% of enterprise security gates.

TECHNICAL SKILLS

Frontend: TypeScript, JavaScript, React, Next.js, Vite, TailwindCSS, Web Workers, HTML5/CSS3, State Management

Backend & Systems: Python (FastAPI, Flask, asyncio), Go (Golang), Node.js/Express, REST, WebSockets, gRPC

Databases & Caching: PostgreSQL, SQLite, MongoDB, Redis, Vector Databases, In-Memory AST Caching

Cloud & DevOps: AWS (EC2, Bedrock, CDK, S3), GCP (Cloud Run), Docker, Kubernetes, CI/CD, Git, Linux/Bash

Security & AI Systems: AST Code Analysis, Cryptography (Ed25519, SHA-256), OWASP Top 10, Agent Runtimes, LangChain

Testing & Architecture: Pytest, Vitest, TDD, Microservices, Event-Driven Systems, RFC Conformance Suites

PROFESSIONAL EXPERIENCE & LEADERSHIP

Founder & Lead Full-Stack Architect • Bartholomew Autonomous Systems

2024 – PRESENT

Enterprise in-memory safety kernel, real-time telemetry dashboard, and open-source developer SDK

- **Full-Stack Web Architecture:** Built high-performance reactive web application (React, TypeScript, Vite, TailwindCSS) featuring interactive real-time sandboxes, Web Worker AST compilers, and live SVG threat monitors.
- **Distributed Backend & Telemetry:** Engineered Python/FastAPI backend & Go inspection microservices delivering sub-50µs execution decisions, handling concurrent agent tool calls with zero cloud network overhead.
- **Cryptographic Compliance Layer:** Implemented FIPS 186-5 Ed25519 digital signatures and RFC 8785 canonical JSON attestation for automated SOC 2 and EU AI Act audit proofs.
- **Developer Ecosystem & Open Source:** Published and maintained official packages on **PyPI (btp-guard)** and **npm (btp-guard)**; built native adapters for CrewAI, LangGraph, AutoGen, and E2B Sandboxes.
- **Robust Quality & CI/CD:** Established automated CI/CD pipeline achieving 100% test coverage across 44+ automated unit tests and an adversarial 1,000,000-payload stress fuzzer with zero escapes.

Senior Full-Stack & Cloud Engineer • Distributed Systems & Web Solutions

2021 – 2024

Full-lifecycle development across enterprise web applications, API integrations, and cloud infrastructure

- Designed, developed, and deployed resilient full-stack applications utilizing React/TypeScript frontends and Python/Node.js microservices, boosting client operational velocity by 40%.
- Architected scalable database schemas across PostgreSQL and MongoDB; optimized complex SQL queries and indexing strategies, reducing median API query latency by 65%.
- Built robust RESTful and WebSocket APIs for real-time dashboards, financial transaction feeds, and external enterprise API gateways with token-bucket rate limiting and RBAC.
- Managed end-to-end containerized deployments using Docker and Kubernetes on AWS (EC2, ECS, S3) with automated GitHub Actions CI/CD workflows.

GRANTS, CAPITAL & RECOGNITION

- **Non-Dilutive Hyperscaler Grants & Founder Credits:** Awarded competitive non-dilutive founder backing and cloud computing grants from **Google Cloud for Startups**, **AWS Activate**, **MongoDB for Startups**, and **Microsoft for Startups Azure**.
- **Published Research & DOI:** Authored peer-reviewed academic preprint on deterministic execution bounds and epistemic provenance in autonomous AI systems (Zenodo DOI: 10.5281/zenodo.22076536).
- **Official AI Registry Selection:** Approved official manifest on Smithery.ai Anthropic MCP Registry for Claude Desktop / Cursor IDE developer workflows.

EDUCATION & FOUNDATIONS

B.S. in Computer Science / Software Engineering Background

Continuous Specialized Training & Research

Specialization in Distributed Systems, Compiler Design, Web Technologies, Cryptographic Protocols, and Cloud Architecture.