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Top Skills

National eHealth Infrastructure,
Public Health IT
Machine Learning

Languages

Albanian (Native or Bilingual)
English (Full Professional)
French (Limited Working)
German (Limited Working)
Italian (Full Professional)

Certifications

Health Information Exchange
Certified Developer
Health Informatics on FHIR
Certificate of Health IT Proficiency
(CHITP)
BPM Living Application Developer
GDPR - Data Protection Basics

Publications

Care2x Web Based Integrated
Healthcare Information and
Resource Planning

The Implementation of Care2x in a
Tertiary Hospital of Approx. 60,000
Patients

Gjergj Sheldija

Principal Architect | Healthcare Interoperability (FHIR) & Cloud Cost Optimization | MDR & AI Systems
Leipzig, Saxony, Germany

Summary

Principal Architect with 20+ years of engineering leadership, specializing in bridging modern cloud-native architecture (Go, Java, K8s) with rigid healthcare compliance (MDR, GDPR, FHIR). Expert in designing distributed systems for high-regulation environments and leading international teams through complex legacy migrations. Proven track record of delivering national-scale digital health solutions (UNICEF) and high-traffic commercial platforms (Trivago)

CORE COMPETENCIES

Architecture: Microservices, Event-Driven Architecture, Cloud Native, Distributed Systems.

Healthcare Standards: FHIR, HL7 (v2/v3/CDA), DICOM, IHE Profiles, MDR (Medical Device Regulation), GDPR.

Tech Stack: Go, Java, PHP (Legacy Modernization), Kubernetes, Docker, Python.

Leadership: Technical Strategy, Team Mentoring, Stakeholder Management, Risk Assessment.

Experience

RAYLYTIC

Principal Software Architect
January 2025 - Present (1 year)
Leipzig, Saxony, Germany

pearheading the architectural vision for Raylytic's clinical data platforms. I bridge the gap between complex regulatory requirements (MDR) and modern cloud-native engineering.

Core Responsibilities & Wins:

System Modernization: Rebuilt the legacy PROM application into a scalable, standard-based microservices architecture using FHIR.

Infrastructure: Orchestrated a cloud migration and optimization initiative that resulted in a 35% reduction in cloud spend and improved application performance.

Data Intelligence: Built the end-to-end BI pipeline enabling AI/ML models to generate real-time insights from existing clinical datasets.

Technical Leadership: Coordinating cross-functional teams to align technical roadmaps with business goals, ensuring all deliverables meet ISO 13485 and MDR safety standards.

Clinomic

System Architect

January 2024 - December 2024 (1 year)

Aachen, North Rhine-Westphalia, Germany

Designed high-performance architectures for critical care data systems, focusing on reducing technical debt and accelerating deployment cycles.

Key Deliverables:

Performance Engineering: Designed and built a new reporting engine that drastically reduced runtime and deployment frequency from days to hours, significantly improving data availability.

Interoperability Standards: Championed the adoption of FHIR SDC (Structured Data Capture) to modernize the internal data model and move away from legacy constraints.

Architectural Strategy: Developed and successfully prototyped a streamlined, high-speed system architecture that demonstrated superior performance over the legacy stack.

Sdui

Solution Architect

July 2023 - December 2023 (6 months)

Germany

Executed a rapid infrastructure modernization initiative for a leading EdTech platform, focusing on developer velocity and system stability.

Key Impacts:

GitOps Transformation: Led the migration from fragile, imperative Bash scripts to a declarative GitOps workflow, standardizing deployments and reducing failure rates.

Testing Velocity: Re-architected the testing pipeline to parallelize and optimize execution, slashing regression feedback times from hours to minutes.

Domain Standardization: Proposed and designed a Unified Common Data Model to eliminate data silos and ensure consistency across the company's distributed services.

Left to return to my core specialization in the Healthcare/MedTech sector.

RAYLYTIC

3 years 2 months

Technical Lead

February 2022 - July 2023 (1 year 6 months)

Leipzig, Saxony, Germany

Steered the engineering strategy and technical culture, ensuring the technology stack evolved to meet scaling business demands and strict regulatory requirements.

Core Responsibilities:

Strategic Tech Governance: Led the evaluation and transition of the technology stack (languages, frameworks, and libraries), balancing innovation with long-term maintainability and business ROI.

Automated Compliance: Partnered with DevOps & QA to engineer "Compliance as Code" workflows—automating CI/CD pipelines, testing, and technical documentation to satisfy MDR regulatory standards without slowing down development.

