

João Marco Maciel da Silva

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PROFESSIONAL SUMMARY

Software Engineer with 9+ years of hands-on experience in distributed systems, databases and high-volume data pipelines architecture, design and development at Microsoft and Google. Focused on designing, building and optimizing high-performance, fault-tolerant systems, and accelerating key projects across organizations. Progressive experience from backend development to leading mission-critical projects with proven track record in cross-functional collaboration. Proficient in Python, Java, C#/.NET, Go, Scala, C/C++.

PROFESSIONAL EXPERIENCE

Microsoft - Software Engineer 2, Microsoft AI Spartans team

São Paulo-SP, Brazil & Redmond, WA, USA (06/2019 - 03/2025)

- As part of Spartans, an elite engineering team, accelerated high-priority time-sensitive projects across Microsoft AI org by delivering targeted engineering solutions, and guiding teams through technical challenges to achieve measurable business outcomes. Demonstrated versatility in rapidly adopting new technologies based on project requirements.
- Worked with distributed storage solutions (Azure Data Lake, Azure Key-Value Data Store and HDFS) to handle multi-petabyte data volumes with proper consistency controls, implementing tiered storage strategies and sophisticated error handling mechanisms for greater fault tolerance and data governance.
- Led the migration of Bing's Content Discovery & Selection critical offline pipelines from Cosmos Scope to Apache Spark, reducing operational costs by 20% across large-scale data platform services while enhancing performance, resulting in potential savings in the hundreds of millions of dollars.
- Enhanced data freshness for Food Recipes pipeline from 7 days to under 2 days by optimizing pipeline performance and transitioning from weekly to daily execution, making it the first project to adopt a new document ingestion platform.
- Reengineered PipelineManager configuration framework, resulting in 30% performance increase across all Bing's Content Discovery & Selection bucketed pipelines without requiring modification to job implementations.
- Architected complex goroutine parallelization with custom pooling and queueing systems for retry caching in Microsoft Ads logging infrastructure, orchestrating Go and Java components via Kubernetes while integrating with Azure Service Bus, measurably improving data throughput, consistency and reliability.
- Deployed advanced distribution patterns including sharding for log processing and refined caching strategies that reduced API calls to Rewards and third-party systems by 90%.
- Designed and implemented microservice architectures for Low-Latency critical services, including Bing's Image Creator UserHistoryV2 REST API, focusing on scalability, maintainability, and service isolation.
- Established monitoring systems with alerting capabilities to maintain 99.9% service availability with rapid incident response across many projects.
- Designed BI dashboards that transformed raw data into visual analytics, enabling data-informed strategy development and quantifiable business outcomes.
- Integrated Sponsored Stories in Microsoft Ads, generating \$2.5M in revenue for high-traffic integrations while ensuring seamless user experience.
- Leveraged Knowledge Cards template system with flexible schema design, expanding data scalability and enabling the addition of over 100 million entities while maintaining sub-100ms response times.
- Crafted financial tracking and inventory management systems for Microsoft Rewards integration, implementing secure transaction processing with robust audit trails.
- Actively participated in neurodiversity and mental health initiatives that improved team collaboration and support for neurodivergent individuals by mentoring colleagues, advocating for inclusive workplace practices and being a founding member of the Mental Health & Neurodiversity group within the local Disability ERG chapter in Brazil.

Google - Backend Software Engineer, Proactive Team (Search Growth)

Belo Horizonte-MG, Brazil (01/2016-06/2019)

- Designed fault-tolerant streaming pipeline responsible for processing 11 billion log entries daily (100TiB+), by implementing advanced sharding, replication patterns, and windowing techniques.
- Engineered cross-team survey infrastructure with real-time log processing and template systems, enabling teams across YouTube, Geo, Search, and Assistant to collect user feedback through Google Opinion Rewards (1% of Search fleet), facilitating product improvements and impacting millions of users.
- Built comprehensive test automation and CI/CD pipelines to ensure high code quality, reliability, faster bug detections and faster releases.
- Utilized distributed storage solutions (Google Cloud Storage and Google Filestore) to manage terabyte-scale data with defined consistency controls, implementing precision-focused error handling mechanisms that increased fault tolerance.

