

ALEXANDRE SANTOS

SOFTWARE ENGINEER

São Luís, Maranhão, Brazil / santos.alexandre.me@gmail.com

linkedin.com/in/sansalex / github.com/sans-script

SUMMARY

Software engineer combining hands-on software development with scientific curiosity and experimentation. Experienced in building full-stack applications for real-world operations and developing retrieval-augmented generation (RAG) systems through applied AI research. Approaches technical challenges by testing hypotheses, evaluating alternatives, and looking beyond simply making software work to improve implementation quality. Focused on turning complex problems into practical, effective software solutions.

EXPERIENCE

Software Developer Jan 2026 – Present

São Luís City Hall · Municipal Secretariat of Information and Technology (SEMIT) · Internship · On-site

- Built a full-stack ID card issuance platform for 700+ municipal guards using Next.js, NestJS, Prisma, and PostgreSQL, implementing authentication, role-based access control, audit logging, rate limiting, IP blocking, signed URLs, QR-code validation, and batch card generation and printing;
- Independently designed and implemented a case-management system for women experiencing violence using Next.js and NestJS, implementing role-based access control, multi-step intake workflows, case records, and reporting; added Playwright end-to-end tests, automated releases, and deployment configuration;
- Migrated 10,500+ historical records into PostgreSQL using Python pipelines with atomic transactions and validation scripts across multiple datasets;
- Built a Python- and SSH-based monitoring dashboard covering 50+ monitoring targets, providing real-time visibility into CPU, memory, disk usage, Nginx, PM2, and HTTP availability;
- Contributed to a municipal citizen-reporting application built with React, TypeScript, and Vite by implementing neighborhood polygon maps, filterable reports with direct links, responsive layouts, and a standardized service layer.

Software Engineer Sep 2025 – Sep 2026

Brazilian Hospital Services Company - EBSERH · Research Fellowship / São Luís, Maranhão, Brazil · Hybrid

Project under the Technological Initiation Program (PIT), funded by Brazil's National Council for Scientific and Technological Development (CNPq).

- Designed and built an end-to-end retrieval-augmented generation (RAG) chatbot for the University Hospital of the Federal University of Maranhão (HU-UFMA), spanning the backend pipeline and frontend interface;
- Implemented document ingestion, chunking, vector indexing with pgvector, and grounded response generation using LangChain and FastAPI; containerized the pipeline with Docker.

Frontend Developer Jan 2025 – Jul 2025

Inova Maranhão · Internship / São Luís, Maranhão, Brazil · Hybrid

State Secretariat of Science, Technology and Innovation program.

- Provided technical leadership for a multidisciplinary team building full-stack systems using React, Next.js, TypeScript, PostgreSQL, and Docker for social innovation and sustainability projects;
- Placed 2nd among 15 teams from across the state at the Trilhas Inova 2B 2025 hackathon.

Frontend Developer Feb 2024 – Feb 2026

The DevOPS Corp / Remote

- Built web interfaces and a reusable Angular and Tailwind CSS component library, integrating RESTful APIs;
- Applied TDD (Jasmine, Karma), CI/CD pipelines and agile practices (Scrum/Kanban);
- Mentored newer frontend developers on tooling and best practices.

SKILLS

TypeScript · JavaScript · Python · React · Next.js · Angular · Tailwind CSS · Node.js · NestJS · FastAPI · PostgreSQL · Prisma · pgvector · Docker · CI/CD · Git · REST APIs · Playwright · Jasmine · Karma · RAG · LLM APIs · LangChain · SSH · Software Architecture · Data Migration · Arduino / ESP32

EDUCATION

B.Sc. in Science and Technology, Computer Engineering 2024 – 2029

Federal University of Maranhão - UFMA / São Luís, Maranhão, Brazil

LANGUAGES

English: Advanced (C1)

Portuguese: Native