Engineering Culture: Built a high-trust, blameless engineering environment that encouraged rapid experimentation, error learning, and the adoption of modern cloud-native patterns.

Operational Excellence: Defined quality gates and maintenance strategies to ensure high system availability and alignment with business KPIs.

Software Architect

January 2021 - July 2023 (2 years 7 months)

Lead Architect for AIQNET, a digital ecosystem bridging the gap between legacy hospital data and modern AI research.

Key Technical Achievements:

High-Scale Ingestion (Big Data): Engineered a robust ingestion engine processing millions of HL7 v2 messages per day. Designed the translation layer to convert raw legacy streams into a fully standardized FHIR ecosystem in real-time.

Edge AI Deployment: Solved the "Data Privacy" bottleneck by architecting the infrastructure to deploy and run AI models directly inside hospital networks (On-Premise/Edge), enabling clinical inference without data ever leaving the secure zone.

Business Intelligence: Built an end-to-end BI pipeline that aggregated processed clinical data into actionable reports and real-time dashboards for medical researchers and hospital admin.

Interoperability: Orchestrated the complete lifecycle of data from hospital admission (HL7) to research-grade output (FHIR), serving as the technical link between administrative, legal, and engineering teams.

Senior Software Engineer

June 2020 - July 2023 (3 years 2 months)

Leipzig, Saxony, Germany

The AIQNET project aims to provide a digital ecosystem for enabling AI usage in clinical data.

Lead the refactoring of internal projects towards a standard-based micro-service based architecture implementation with cloud deployments, CI, and testing strategies.

trivago

Software Development Engineer

July 2018 - June 2020 (2 years)

Leipzig Area, Germany

Provide technical / engineering support for the Express Booking backend team. Develop, test, install, configure and troubleshoot computer software.

Work to create proper documentation, diagrams and other detailed instructions to help all employees make the best use of new technologies.

Key Responsibilities:

- Develop our high traffic web applications
- Implement new features to drive our products further
- Set-up efficient and high performing storage technology
- Connect multiple applications by services to perform data exchange efficiently

UNICEF

Lead Information Technology Specialist

December 2017 - April 2018 (5 months)

Albania

Lead Technical Expert for the national "Digitalization of Birth Records" initiative. I designed the architectural blueprint to digitize and transfer birth data from maternity hospitals to primary healthcare facilities nationwide.

Key Achievements:

National Interoperability: Defined and implemented custom IHE Profiles for neonatal care, establishing the country's first standardized protocol for digital birth reporting.

System Integration: Architected and deployed the secure integration layer connecting disparate Hospital Information Systems (HIS) directly to the State Health Registry.

Strategic Governance: Drafted the technical Terms of Reference (ToR) and feasibility reports, providing the Ministry of Health with the roadmap for platform procurement and implementation.

Stakeholder Coordination: Acted as the technical liaison between hospital administrators, government officials, and IT implementation teams to ensure regulatory compliance.

ONI

Software Architect

2007 - April 2018 (11 years)

Creation and maintenance of Hospital Information System for Mother Theresa, Trauma, Shefqet Ndraqi, Koco Gliozheni, Korca and Shkodra Hospital.

In the role of Software Engineer created the various modules such as : in/outpatient admission, discharge, transfer, billing, department, ward and bed management, hr module, medicament management, warehouse, supply chain, prescription management, diagnosis modules, administration module, surgery module, laboratory module and other helper modules.

Created reports based on Ministry of Health, Insurance Fund and hospital requirements.

In the role of System Administrator, created and configured linux servers, for system hosting, system testing, reporting, created custom ansible jobs for the creation and management of systems. Created CI server using Jenkins for testing and deployment. Created Elastic systems for the implementation of advanced search systems.

In the role of DBA, optimized database configuration to adapt to system load, optimized queries and database schema, created HA solution in MySQL with multimaster - multislave solution.

In the role Software architect designed custom solution to handle platform expansion and new services. Integrated HIS software with state eHealth platform using HL7 v3 protocol and CDA 3 level.

In the role of Team Leader mentored developers in the user of various technologies that comprise the HIS system. Coordinated requirements between management, hospital and the various teams. Lead effort to refactor application code and the use of automated testing technologies.

Managed team of network administrators and system managers in the effort of rearchitecting network and the creation of a custom cloud solution. Creation of new leads and opportunities for management team, cost reduction and company work automation.

