

# MABOU KOUAM KARL

 [LinkedIn](#) |  +32 488 90 91 93 |  maboukarl2@gmail.com |  [GitHub](#)

## Summary

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Performance-driven Full-Stack Developer specializing in high-scale, real-time systems with expertise spanning robotics, fintech, and distributed architectures. Proven track record of delivering 10x performance improvements and building applications serving 25,000+ users with 99.9% uptime. Combines deep technical expertise in microservices, real-time data processing, and DevOps with strong business impact focus. Unique experience bridging web technologies with robotics/aerospace systems, making complex technical solutions accessible and scalable. Passionate about optimizing system performance, implementing robust monitoring solutions, and delivering measurable business value through innovative software architecture.

## Skills

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- **Programming Languages:** *Java, JavaScript, TypeScript, Python, PHP*
- **Frontend Technologies:** *React, React Native, Redux, SvelteKit, Vue.js, HTML5, CSS3, Tailwind CSS*
- **Backend Frameworks:** *SpringBoot, Node.js, Express.js, Django, FastAPI*
- **Databases:** *PostgreSQL, Redis, Firestore, MongoDB, PostGIS (Geospatial)*
- **Message Brokers & Streaming:** *Kafka, WebSocket, Socket.IO, ROS2 DDS*
- **Cloud & DevOps:** *Docker, Kubernetes, Vagrant, VirtualBox, GitHub Actions, CI/CD Pipelines*
- **Monitoring & Observability:** *Prometheus, Grafana, Loki, Dozzle, OpenTelemetry*
- **Authentication & Security:** *Keycloak, Firebase Auth, OAuth2, JWT, Role-based Access Control*
- **Robotics & IoT:** *ROS2, Telemetry Systems, Real-time Data Processing, Mission Planning*
- **API Technologies:** *GraphQL, Apollo, REST APIs, OpenAPI/Swagger*
- **Testing & Quality:** *Jest, Pytest, Unit Testing, Integration Testing, Test Coverage Analysis*
- **Geospatial Technologies:** *GeoServer, GeoTIFF, OpenLayers, Mapbox, PostGIS*
- **Architectural Patterns:** *Microservices, Event-Driven Architecture, Distributed Systems, Real-time Systems*
- **Version Control & Collaboration:** *Git, GitLab, GitHub, Agile/Scrum, Jira*
- **Languages:** *French (Professional Proficiency), English (Professional Proficiency)*

## Experience

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### Robotics Software Engineer Intern      Space Applications Services      Brussels Area | 02/2025 - 08/2025

- Developed MOSAIC C4I platform - a comprehensive robotics mission management system with 25+ microservices across 4 architectural layers
- Achieved 10x increase in telemetry processing capacity, handling 1000+ messages/second with <100ms latency and 99.9% uptime
- Implemented real-time WebSocket communication system processing 24 completed tickets across 5 sprint cycles
- Built Kafka integration reducing storage requirements by 60% and processing time by 50% with 99.9% message delivery guarantee
- Designed and deployed 10+ specialized UI plugins including 2D/3D mapping, mission planning, and robot control interfaces
- Achieved 57.7% test coverage on WebSocket server and 90% reduction in mission testing time through CLI automation tools
- Integrated ROS2 interface bridge supporting unlimited simultaneous robot instances with 20+ telemetry data types per robot
- Deployed comprehensive monitoring stack with Prometheus, Grafana, and Loki achieving 5-second dashboard refresh rates

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## FullStack Developer (Internship)

Wakafrica.NET

Remote 02/2024 - 05/2024

- Enhanced Wakafrica.NET platform serving 5,000+ active users with 40% improvement in page load times through SvelteKit optimization
- Implemented real-time data synchronization reducing data inconsistencies by 85% and improving user experience scores by 25%
- Built scalable Firebase authentication system supporting 1,000+ concurrent users with custom claims and role-based access control
- Developed 15+ Cloud Functions processing 10,000+ daily transactions with 99.5% success rate and <200ms average response time
- Achieved 95% automated test coverage and established CI/CD pipeline reducing deployment time from 2 hours to 15 minutes
- Implemented comprehensive Firestore security rules protecting user data across 50+ database collections with zero security incidents

## FullStack Developer

Arrah Solutions

Remote 09/2021 - 01/2023

- Developed Ekoh music streaming platform serving 25,000+ registered users with 98% uptime across web and mobile platforms
- Optimized GraphQL API performance achieving 60% faster query response times and handling 50,000+ daily API requests
- Implemented microservices architecture supporting 100+ concurrent streaming sessions with Redis caching reducing load times by 70%
- Built cross-platform mobile application (React Native) and web interface (React) maintaining 90%+ code reusability
- Established Docker-based deployment pipeline with GitHub Actions reducing deployment failures by 80% and release time by 50%
- Developed location-based mapping service processing 1,000+ daily geo-queries with <100ms average response time using similar tech stack

## FullStack Developer

PKFOKAM Research Center

Yaounde, Cameroon 01/2021 - 01/2023

- Built enterprise banking application serving 10,000+ customers with 99.9% uptime and processing \$2M+ in daily transactions
- Architected microservices backend with SpringBoot and PostgreSQL handling 500,000+ database operations daily with <50ms query times
- Implemented Keycloak authentication system supporting 5,000+ concurrent users with multi-factor authentication and zero security breaches
- Developed React Native mobile banking app achieving 4.8/5 app store rating and 80% user retention rate
- Created employee management platform (ReactJS) used by 200+ bank staff, improving operational efficiency by 35%
- Established automated testing suite with 85% code coverage and implemented database optimization reducing query response time by 45%

## Education

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### Master II (Information Systems Architect)

Ecole IT

Bruxelles, Belgium 10/2024 - 10/2025

- Relevant Courses: API et Microservices avec JAVA, Développement NodeJS, Développement Front - React JS, SQL, "NoSQL", Business Intelligence, Big Data, Test de Pénétration, "Virtualisation avec XCPNG", "Marketing et Stratégie d'Entreprise", etc.

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## Projects

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- **SAYIT** (2023): Created a Twitter clone named SayIT. Implemented features such as Google authentication using Firebase, tweeting, retweeting, liking, bookmarking, profile modification, etc.
- **KubeSentinel** (2024): Automated Kubernetes cluster deployment with integrated monitoring capabilities. Built a complete infrastructure with 1 control plane and 2 worker nodes, including Grafana monitoring dashboard and Kubernetes Dashboard. Supports Windows, Ubuntu, and Mac Intel systems using Vagrant and VirtualBox.
- **MoneyChangeApp** (2023): PHP application implementing optimal bill combination algorithm for currency exchange. Features Docker containerization, unit testing, and clean architecture design for calculating the most efficient combination of bills for any given amount..
- **MabsPlace Platform** (2023-2025): Personal portfolio and services platform built with modern web technologies. Multiple components including admin dashboard, PWA, landing page, and web application showcasing full-stack development skills and project management capabilities.