Bastian Gruber

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SUMMARY

Staff Software Engineer and published author ("Rust Web Development" – Manning) with 15+ years making pragmatic architecture decisions for backend systems at scale. Currently shipping Rust, C++, and Python code to hundreds of millions of Firefox users at Mozilla. Founded Rust&Tell Berlin, the largest Rust meetup globally.

SKILLS

Languages: Rust, Python, TypeScript, JavaScript, Go
Frontend: React, Angular, Vue.js
Backend: Rust (Actix, Warp, Axum), Python (FastAPI), Node.js, Go
Patterns: REST, GraphQL, gRPC, async Rust, distributed systems (P2P)
Infrastructure: AWS, Google Cloud, Docker, Kubernetes, CI/CD, Grafana
Domains: Systems Programming, FFI, Distributed Systems, Web Services, Micro Services, IoT, Blockchain, Firefox

PROFESSIONAL EXPERIENCE

Staff Software Engineer - Full-time   February 2026 - Now
Senior Software Engineer - Full-time   July 2024 - January 2026
Mozilla, Remote
Shipping Rust, C++, and Python code across Firefox desktop and mobile to hundreds of millions of users. All work is open source.

- Consolidated four separate favicon implementations across Firefox teams into a single Image Service – chose to extend an existing Python/Airflow pipeline rather than build a new microservice, now serving 4 teams from one manifest behind a GCS-backed API
- Implemented Oblivious HTTP (OHTTP) from scratch in application-services (shared Rust component cross-compiled to Swift and Kotlin via UniFFI) plus handwritten C++ and Rust for Firefox Desktop – users are now unidentifiable when making privacy-sensitive requests across all platforms
- Maintained Firefox Push notification service (50k requests/second, sub-200ms latency): reduced memory footprint, added circuit breakers, and built Grafana dashboards for operational visibility
- Contributor and code reviewer for UniFFI, Mozilla's multi-language bindings generator enabling Rust code to be called from Kotlin, Swift, Python, and JavaScript
- Built Rust extensions for Merino (Python/FastAPI service powering Firefox Suggest); wrote RFCs, mapped out project plans, and surfaced cross-team blockers early
- Led "Rusty Fridays" internal education sessions, guiding engineers through Rust adoption and mentoring junior contributors across teams

Senior Systems Engineer, Team Lead - Full-time   April 2023 - June 2024
Toposware, Remote
Core team of 4 building a peer-to-peer distributed network protocol from scratch in Rust.

- Achieved 10x throughput per node by profiling and targeting the actual bottleneck – optimized batch processing and serialization paths, tuned message volumes to avoid throughput degradation – rather than redesigning the consensus layer
- Led benchmark initiative with 3 engineers that revealed nodes were compute-bound on crypto operations, not network-limited – redirected optimization effort accordingly
- Rewrote the CLI from scratch, replacing error-prone CLI parameters with local config files – reduced operator misconfiguration during node setup
- Built an EVM bridge connecting external Ethereum-compatible chains to the core network
- Set up load testing, CI/CD pipelines, and Grafana dashboards for production observability

Senior Software Engineer - Full-time   August 2022 - February 2023
Centrifuge, Remote
Protocol team building DeFi applications on Substrate/Polkadot in a self-governed organization.
- Implemented fund pool mutations on-chain, enabling users to adjust capital allocations in live pools – core feature for the lending protocol
- Built client-facing APIs on top of fund pools, giving external integrators programmatic access to pool operations
- Replaced manual documentation with CI-driven auto-generation from Rust source on every PR – eliminated persistent drift between code and public docs
- Co-authored RFCs to build consensus on new protocol features across the decentralized team

Author of "Rust Web Development"   October 2020 - December 2022
Manning Publications, Remote

- Published "Rust Web Development" through Manning – end-to-end guide covering async Rust, web frameworks, and production deployment, distributed globally

Sr. Solutions Architect (Professional Services) - Full-time   May 2021 - July 2022
Solutions Architect (Professional Services) - Full-time   June 2020 - May 2021
Twilio Inc., Remote
Second Solutions Architect hired for the new EMEA Professional Services team. Led enterprise integrations across contact center, messaging, and voice products.
- Technical lead for Fortune 500 engagements: debugged audio quality and latency issues, redesigned messaging flows, and advised clients on achievable architectures given their team size and resources
- Advocated for combining two existing lower-cost Twilio products over adopting a newer, more expensive one for a major engagement – reduced client spend while using battle-tested components
- Created reusable engagement playbooks (setup checklists, edge-case discovery questions, technical review templates) adopted across the EMEA team
- Hired and onboarded engineers to scale the Professional Services team

Systems Engineer - Contract   August 2019 - May 2020
Kraken Digital Currency Exchange, Remote (San Francisco)
Member of the first Rust engineering team (12 engineers), replacing core banking infrastructure and API gateway.
- Migrated core banking services and API gateway from PHP to Rust, achieving 100x throughput improvement – enabling the exchange to absorb order-of-magnitude traffic growth without scaling hardware
- Built new Rust services from scratch with comprehensive test coverage and security-first design
- Worked directly with the CTO on privacy-focused architectural decisions for the trading platform

Rust Developer - Freelance   March 2019 - July 2019
Self Employed, Berlin/Toronto

- Founded the monthly "Rust & Tell Berlin" meetup – grew it into the largest Rust meetup globally, still running years later
- Contributed to Rust core and ecosystem libraries
- Created Rust learning resources specifically for Node.js developers transitioning to systems programming

Sr. Software Engineer - Freelance   March 2016 - February 2019
OSRAM, Körber Digital, Avenga, ERGO Group, GIATA, PaperHive, Glispa (Berlin)
Freelance consultant for enterprise clients across IoT, logistics, tourism, and ad-tech.
- Designed authentication infrastructure for OSRAM's IoT platform (thousands of connected lighting devices) using Keycloak for user auth and service-to-service auth across microservices (Node.js, Go, Lua)
- First engineering hire at Körber Digital: chose Node.js/React/AWS stack, built real-time data pipelines with a time-series database optimized for fast retrieval of sensor data
- Decomposed GIATA's monolithic tourism ERP into 6 Docker-based microservices – rewrote the hotel ingestion pipeline and mass photo upload system, significantly improving UI responsiveness and system scalability
- Tech Lead at Avenga: introduced Scrum and refactored a monolith into microservices to unblock parallel team development
- Built analytics dashboards and ad platforms at Glispa (AngularJS); mentored teams on modern JavaScript practices

Software Engineer - Full-time   August 2015 - February 2016
smartB Energy Management GmbH, Berlin
Small agile team building energy monitoring applications for business owners.
- Introduced pair programming and component-based frontend architecture, enabling multiple developers to work on the same codebase without conflicts
- Full-stack development with JavaScript and Python using TDD

Software Engineer - Freelance   March 2015 - July 2015
blogfoster GmbH, Berlin
First developer hired to replace legacy PHP/Backbone application with Node.js and React.
- Built the first version of the ad marketplace; co-designed architecture with the CTO using TDD from day one

Frontend Developer - Full-time   February 2014 - March 2015
Dalia Research, Berlin
First and sole frontend developer at 8-person startup.
- Bootstrapped the customer-facing survey platform and analytics dashboards in AngularJS – core UI remained largely untouched in production for close to 10 years

EDUCATION

Bachelor of Science, Computer Science   September 2010 - February 2014
TH Ingolstadt
Scholarship from Allianz Deutschland AG to study Computer Science, fully funded and with trainings in Scrum, Java, PL/I and mainframe systems on the side.