

**Jonathan Sansó** - Ssr. Full-Stack Developer (React / Node.js / NestJS) - AI Engineering (OCR & NLP) - Higher Degree in Programming

React | Next.js | TypeScript | Tailwind | Bootstrap | NestJS | FastAPI | Prisma | MySQL | PostgreSQL | MongoDB | Docker | NGINX | Debian | Git | GitHub

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## Professional Experience

### 1. Argentine Federal Penitentiary Service (Jan 2024 - Present) [Private links]

#### a) Institutional Platform for Complex Events - Frontend & Backend + AI Engineering

- **Lead developer** of a **national-scale** internal platform across multiple penitentiary units.
- **Designed and implemented an AI microservice (Python + FastAPI) for OCR and NLP**, enabling automatic text extraction from images/PDFs and smart field auto-completion inside institutional forms.
- Built **OCR pipelines** using Tesseract with custom preprocessing, language models, noise reduction and text reconstruction (de-hyphenation, whitespace normalization).
- **Developed OCR pipelines in Python (FastAPI + Tesseract)** to extract full text from institutional documents, and built an **NLP summarization** module that produces humanized, condensed summaries with configurable length. Added security classification (LOW/MID/HIGH) and basic inconsistency detection.
- **Integrated frontend AI actions in Next.js**: "Analyze with AI", auto-populated fields, and human-review workflows.
- **Replaced manual Excel workflows** by building Python (Pandas) ETL pipelines to normalize raw files, clean headers, unify establishment codes, convert dates to ISO-8601 and generate automated NestJS/Prisma import scripts for MySQL.
- **Dynamic forms** with complex validations, modals, file uploads, and image croppers.
- **Interactive maps (Leaflet/Google Maps)** for events and geospatial zones.
- **Automated PDF/Excel/Word reports** with statistical charts and temporal-spatial filters.
- **WhatsApp integration** for alerts and coordination.
- Secure architecture: Next.js, Tailwind, NestJS, Prisma, MySQL, Docker, NGINX on Debian; Auth0 2FA, CSRF, sanitization, rate limiting.
- Fully dockerized with automated backups on a self-managed Linux environment.

#### b) Public Web Verification Portal - Frontend & Backend

- **Public extension** of the Institutional Platform for Complex Events, providing secure document verification for national and international organizations.
- Verifies reports via **CV + CRC validation (HMAC-SHA256)** and issues **10-minute JWT view grants (HS256)** with server-controlled, time-limited access.
- **Anti-exfiltration controls**: disables copy/paste, print, and captures; adds recipient watermark overlay.
- Renders **TipTap JSON → HTML** with justified text and institutional formatting.
- Signed push **API** with **HMAC, idempotency keys, clock-skew validation**, and **SHA-256** file integrity checks.
- Stack: React (Vite), TypeScript, Tailwind, NestJS, Prisma, MariaDB, Docker/Compose, NGINX, Helmet/CORS.

#### c) Ticketing System - Frontend & Backend

- Internal **IT ticketing** platform in **PHP + MySQL** with **Google SSO**.
- Incident intake, assignment, status tracking, and audit trail.
- Streamlined maintenance **workflows** with **reliable, searchable history**.

### 2. VirtuaState - Frontend (May 2022 - Jul 2022)

- Built a responsive portfolio site for a **VR/AR studio (HTML5/CSS/JS, mobile-first)**, implementing **SEO** and **performance optimizations** to improve visibility and load speed. Live: [www.virtuastate.net](http://www.virtuastate.net)

## Education:

### 1. Higher Degree in Programming - Teclab (Aug 2022 - Aug 2024)

**Subjects:** Programming Logic, SQL Databases, Web Development (JavaScript, PHP), UX, Cloud Operations (AWS Practitioner), Project Management, Mobile Development (Java), Configuration Management, Web Integrations, Information Systems Design, Interface Development, Time & Work Organization, People Management, and Decision-Making & Problem Solving.

### 2. Frontend - Backend - CoderHouse (Jan 2022 - Mar 2023)

Delivered all projects on time using **HTML5, EJS, CSS, SASS, React, Node.js, MongoDB, Express**, and **GraphQL**, as seen at <https://react-e-commerce-j-sanso.vercel.app>