

MAHDI MAMASHLI

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SUMMARY

Backend Developer experienced in using event-driven architecture and high-performance systems. Creator of Gland framework with event broker patterns achieving protocol-agnostic communication. Designed QIKS cache hitting 1M+ ops/sec with $O(1)$ complexity. Strong background in distributed systems, algorithm analysis, and technical writing with 15+ published articles.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Python, , LaTeX
Backend: JsRuntime(Nodejs,Bun), Nestjs,Expressjs, event-driven patterns, WebSocket, pub/sub, CQRS
Databases: PostgreSQL, MongoDB, Redis (caching strategies, eviction policies, data structures)
System Design: Event brokers, modular architecture, CQRS, dependency injection, microservices patterns
DevOps: Docker, shell scripting, CI/CD pipelines, Nginx
Architecture: Event brokers, DI containers, modular systems, protocol adapters, GoF design patterns
Focus: Performance optimization, algorithm analysis, technical writing

EXPERIENCE

Framework Architect & Backend Developer

Jan 2023 – Present

Open Source & Independent Projects

Remote

- Designed and implemented **Gland Framework**—an event-driven backend architecture with protocol-agnostic broker system supporting HTTP/WebSocket with modular component isolation and dependency injection
- Built **QIKS**, a high-performance in-memory caching system achieving 1M+ ops/sec with $O(1)$ complexity, implementing LRU/LFU/MRU eviction policies, TTL-based expiration, and cascade invalidation via dependency graphs
- Developed **Gland Events**—a broker-based messaging system with radix tree routing, namespace isolation, wildcard pattern matching, and strategy-based execution (first/all/race) for decoupled communication
- Authored 15+ technical articles (10K+ views) on Dev.to and Medium covering event-driven patterns, caching strategies, algorithm analysis, OOP principles, and backend architecture best practices
- Maintained 10+ open-source repositories with comprehensive documentation and test coverage

KEY PROJECTS

Gland Framework | TypeScript, Event-Driven Architecture, DI Container | 🌐

- Event broker with radix tree routing supporting wildcard patterns and namespace isolation for 10K+ events/sec
- DI container using reflection-based metadata scanning for automatic controller/channel registration with lifecycle hooks
- Protocol adapters (HTTP, WebSocket planned) with strategy-based execution and cascade propagation

QIKS Caching System | TypeScript, Performance Engineering, Data Structures | 🌐

- In-memory cache achieving 1M+ ops/sec with $O(1)$ complexity using Map/WeakMap adapters and optimized eviction policies
- Dependency graph for cascade invalidation with TTL/idle timeout expiration and pattern matching for batch operations
- Event system for monitoring cache operations with namespace support and functional programming interfaces

Gland Events | TypeScript, Message Broker, Radix Tree | 🌐

- Radix-tree event broker with wildcard subscriptions, namespace isolation, and dynamic propagation.
- IOEvent pattern for type-safe request-response with strategy execution (first/all/race) and timeouts.
- Multi-broker mesh with propagation tracking, visited-node detection, and automatic loop prevention.

AGAS | TypeScript, Bun | 🌐

- Bun-powered HTTP client with event-driven lifecycle, streaming support, and CLI interface with Docker deployment

Vero | TypeScript, PostgreSQL | 🌐

- Text-based social platform with peer review system, reputation tracking, and structured debate framework

Technical Writing

- ARLIZ Book:** Comprehensive guide to data structures covering historical context and algorithm analysis (🌐)
- MATHESIS Book:** Mathematical foundations for computing from logic to complexity theory (🌐)
- The Art of Algorithmic Analysis:** Rigorous treatment of algorithm analysis techniques (🌐)

Additional Projects

- Cop:** Telegram moderation bot with Grammy framework, PostgreSQL, automated warning system, and admin dashboard
- NEXa:** Python CLI tool for dev.to article fetching with Docker deployment, pretty-printing, and category filtering
- VEX:** Personal Vim configuration with LSP integration, custom keybindings, and plugin management via vim-plug

RECOGNITION

Top 10 GitHub Contributor in Iran

15+ Technical Articles published on Dev.to and Medium (10K+ readers)

Framework Creator Gland event-driven backend framework

Book Author ARLIZ: 500+ page comprehensive guide to data structures & algorithms

Open Source 20+ repositories, 20+ contributions, active community engagement