Lucas Pereira da Silva

General Information

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About

Senior Software Engineer with over 10 years of professional experience, combining academic rigor (PhD Student) with pragmatic, hands-on leadership to deliver mission-critical software.

I specialize in architecting scalable backend systems and RESTful APIs within distributed microservices environments, with a primary focus on Java, Kotlin, and Spring Boot. My expertise lies in high-stakes domains, including Fintech (Payment Orchestration) and High-Security (Post-Quantum Cryptography/NIAP) applications.

My core differentiator is my background as a Professor of Software Testing. I don't just write code; I elevate the engineering culture around me. I am a strong advocate for Test-Driven Development (TDD), Clean Architecture, and automated quality assurance.

Having navigated through highly diverse contexts, ranging from optimizing legacy government systems to leading mobile crypto projects, I have honed the ability to rapidly master new technologies and adapt to any business scenario. I thrive on solving complex problems and delivering excellence, regardless of the stack or environment.

Experience

08/2024 - present

Senior Backend Engineer at Ratio Technologies – United States (remote, full-time)

Core Developer for a scalable fintech platform, ensuring transactional integrity and high availability for sensitive financial operations within a distributed architecture.

Payment Orchestration: Engineered secure payment flows and banking data synchronizations, implementing deep integrations with Stripe, GoCardless, and Plaid to ensure data consistency.

Distributed Architecture: Architected and maintained a microservices ecosystem (20+ services) using Java and Kotlin (Spring Boot). Optimized data persistence and caching strategies using PostgreSQL and Redis.

Enterprise Integrations: Designed robust connectors for critical external ecosystems including Salesforce, Experian, and BoldSign, focusing on fault tolerance and error handling.

Cloud & Infrastructure: Managed cloud-native infrastructure on AWS (SQS, SNS, S3), implementing event-driven patterns. Provided full-stack support by developing UI components in Node.js and React.js.

10/2023 – 08/2024

Senior Software Engineer at FullStack Labs – United States (remote, full-time)

Initially employed as an outsourced contractor assigned to Ratio Technologies. After demonstrating the value of my technical contributions, I was offered a direct full-time position by the client, where I continued performing the same role.

Please refer to the position above for detailed responsibilities and technical stack.

09/2021 – 10/2023

Senior Software Engineer at Communication Security Group – Brazil (hybrid, full-time)

Led the engineering strategy for a secure communication platform utilizing Post-Quantum Cryptography. Directed product architecture in a high-compliance environment, ensuring data protection against advanced threats.

Engineering Leadership: Initially hired to lead the Android team, successfully expanded scope to lead the iOS team as well. Managed concurrent development across Java/Kotlin and Objective-C/Swift ecosystems.

Security & Compliance: Played a pivotal role in adapting the application to meet strict government security standards, driving the technical requirements to successfully achieve NIAP certification.

Real-Time Communication: Engineered Voice and Video call features using the SIP protocol, optimizing network handling to ensure high availability and low latency.

Architecture & Quality: Refactored legacy codebases on both platforms to eliminate technical debt. Implemented robust design patterns (State Pattern) to stabilize the application core.

Mentorship & DevOps: Mentored an intern through to a full-time Junior Developer role and maintained CI/CD pipelines using Atlassian Bamboo.

01/2020 – 09/2021

Software Development Manager of *Course Monitoring and Evaluation System (SAAS)* at Federal University of Santa Catarina – Brazil (on-site, part-time)

Led a multidisciplinary team of over 15 developers (staff, contractors, and students) to develop a national evaluation system for the Brazilian Ministry of Education (MEC), serving the entire federal distance learning network.

Team Leadership & Culture: Built a professional engineering culture by providing comprehensive training on software architecture, database design, and Git workflows. Successfully established a culture of quality through Test-Driven Development (TDD).

Architecture & Integration: Architected the system using JavaEE and designed RESTful APIs (Jersey) specifically for Moodle plugin consumption, enabling accredited institutions to seamlessly export and synchronize platform data.

Database Performance: Engineered a dynamic questionnaire system that generated PostgreSQL tables on-the-fly, significantly optimizing SQL join performance for complex reporting scenarios.

Mass Communication Service: Developed a robust mass email backend that handled throttling and provider policies (rate limits, unsubscribe links) to ensure high deliverability and compliance.

DevOps & Quality: Managed the continuous delivery lifecycle using GitLab pipelines with Docker, and enforced automated testing with Selenium and JUnit.

05/2017 – 09/2021

System Analyst at Federal University of Santa Catarina – Brazil (on-site, full-time)

Responsible for the development, maintenance, and infrastructure optimization of critical software products within a highly heterogeneous technical environment.

Infrastructure Optimization: Redesigned the server infrastructure for a complex legacy system (JSP-based), consolidating distributed testing and staging environments into a unified node to streamline the deployment pipeline.

Performance Tuning: Executed advanced JVM tuning on JBoss servers, specifically transitioning to the G1 Garbage Collector (G1GC) to resolve performance bottlenecks and optimize memory management strategies.