Early Career Experience

- Google - Backend Software Engineer Intern, Social Infrastructure team (12/2014-02/2015)
 - Contributed to a system analyzing server profiles to detect performance differences using hypothesis testing, which became a standard validation tool for the Social org's production releases.
 - Improved the precision of statistical analysis by 10% through enhancements to the hypothesis testing methodology.
- Other Internships (01/2010-12/2015)
 - Gained foundational experience in software development at TAPPS Games, Drivedata Software, and CCSL, working with Java, Ruby, and Lua across web, mobile, and research applications.
 - Practiced agile methodologies including TDD, Pair Programming, and Continuous Integration in academic and professional environments.

EDUCATION

- Bachelor Degree in Computer Science - University of São Paulo 02/2011-12/2015
 - Relevant coursework: Distributed Systems, Algorithm Analysis, Database Design, Software Engineering, Agile (SCRUM & XP), Operating Systems, Linear Programming, Programming Languages, Machine Learning.
 - Exchange Semester at the Università della Svizzera Italiana, Switzerland (02/2013-06/2013), where I focused on Advanced Software Architecture and participated in research on Code Quality Analysis with international peers.

TECHNICAL SKILLS

- Data Engineering & ETL: Big Data Processing, Data Pipelines Architecture & Development, Apache Spark, ETL, High-Performance Data Delivery, Tiered Storage Management, Data Governance, Real-Time Analytics, Streaming Data, Data Modeling, SQL/NoSQL, BI Dashboards & Reporting.
- Cloud & Distributed Systems: Azure, GCP, Cloud-Native Services, Microservices Architecture, RESTful API Design, API Security, Caching Strategies, Low-Latency Services, High-Availability Design, Fault Tolerance, Container Orchestration (Kubernetes & Docker), Monitoring & Observability, Distributed Transaction Models, Distributed Storage Solutions (HDFS, Parquet (Columnar Storage Formats), Google Cloud Storage & Filestore, Azure Data Lake & Key-Value Data Store), High-Performance Computing (HPC).
- Programming Languages: Python, Java, C#/.NET, Go, Scala, C/C++, Ruby, Lua.
- AI/ML: AI/ML Fundamentals, Prompt Engineering, AI/ML Infrastructure, Data Ingestion & Preparation.
- Other CS Fundamentals & Software Engineering: CI/CD, Software Design, Backend Architecture, Test Automation & Test-Driven Development, Performance Optimization, Agile (XP & Scrum), Code Quality Analysis, Parallel and Concurrent Programming, Data Structures, Algorithm Design & Analysis, Azure DevOps, SDLC.
- Professional Skills: Cross-Team Collaboration, Leadership, Collaborative Problem-Solving, Technical Adaptability, Stakeholder Management, Growth Mindset, Constructive Feedback, Relationship Building Across Organizational Levels, Conflict Resolution Through Direct and Respectful Dialogue, Mentoring and Coaching.
- Languages: English (Fluent), Portuguese (Native).

PROFESSIONAL DEVELOPMENT

- Microsoft Professional Development (01/2019-03/2025):
 - Responsible AI Learning Path (4-hour), focusing on ethical AI implementation, governance and bias mitigation.
 - Copilot Prompt Engineering Learning Path (8-hour) training path covering advanced LLM interaction techniques.
 - Leadership Principles Learning Path (4-hour).
 - Advanced Cloud Architectures Learning Path (4-hour).
- K19 Trainings (01/2011-12/2011): Completed specialized training in Web Development with JSF2 and JPA, Persistence with JPA2 and Hibernate, Advanced Web Development, and System Integration with Web services.
- Caelum Trainings (01/2009-12/2009): Foundational training in Java and OO, Java Laboratory with Tests, XML and Design Patterns, and Java for WEB Development.

CONFERENCES & PROFESSIONAL DEVELOPMENT

- International Conference on ADHD (2020-2022): Attended three consecutive annual conferences focusing on neurodiversity, workplace inclusion, and mental health awareness.
- International Conference on Open Source Systems (10/2011): Presented research on multi-repository code metrics analysis tools.
- FISL13 (07/2012): Presented on open-source code monitoring networks.

PROFESSIONAL INTERESTS

AI & LLM Technology, AI Ethics & Responsible AI, Prompt Engineering, AI for Productivity Enhancement, Distributed Systems, Data Processing Pipelines, Software Architecture & System Design, Performance Optimization, Leadership, Backend Systems Architecture, Diversity & Inclusion in Technology.