

Marc Vernet SOFTWARE ENGINEER

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WORK EXPERIENCE

Software Development Engineer

Jul. 2022–Present

Amazon Luxembourg

Luxembourg

- Reduced \$3.5M in annual logistics costs (transportation, fuel, warehouse operations) by designing and implementing network simulation service that models route optimization algorithms, analyzes real-time traffic patterns, and evaluates distribution center capacity to improve delivery efficiency across European fulfillment network.
- Collaborated in developing internal agentic AI tooling with **Rust** that automates code generation, test writing, and documentation, used across all of Amazon's engineering teams.
- Improved code maintainability and reduced technical debt by orchestrating **Java-to-Kotlin** migration for 10,000+ lines of logistics service code, implementing null-safety patterns and coroutine-based async processing with 95% test coverage.
- Reduced infrastructure maintenance time by 50% by implementing **CI/CD** pipeline with **AWS CDK** for automated deployments and infrastructure-as-code provisioning across microservices architecture.
- Maintained 99.9% uptime by developing and maintaining high-performance logistics orchestration systems processing millions of packages daily, handling real-time inventory updates and shipment routing across worldwide fulfillment networks.
- Reduced system downtime by 40% by implementing operational support processes, automated health checks, and resolving critical bugs across internal tooling services.
- Reduced system latency by 35% by implementing distributed caching layer using **Redis** and optimizing data access patterns with connection pooling across **microservices** architecture.

Business Intelligence Engineer

Jan. 2022–Jul. 2022

Amazon Luxembourg

Luxembourg

- Reduced false positives by 60% by implementing **ML**-powered infrastructure monitoring service using time-series forecasting and anomaly detection, analyzing 1M+ data points daily from server metrics, network traffic, and application logs to identify performance issues.
- Reduced average query time by 40% by optimizing **SQL** queries for **AWS RDS** cluster through index creation, query plan analysis, and materialized views, serving 5 internal organizations with business intelligence dashboards.
- Eliminated 40+ hours of manual work monthly by automating administrative tasks including data pipeline monitoring, report generation, and access provisioning using **AWS Lambda** and **Python** with **CI/CD** pipeline.
- Enabled data-driven workforce decisions by developing HR BI dashboards with retention analytics, hiring funnel metrics, and compensation benchmarking, serving 10,000 monthly users and providing actionable insights for leadership.
- Improved anomaly detection response time by 80% by designing and developing responsive monitoring UI with **React** and **AWS** backend services, supporting 50 daily users with real-time alerts and interactive visualizations.

Research Intern

Jan. 2021–Jan. 2022

Universitat Rovira i Virgili (URV)

Barcelona, Spain

- Improved prediction accuracy by 25% by developing **ML** predictive models (ensemble methods combining random forests and gradient boosting) for air pollution levels, processing daily PM2.5, NO2, and O3 measurements across 12 monitoring stations with feature engineering incorporating meteorological patterns.
- Contributed to published research by co-authoring academic paper and scientific journal article in environmental research, documenting novel feature selection techniques and model validation approaches for urban pollution forecasting.

TECHNICAL SKILLS

- **Languages:** Kotlin, TypeScript, Java, Rust, Python, SQL, C++
- **Frameworks:** React, Angular, Node.js, SpringBoot, Django, Rails, Nginx, LaTeX
- **Technologies:** RESTful APIs, Microservices, Linux/Unix, MySQL, PostgreSQL
- **Software Engineering:** System Design, CI/CD, DevOps, Test-Driven Development (TDD), Agile/Scrum
- **Cloud:** AWS CDK, AWS CI/CD pipelines, AWS Redshift, serverless development, AWS Lambda, CloudWatch

CERTIFICATIONS

AWS Solutions Architect (SAA-C03) | AWS Certified Cloud Practitioner | Cisco CCNA, Introduction to Networks

EDUCATION

B.S. in Data Science and Engineering

Polytechnic University of Catalonia (UPC)

Sep. 2018–May 2022

Barcelona, Spain