Cross-Platform Troubleshooting: Acted as a key troubleshooter for a diverse ecosystem involving Java, Ruby, Sybase, Oracle, PostgreSQL, and MySQL, resolving critical integration bugs across systems.

Process Improvement: Led the restructuring of the Level 3 Support workflow to optimize incident resolution. Designed and delivered a technical course on Software Testing to upskill the IT staff.

Feature Development: Maintained and developed core features using Java, Spring Boot, and PrimeFaces, ensuring stability across the application lifecycle.

02/2017 – 06/2017

Substitute Teacher of the *Software Testing Course* at University of the Vale do Itajaí – Brazil (contract, on-site)

Delivered a comprehensive Software Testing module for a post-graduate computer science program, bridging the gap between theoretical principles and advanced industry application.

Advanced Methodologies: Taught the full lifecycle of quality assurance, focusing heavily on Test-Driven Development (TDD) and the fundamental principles of software testing.

Test Automation Strategy: Instructed students on implementing Unit, System, and Acceptance testing frameworks using JUnit, Selenium, and Cucumber.

Techniques & Isolation: Covered advanced isolation techniques including Parameterized Tests, Mocks, and Stubs to ensure reliable test execution.

Code Quality & Architecture: Lectured on Test Design Patterns and the identification of Test Code Smells, training students to write maintainable and clean test code.

10/2016 – 05/2017

Full-stack Developer at Britehouse – South Africa (remote, full-time).

Specialized in the rapid design and delivery of software solutions for high-impact projects, collaborating directly with Product Owners to translate business requirements into functional applications under tight deadlines.

Logistics & Fleet Tracking: Engineered a geospatial monitoring system for delivery trucks, enabling real-time location tracking and route visualization using Node.js and MongoDB for geospatial data handling.

Event Management Platform: Developed a management system for a major cycling event, handling complex participant data and logistics in a fast-paced environment.

Frontend Engineering: Built interactive and responsive user interfaces utilizing both React.js and AngularJS, ensuring a seamless user experience across different product lines.

Full Stack Lifecycle: Managed the complete development lifecycle from backend logic with TypeScript and Node.js to database integration with MongoDB.

07/2014 – 04/2015

Software Developer at Lepidus Tecnologia, Florianópolis – Brazil (on-site, full-time).

Specialized in backend engineering and the customization of academic publishing platforms, acting as a Full Stack developer across Java and PHP ecosystems.

RESTful API Development: Engineered a high-performance Group Management API using JavaEE and the Dropwizard framework.

Polyglot Persistence: Architected data solutions using both MySQL (Relational) and CouchDB (NoSQL) to handle diverse data structures efficiently.

OJS Plugin Ecosystem: Extended the Open Journal Systems (OJS) platform using PHP, developing complex reporting plugins to extract insights from platform data.

Frontend Implementation: Built responsive user interfaces for the Java applications using FreeMarker, Bootstrap, and JavaScript.

Education

2024 - present

Ph.D. student in *Computer Science*.
Federal University of Santa Catarina – Brazil.
Thesis: Automatic Test Code Refactoring Using Similarity Metrics and Clustering Algorithms.

2014 - 2016

Master's degree in *Computer Science*.
Federal University of Santa Catarina – Brazil.
Dissertation: Reuse of Code and Execution of Test Fixtures between Test Classes.

2010 - 2013

Bachelor's degree in *Computer Science*.
Federal University of Santa Catarina – Brazil.
Course completion assignment: Webis: a Language and an Accessible Programming Environment.

Technical Skills

Core languages: Kotlin, Java, TypeScript, JavaScript.

Backend & Architecture: Microservices, RESTful APIs, Distributed Systems, System Design.

Frameworks: Spring Boot, React.js, Node.js

Cloud & Infrastructure: AWS (S3, SQS, SNS), Docker, CI/CD (GitLab CI, Bamboo, Gradle).

Data: PostgreSQL, Redis, MongoDB, MySQL, CouchDB.

Quality & Testing: Test-Driven Development, JUnit, Selenium, Cucumber, Mock.

Mobile Development: Android (Native), iOS (Native).

Languages

Portuguese: native proficiency.
English: full professional proficiency.

Publications

2021

Lucas Pereira da Silva and Patrícia Vilain. *Estória: A Framework for Code and Execution Reuse between Test Classes*. Journal of Computer Science.

2020

Lucas Pereira da Silva and Patrícia Vilain. *LCCSS: A Similarity Metric for Identifying Similar Test Code*. In: 14th Brazilian Symposium on Software Components, Architectures, and Reuse.

2017

Lucas Pereira da Silva and Patrícia Vilain. *Reuse of Fixture Setup between Test Classes*. In: 29th International Conference on Software Engineering and Knowledge Engineering.

2016

Lucas Pereira da Silva and Patrícia Vilain. *Execution and Code Reuse between Test Classes*. In: 14th International Conference on Software Engineering Research, Management and Applications.

Awards

2020

3rd best paper award of the 14th Brazilian Symposium on Software Components, Architectures, and Reuse, Brazilian Conference on Software.

2014

Student Merit Award. Best graduate student of Computer Science, Federal University of Santa Catarina, Florianópolis – Brazil.