

**Jonathan Sansó** - Ssr. Full-Stack Developer (React / Next.js / NestJS) - AI Engineering (Applied NLP, OCR & Speech-to-Text) · Python Data Pipelines (Pandas) - Higher Degree in Programming

**Frontend:** React, Next.js, TypeScript, Tailwind, Bootstrap - **Backend:** NestJS (Node.js), FastAPI - **AI / Data Processing:** Pandas (ETL), OCR (Tesseract), Speech-to-Text (Whisper), NLP pipelines - **Databases:** MySQL, PostgreSQL, MongoDB (Prisma ORM), Supabase - **DevOps & Infrastructure:** Docker, NGINX, Debian Linux (self-managed) - **Tooling:** 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, scanned PDFs and audio files (speech-to-text), with 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 standardize large institutional datasets: header normalization, facility code mapping, ISO-8601 date conversion, document type/ID parsing, and export of clean files ready for automated MySQL imports via NestJS/Prisma.
- 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, 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>