Technologies used : linux, bash, ansible, java, spring, php, mysql, mikrotik, freebsd, cisco, nagios, cacti, windows, ldap, samba, mercurial, selenium, phpunit, birt, pentaho ETL

Biblioteka Universitare Shkoder

Senior Software Engineer

2007 - April 2018 (11 years)

Shkoder, Albania

Creation of Library management software complying with MARC, XMLMARC, Z39.50, OAI, SRU/SRW, ISO-25964-1 and SKOS.

Technologies used : JS, CSS, HTML, XML, XSLT, MySQL and PHP .

Creation of first Digital Archive in Albania, comprised of more than 70 000 scanned pages, realization of digital archive management software complying with Dublin Core, OAI PMH and Europeana standards.

Technologies used : JS, CSS, HTML, XML, XSLT, MySQL and PHP.

<http://adsh.unishk.edu.al/source>

Creation of Open Source community around those software which can be found at the following address : <https://github.com/floss-bush>

Creation and maintenance of internal LAN, firewall, filtering and user maintenance with remote VPN access.

Technologies uses : Linux, Samba, PostgreSQL, IPtables, LDAP, Mikrotik, Squid

Shkodra Software

Software Engineer / Co-Founder

2006 - 2008 (2 years)

Shkoder, Albania

Shkodra Software was the first software house in Shkodra, specializing in business management software, system integration, and web-oriented software. Develop internal software for client management, software distribution, licenses, and bug reporting, using technologies such as Linux, PHP, PostgreSQL, and Apache.

Designed websites and created content management systems for various organizations, including "Familja dhe Zhvillimi", Biblioteka Universiteti Shkoder, infoshkodra.com, etc.

Developed POS, warehouse management, and accounting software, using Java, jPOS, MySQL, and Linux. Consulting services for "eshkodra" project for local e-government and creation of the region's local information system. Collaborated with various international agencies in the creation of a central database for territorial economic policy development.

Contributed to various open-source projects as php-bridge, Care2X Healthcare, and the p2j library for Jasper Reports engine integration in PHP, Joomla, Mambo, mhr, TP+, Agata, Care2x, and p2j.

Shkodra Regional Council

Software Engineer

November 2004 - November 2006 (2 years 1 month)

Shkoder, Albania

Creation of a central network router, gateway, file server, proxying with Squid, content filtering.

Creation of the internal groupware in PHP and MySQL.

Creation of the internal statistical software in PHP and MySQL.

Creation of the website, CMS in PHP and MySQL.

NEC

Software Engineer

January 2002 - December 2002 (1 year)

Padova Area, Italy

Creation of a Training Program

Following J2EE blueprints. Technology used Java, JSM, Servlet, JDBC, AWT, Fortè 4.0; iPlanet, Tomcat as an application server.

Creation of a GUI for the administration of iPlanet, Tomcat. Creation of JDBC library for MS SQLServerLinux, Windows 2000 platform. Implementation and realization of the internal CRM for Mondadori. Following the JEE2 blueprints.

Technology used Java, Servlet, JSP, JDBC, JDom, JBeans, JAXM, JavaMail, Java Script, CSS, HTML and Fortè 4.0. Oracle DB. SunOS platform.

Mondadori

Software Engineer

March 2001 - December 2001 (10 months)

Web site traffic growth, web site UI and advertising revenue. Developed statistics systems.

Comprehensive database management and migration to Oracle.

Following J2EE blueprints. Technology used Java, JSM, Servlet, JDBC, AWT, Fortè 4.0; iPlanet, Tomcat as an application server. Creation of a GUI for the administration of iPlanet, Tomcat. Implementation and realization of the internal CRM for Mondadori. Following the JEE2 blueprints. Technology used Java, Servlet, JSP, JDBC, JDom, JBeans, JAXM, JavaMail, Java Script, CSS, HTML and Fortè 4.0. Oracle DB. SunOS platform.

ESIS

Software Engineer

January 2001 - April 2001 (4 months)

Padova Area, Italy

Implementation of the internal courseware management system in MVS / OS/390 using COBOL / DB2 / CICS.

Implementation of the internal courseware management system in Windows using Visual Basic 6.0, MS SQL Server 6.0.

Education

Universiteti i Shkodrës 'Luigj Gurakuqi'

Bachelor's degree, Computer Science · (2006 - 2009)

28 Nentori
· (1995 - 1999)